

**CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.  
ELECTRIC CASE TESTIMONIES  
VOLUME 5**

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18	<u>Demand Analysis and Cost of Service Panel</u> William Atzl Yan Flishenbaum Lucy Villeta Christine Kim
19	<u>Electric Rate Panel</u> William Atzl Ricky Joe Sherry Sun

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1 **I. INTRODUCTION**

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

5 A. Our names are Lisa Primeggia, Nancy Shannon, Joan  
6 Jacobs, Michael Haggerty, King Look, and Michele  
7 Campanella. Our business address is 4 Irving Place,  
8 New York, NY 10003.

9 Q. By whom are the panel members employed?

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

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

14 A. **(Primeggia)** I am currently the Vice President of  
15 Facilities and Field Services for the Company. I have  
16 been employed by Con Edison since 1991, holding  
17 positions of increasing responsibility in a variety of  
18 support and operating positions including: Attorney,  
19 General Manager Substations Operations, General  
20 Manager Bronx/Westchester Electric, General Manager  
21 Manhattan Electric Construction. Effective November  
22 2018, I was elected to my current position, Vice  
23 President of Facilities and Field Services. As Vice

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1 President of Facilities and Field Services, I am  
2 responsible for operating and maintaining over 40  
3 facilities (office buildings and field operations  
4 locations/service centers) within the service  
5 territories of Con Edison and Orange and Rockland  
6 Utilities, Inc. ("O&R"), including: planning and  
7 project management; engineering services; environment,  
8 health and safety; and office services. I am also  
9 responsible for all the garages throughout Con Edison  
10 and O&R as well as Automotive Engineering and Fleet  
11 Administration, and for providing tanker support,  
12 material delivery services, and other logistics and  
13 emergency support services for the Company. I am  
14 responsible for approximately 600 employees between  
15 Con Edison and O&R. I earned a Juris Doctorate from  
16 St. Johns University, School of Law in 2003 and a  
17 Bachelor's Degree in Mechanical Engineering from  
18 Polytechnic University in 1991. I am admitted to the  
19 NYS Bar and the United States Patent and Trademark  
20 Office as a Practitioner.

21 (**Shannon**) I am currently the Vice President of Human  
22 Resources ("HR"). I assumed this position in June  
23 2018. In my current position, I am responsible for

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1 various human resources activities including Benefits,  
2 Compensation, Human Resource Support, Employee and  
3 Labor Relations, and the Employee Wellness Center.  
4 Specifically, my responsibilities include developing  
5 human resource policies and programs for the Company;  
6 negotiating and administering labor agreements that  
7 are compliant with federal, state and city regulations  
8 for human resource related activities (e.g., Family  
9 and Medical Leave Act ("FMLA"), Employee Retirement  
10 Income Security Act ("ERISA"), Health Insurance  
11 Portability and Accountability Act ("HIPAA"));  
12 directing the preparation of information requested or  
13 required for compliance; establishing wage and salary  
14 structure pay policies; implementing cost containment  
15 strategies for health benefit programs; negotiating  
16 administrative fees with health insurance carriers;  
17 recommending alternate benefit administrators and plan  
18 changes; managing a staff of over 100 professionals;  
19 and developing, implementing and monitoring all  
20 aspects of the Company's executive compensation.  
21 I joined Con Edison in 1989 as a management intern and  
22 have held positions of increasing responsibility in a  
23 variety of operating and support positions including:

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1 Director of the Employee Wellness Center, Director of  
2 Environmental Health and Safety Programs ("EH&S");  
3 Queens Meter Operations Manager; and Benefits and  
4 Compensation Manager. I earned a Bachelor's degree in  
5 Marketing from Saint John's University and a Master's  
6 degree in Industrial/Organizational psychology from  
7 Baruch College.

8 **(Jacobs)** I am currently the Vice President of  
9 Learning and Inclusion. I assumed this position in  
10 August 2014. In this role, I oversee the Company's  
11 training and conference facility called The Learning  
12 Center ("TLC"). I am responsible for design and  
13 delivery of professional leadership and technical  
14 training programs that meet the training needs of the  
15 Company. In addition to training and development, I  
16 am also responsible for engaging the workforce in  
17 fostering diversity and inclusion throughout the  
18 Company. My areas of responsibility include  
19 recruitment and staffing, skills training, leadership  
20 and career development, diversity and inclusion,  
21 performance management, and organizational  
22 development. I am responsible for managing a staff of  
23 over 200 professionals. I have over twenty-six years'

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1 experience in human resource management and law. I  
2 joined the Company in 2001 as director of Talent  
3 Management, and have also held the positions of  
4 director of HR Support Services, director of Equal  
5 Employment Opportunity Affairs and labor relations  
6 administrator. Prior to joining Con Edison, I was a  
7 labor attorney at New York Health and Human Services  
8 Union 1199. I also worked at the Ontario Human Rights  
9 Tribunal, the Labor Relations Board, and the Pay  
10 Equity Commission, in Toronto. I hold a bachelor's  
11 degree in political science from McGill University and  
12 a Juris Doctorate from University of Windsor Law  
13 School. I am currently a board member for CORO a  
14 leadership development organization that trains  
15 ethical, diverse civic leaders nationwide. I am also  
16 a graduate of CORO New York.

17 **(Haggerty)** I am currently the Vice President of Supply  
18 Chain. I have been employed by Con Edison since 1983,  
19 holding positions of increasing responsibility in a  
20 variety of support and operating positions including:  
21 Construction Management, Gas Operations, Human  
22 Resources - The Learning Center, Central Field  
23 Services, and EH&S. As Vice President of Supply Chain

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1 I am responsible for managing the company's annual  
2 expenditure of approximately \$2.8 billion in materials  
3 and services, and the warehousing operation which  
4 stores and disburses materials across the Con Edison  
5 and O&R service territories. I earned an MBA from  
6 Fordham University and a Bachelor's degree in Civil  
7 Engineering from Manhattan College.

8 I am responsible for approximately 260 employees  
9 between Con Edison and O&R. Approximately 80  
10 employees are in the Procurement Department and are  
11 responsible for procuring materials and services for  
12 operations and support departments. Approximately 180  
13 employees are in the Stores department and are  
14 responsible for storing, managing and distributing  
15 materials to Operations.

16 **(Look)** I am the Director of Research and Development.  
17 I received Bachelor of Engineering and Master of  
18 Engineering degrees in Chemical Engineering from  
19 Cooper Union, a Master of Science degree in Electrical  
20 Engineering from Manhattan College, and a Master in  
21 Business Administration degree in Computer Information  
22 Systems from Baruch College. I joined Con Edison in  
23 1983 as an Intern in the Management Intern Program.

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1 In 1985, I completed the Management Intern Program and  
2 joined the Mechanical Engineering Department as an  
3 Associate Engineer. Between 1985 and 2017, I worked  
4 in various departments, *i.e.*, Mechanical Engineering,  
5 Generation Planning, Corporate Planning, Resource  
6 Planning, Gas Operations and Electricity Supply and in  
7 various positions of increasing responsibility. In  
8 December 2017, I started in my current position. In  
9 this position, I am responsible for developing new  
10 products and processes to enhance the safety,  
11 reliability, efficiency, operational excellence, and  
12 customer engagement for Con Edison. I oversee fifteen  
13 employees, dedicated to managing and supporting R&D  
14 projects for the Company's electric, gas, and steam  
15 business units. I guide the overall department  
16 strategy and manage the overall R&D budget.

17 **(Campanella)** I am the Director of Corporate Security.  
18 I graduated from Clarkson University with a Bachelor  
19 of Science degree in Accounting in 1978 and from New  
20 York Law School with a Juris Doctorate degree in 1989.  
21 I am an active member of the Security Committees for  
22 the American Gas Association and the Edison Electric  
23 Institute. I am also a member of the Domestic

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1 Security Alliance Council, which is a collaboration  
2 between the Federal Bureau of Investigation ("FBI"),  
3 Department of Homeland Security ("DHS") and private  
4 industry. Prior to joining Con Edison, I was a  
5 Special Agent of the FBI from 1980 to 2008. Among  
6 other duties, I served as the Assistant Special Agent  
7 in Charge in the Washington Field Office, a position  
8 that included oversight of the Security Branch. As  
9 the Assistant Special Agent in Charge, I was  
10 responsible for the protection of the Attorney General  
11 of the United States and the Director of the FBI, the  
12 physical security of the properties within the  
13 Washington Field Office territory, and the  
14 investigative services related to personnel security,  
15 including polygraphs, background investigations, and  
16 clearances. Since September 2008, I have been the  
17 Director of Corporate Security for Con Edison. As the  
18 Director of Corporate Security, I formulate and direct  
19 security policies, practices and procedures for the  
20 Company. I direct the investigative and security  
21 related activities of forty-four investigators and  
22 staff; act as a liaison with Federal, State and local  
23 law enforcement agencies; advise senior executives on

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1 security-related matters; direct physical security  
2 surveys of Company facilities; and make and implement  
3 security recommendations throughout the Company. In  
4 addition, I develop specifications and monitor the  
5 performance of contract guard services, oversee cyber  
6 forensic investigations and implement training  
7 requirements for Company security personnel.

8 Q. Have any members of the Panel previously testified  
9 before the New York State Public Service Commission  
10 ("PSC" or "Commission")?

11 A. **(Campanella)** Yes, I have testified before the  
12 Commission as a witness in previous electric and gas  
13 rate case proceedings (Cases 09-E-0428, 13-E-0030,13-  
14 G-0031, 16-E-0060 and 16-G-0061).

15 **(Haggerty)** Yes, I have testified before the Commission  
16 as a witness in the previous electric and gas rate  
17 case proceeding (16-E-0060 and 16-G-0061).

18 **(Jacobs)** Yes, I have testified before the Commission  
19 as a witness in the previous electric and gas rate  
20 case proceeding (16-E-0060 and 16-G-0061).

21 **(Look)** Yes, I have testified before the Commission as  
22 a witness in a previous steam rate case proceeding  
23 (Case 99-S-1621).

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1           **(Primeggia)** No, I have not previously testified before  
2           the Commission.

3           **(Shannon)** No, I have not previously testified before  
4           the Commission.

5                               II. PURPOSE OF TESTIMONY

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

9    A.    Our purpose is to present the Company's required  
10           Shared Services projects and programs, and their  
11           respective funding requirements. Shared Services is a  
12           support organization, performing a number of different  
13           support functions. These support functions include  
14           logistical support activities; maintaining and  
15           improving the supply chain infrastructure throughout  
16           the Company; hiring and training all employees and  
17           where necessary, contractors; maintaining the  
18           Company's properties, and; providing physical and  
19           cybersecurity solutions. All of the projects and  
20           programs discussed in our testimony are common to the  
21           Company's electric, gas and/or steam businesses, and,  
22           in most cases, to O&R. The Company's Accounting Panel  
23           explains how these costs are allocated to Con Edison's

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1 electric, gas and/or steam service and, where  
2 applicable, O&R. Specifically, this testimony covers  
3 the Capital and/or O&M funding requirements for the  
4 Company's general equipment, R&D, security, human  
5 resources, learning and inclusion, and facilities and  
6 field Services functions. In presenting these  
7 initiatives, the Company's focus remains on the  
8 continued provision of safe and reliable service for  
9 our internal and external customers, operational  
10 excellence, and maximizing customer experience.

11 Q. Please summarize the Panel's testimony.

12 A. We describe numerous Shared Services efforts needed to  
13 support programs throughout the Company. Our  
14 testimony also discusses various efforts that Shared  
15 Services undertakes to reduce risk and enhance public  
16 and employee safety, increase operational performance  
17 and flexibility for the various operations, and  
18 enhance the customer experience and engaging our  
19 customers, in order for the Company to continue to  
20 provide utility services in a safe, reliable, and  
21 cost-efficient manner.

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

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1       **Second**, we will present several R&D initiatives in the  
2       areas of gas and electric services as well as a  
3       project aimed at capturing all information from past  
4       projects.

5       **Third**, we discuss three Corporate Security capital  
6       projects, one to replace obsolete closed circuit  
7       television ("CCTV") cameras throughout the Company,  
8       and another to replace obsolete recording devices, and  
9       lastly a project to enhance cybersecurity forensic  
10      capabilities.

11      **Fourth**, we address the capital program initiative to  
12      upgrade our HR Payroll application and the O&M costs  
13      associated with the strike contingency within Human  
14      Resources.

15      **Fifth**, we discuss Learning & Inclusion's Transforming  
16      Learning Through Innovation.

17      **Sixth**, regarding Facilities and Field Services, we  
18      will discuss building and demolition projects; several  
19      critical repairs and upgrades, including the repair of  
20      critical infrastructure of our various buildings;  
21      safety and environmental projects, and lastly the  
22      upgrade of a gasoline and diesel fueling station.



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1           • Safety and reliability for both customers and  
2           employees

3           • Operational excellence

4           • Customer experience

5 Q. Please elaborate on the Company's objective of  
6 maintaining safety and reliability.

7 A. The Company is embarking on numerous projects to  
8 enhance the safety of both our customers and  
9 employees. This includes capital projects to correct  
10 potentially unsafe conditions, address environmental  
11 issues, and maintain the structural integrity of the  
12 Company's buildings, install new fire hydrants, and  
13 eliminate the potential for harmful pollutants from  
14 entering the East River.

15 Q. Describe, in brief, how Facilities plans to achieve  
16 operational excellence with the funding requested in  
17 this filing.

18 A: Con Edison is in constant pursuit of doing more and  
19 doing better to provide the most cost-effective and  
20 reliable products and services to our customers. A  
21 great example, among many, would be the development of  
22 technologies which may reduce costs, improve  
23 reliability, upgrade capacity, and reduce the

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1 environmental impact of the underground and overhead  
2 transmission systems and substations.

3 Q: How does Con Edison plan to use the requested funding  
4 of this filing to enhance the customer experience?

5 A: Customer experience is at the core of Con Edison's  
6 mission as a major utility—ensuring that customers are  
7 seen, heard, and having their needs met effectively  
8 and efficiently. The Sherman Creek Service Center is  
9 but one example. In order to prevent over-congestion  
10 at existing Bronx and Manhattan service centers, the  
11 Company is continuing with planning for a new service  
12 center on Company-owned property in Northern  
13 Manhattan. The new facility is intended to address  
14 our internal customer expectations and anticipated to  
15 provide relief to the congestion experienced at the  
16 existing Manhattan and Bronx service centers, which  
17 continues to be a safety concern for pedestrian and  
18 vehicular traffic, as well as an impediment to  
19 productivity and response times for the various Con  
20 Edison field operation organizations.

21 **II. GENERAL EQUIPMENT**

22 Q. Please explain the Company's category of capital  
23 expenditures known as General Equipment.

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1 A. General Equipment represents specific categories of  
2 capital equipment, defined below, that are classified  
3 under the Uniform System of Accounts as General Plant.  
4 In general, these items have a purchase cost equal to  
5 or greater than \$500 and have a life expectancy of  
6 more than one year, as detailed in the Company's  
7 Corporate Instruction CI-610-1.

8 Q. What are the categories of General Equipment?

9 A. General Equipment consists of nine main categories of  
10 capital plant or "tools." Each is commonly referred  
11 to as an XM, which is a unique budget reference coding  
12 for the Company's General Equipment. The following is  
13 a list of the Company's XMs.

14	Office Furniture	(XM-1)
15	Transportation Equipment	(XM-2)
16	Stores Equipment	(XM-3)
17	Shop Equipment	(XM-4)
18	Laboratory and Test Equipment	(XM-5)
19	Tools & Work Equipment	(XM-6)
20	Miscellaneous Equipment	(XM-7)
21	Communication Equipment	(XM-8)
22	Computer Equipment	(XM-10)

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1 Q. Will all of the XM Categories be discussed in this  
2 testimony?

3 A. No. XM8 and XM10 will be discussed in the IT  
4 Testimony. All other categories will be discussed in  
5 this testimony.

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

8 A. General Equipment represents the tools and work  
9 equipment necessary and critical for employees to  
10 perform their day-to-day job functions. It includes,  
11 among other items, desks for offices, bucket trucks  
12 for overhead operations, shelving for store rooms,  
13 equipment for testing before entering manholes, jack  
14 hammers to break the street to locate underground  
15 equipment, safety hoists for entering underground  
16 structures, and radio frequency ("RF") equipment for  
17 employees to communicate.  
18 More specifically, the following example illustrates  
19 the vital role General Equipment plays and how it is  
20 interwoven into the Company's daily operations from  
21 the standpoint of reliability, efficiency and safety.  
22 An underground splicing crew requires, in addition to  
23 splicing equipment such as a propane torch, a van (XM-

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1           2) to deploy the crew to the site. A mandatory rescue  
2           device (XM-7) is setup for employee safety before  
3           entering the structure. The actual work of splicing  
4           the cable requires the mechanic to use various cutter  
5           and crimper equipment (XM-6) to install the new  
6           section of cable.

7           Replacement for General Equipment is driven by normal  
8           wear and tear, changing operational requirements, and  
9           changes in technology, among other factors, and is  
10          intended to provide Company employees the tools  
11          necessary to complete their tasks in a safe and  
12          efficient manner.

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

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

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

22    A.    On an annual basis, each Control Agency develops  
23          projected costs for each XM category for which it is

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1 responsible. With the exception of XM-2 (which is  
2 explained further in this testimony), the projected  
3 spending levels are based on the Company's historical  
4 needs for such equipment and the budget review process  
5 in which each organization forecasts its future  
6 capital equipment needs. During the budget process,  
7 each Control Agency requests that user organizations  
8 provide expected equipment needs. An equipment list,  
9 which includes prices, is provided to user  
10 organizations to assist them in developing their  
11 expected General Equipment requirements.

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

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

18 A. Projects are prioritized via a Capital Optimization  
19 methodology that helps to identify an optimal  
20 portfolio of projects that closely align with the  
21 Company's strategic goals. The Company has  
22 established a set of strategic drivers, each with  
23 relative weights based on long-term objectives, that

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1 are used to prioritize all projects on a consistent  
2 basis. We measure the General Equipment categories by  
3 the strategic drivers in order to aligned them to the  
4 Company's strategic objectives. The strategic  
5 assessment of each project is then presented to each  
6 user organization's Capital Optimization Team for  
7 approval. After the assessment of all projects is  
8 approved, we perform a prioritization analysis using  
9 optimization software and generate an optimized  
10 portfolio.

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

12 A. The Common Governance Committee ("CGC") reviews the  
13 "Common" capital budget, which is essentially all the  
14 XM categories as well as the many projects discussed  
15 in this testimony as well as some IT projects in other  
16 testimonies.

17 Q. What does the CGC do?

18 A. The CGC is comprised of officers that review and  
19 maintain oversight of Common capital expenditures.  
20 They review the initial budget and then meet quarterly  
21 to review the status of all the projects in the Common  
22 portfolio. The CGC reviews and approves projects

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1 included in the Common budget, including XMs, before  
2 it is formally incorporated into the budget.

3 Q. Once the list of needed equipment is finalized, what  
4 do the Control Agencies do?

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

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

18 A. We project the following capital expenditures:

- 19 • RY1 - \$49.4 million
- 20 • RY2 - \$49.4 million
- 21 • RY3 - \$49.4 million

22 Q. Have you prepared an exhibit entitled "General  
23 Equipment" that explains each category of General

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1 Equipment and detailing projected expenditures for XM  
2 General Equipment and Corporate Instruction CI-610-1?

3 A. Yes.

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

6 A. Yes, it was.

7 MARK FOR IDENTIFICATION AS EXHIBIT \_\_\_\_ (SSP-1)

8 Q. What does this Exhibit show?

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

11 Q. Why is the spending in these years lower than what was  
12 historically spent?

13 A. The budgets in RY1 through RY3 are lower than  
14 historical spend as the Company has already addressed  
15 the general equipment needs for the additional  
16 employees previously added to Gas Operations.  
17 Additionally, each year the CGC committee prioritizes  
18 projects, and as a result the XM budgets for RY1  
19 through RY3 have been reduced with some of that  
20 funding transferred to capital projects such as  
21 building, safety and environmental, and critical  
22 upgrade projects.

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1 Q. Please explain the increased expenditure in 2017 in  
2 the XM-1 budget.

3 A. In 2017, increases in XM-1 expenditure occurred  
4 because of the additional furniture purchased to  
5 increase per floor occupancy in renovated spaces at 4  
6 Irving Place.

7 **XM-1, XM-3, XM-5, XM-6 and XM-7**

8 Q. Please describe the categories of equipment controlled  
9 by Facilities and Field Services.

10 A. Facilities and Field Services is the Control Agency  
11 for Office Furniture (XM-1), Stores Equipment (XM-3),  
12 Laboratory Equipment (XM-5), Tools and Work Equipment  
13 (XM-6), and Miscellaneous Equipment (XM-7).

14 Transportation Equipment (XM-2) will be discussed in  
15 the next section.

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

19 The XM-3 budget category replaces warehouse and  
20 material handling equipment, including storage bins,  
21 pallet racks, pipe racks, shelving, and  
22 strapping/wrapping equipment. This equipment is used  
23 in the central warehouse/distribution facility and

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1 regional storerooms to operate and maintain materials  
2 and supplies for distribution to the electric, gas,  
3 and steam operating groups, and other Company  
4 organizations. The Company maintains a central  
5 warehouse to provide materials needed in the routine  
6 maintenance and construction of the Company's  
7 electric, gas, and steam transmission and distribution  
8 systems and infrastructure. It also operates  
9 approximately fifteen smaller satellite locations at  
10 various major workout centers. Some of the key  
11 satellite locations are located at Van Nest (Bronx),  
12 College Point Boulevard (Queens), Third Avenue Yard  
13 (Brooklyn), and Neptune Avenue (Brooklyn).

14 Q. Please continue.

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

17 Q. Please describe laboratory and testing equipment.

18 A. Laboratory and testing equipment includes volt meters,  
19 gas detectors, recorders, test boxes, and pressure  
20 gauges. These devices are used by field forces to  
21 test and evaluate electric, gas, and steam system  
22 components, including gas levels in the atmosphere

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1 when a worker descends into a manhole or around  
2 excavations.

3 Q. What is in the XM-6 budget?

4 A. The XM-6 budget category is designated for the  
5 replacement of tools and equipment, including portable  
6 pumps, chainsaws, and hydraulic jacks, pneumatic  
7 hammers, parts washers, and tire repair equipment.  
8 These devices are used by field forces to assist in  
9 the installation, repair and maintenance of electric,  
10 gas, and steam system components as well as for the  
11 repair of fleet vehicles. This category also includes  
12 devices that are critical to the life and safety of  
13 our employees, such as the safety lifting devices that  
14 allow employees who are overcome in a confined space  
15 to be lifted out by fellow employees from above, and  
16 Self-Contained Breathing Apparatus and Respirators  
17 with escape bottles to allow employees to enter  
18 underground structures and confined spaces when the  
19 atmosphere is unable to support human life.

20 Q. Please continue.

21 A. The XM-7 budget category represents the Company's  
22 miscellaneous equipment, such as, safety and training  
23 equipment, fire protection, and audio visual and

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1 photographic equipment, which includes security  
2 cameras and recorders and cafeteria and kitchen  
3 equipment.

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

7 A. We typically replace items covered under the XM-1, XM-  
8 3, XM-5, XM-6, and XM-7 categories when they are  
9 deemed beyond economical repair. In the past, tools  
10 and equipment have also been replaced due to procedure  
11 and/or specification changes. These changes are  
12 usually initiated by the operating departments due to  
13 operating or work practice changes and can be related  
14 to new tasks, or improvements in safety, quality or  
15 productivity.

16 Q. Can you provide an example of these changes?

17 A. Yes. One example is the replacement of retrieval  
18 devices and was implemented as recently as October  
19 2018. The retrieval devices included in the XM-6  
20 budget are used as rescue and material handling  
21 apparatus for our field crews that work in enclosed  
22 spaces. The units are positioned over manholes and  
23 vaults and are used as lifting devices. The existing

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1 devices were improved based upon feedback from the  
2 field. The Environmental Health and Safety ("EH&S")  
3 and Engineering organizations improved the device by  
4 making specification changes to the unit. The new  
5 devices offer improved ergonomics and durability over  
6 the present units.

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

10 A. The current inventory of tools, equipment and  
11 furniture would need to be maintained beyond their  
12 useful life and it is likely that personnel would not  
13 be using the most up-to-date equipment. This may  
14 result in increased maintenance and repair costs on  
15 older equipment and in potential delays to the  
16 operating organizations. In addition, if the Company  
17 is unable to acquire tools and equipment with  
18 technology improvements, such as noise reduction and  
19 ergonomics, this could potentially have an adverse  
20 effect on employee safety.

21 The XM-7 category includes equipment such as portable  
22 respirator mask fit testing devices to test for leaks  
23 when conditions require employees to wear respirators,

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1 and replacement security cameras and recorders at  
2 workout locations and substations.

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

6 A. Yes. We evaluate tools, equipment, and furniture  
7 before replacing them; only those that are deemed un-  
8 repairable or uneconomic to repair are replaced,  
9 except when the equipment is purchased due to  
10 operating or work practice changes requiring a new  
11 type of device. As a general practice, desks, chairs,  
12 and office partitions are reused within the Company  
13 whenever possible. In addition, the majority of  
14 contracts used to purchase new tools, equipment and  
15 furniture are competitively bid and, where possible,  
16 XM orders are consolidated to take advantage of volume  
17 discounts.

18 Q. What is the projected spending in RY1 through RY3 for  
19 these General Equipment categories (XM-1, XM-3, XM-5,  
20 XM-6, and XM-7)?

21 A. The projected spending levels for these General  
22 Equipment categories is \$9.0 million in RY1, \$9.0  
23 million in RY2, and \$9.0 million in RY3. The spending

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1 levels for each separate category are listed in  
2 Exhibit \_\_ (SSP-1)

3 **XM-2**

4 Q. Please discuss the next category of XM equipment.

5 A. The next category is items covered in General  
6 Equipment XM-2, Transportation Equipment. The XM-2  
7 category provides for the purchase of fleet vehicles  
8 and equipment, such as trucks, cars, cranes,  
9 construction equipment and forklifts used throughout  
10 our operations. Under this category of expenditures,  
11 the Company currently owns approximately 4,300  
12 vehicles, including passenger vehicles, bucket trucks  
13 and truck-tractors. Factoring in other pieces of  
14 mobile equipment, like backhoes, forklifts and  
15 trailers used to move equipment and materials, the  
16 Company owns over 5,000 pieces of rolling equipment.  
17 This figure includes highway, non-highway powered  
18 equipment, trailers and mounted equipment for tracking  
19 purposes. Exhibit \_\_\_ (SSP-1) sets forth projected  
20 XM-2 expenditures related to the replacement of  
21 existing equipment.

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1 Q. Please describe the manner in which the Company  
2 develops budgets for General Equipment XM-2  
3 "Transportation Equipment" .

4 A. The Company selects for replacement fleet vehicles and  
5 equipment based on age, utilization, maintenance  
6 costs, and reliability. The Company maintains a  
7 database of these assets, their associated operating  
8 costs and pre-established lifecycle target. Annually,  
9 the Company identifies vehicles and other equipment  
10 that are at or beyond their lifecycle target for the  
11 specified budget year. This serves as a starting  
12 point for vehicle replacement decisions. The Company  
13 uses its judgment and experience, as well as case-by-  
14 case evaluations of certain assets, in making  
15 replacement decisions.

16 Q. Can you please explain in more detail the methodology  
17 employed for that review?

18 A. We develop pre-established lifecycles for all vehicle  
19 specifications using factors related to capital costs,  
20 residual values, cost of maintenance and asset  
21 utilization over the life of a representative asset to  
22 determine an appropriate point at which it makes  
23 financial sense to replace such asset. We use this

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1 methodology to determine the most economical point to  
2 replace an asset rather than endure increasing  
3 maintenance costs and reduced reliability that would  
4 adversely impact our ability to respond to the  
5 maintenance of the T&D system. The lifecycle analysis  
6 also takes into account the change in maintenance  
7 costs as the asset ages. This optimizes the Company's  
8 overall cost to own and maintain these assets and  
9 identifies the optimum time to replace a deteriorating  
10 asset.

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

12 A. The Company maintains a table of various asset-types  
13 and their ideal/economic replacement age (pre-  
14 established life cycle target). This is a starting  
15 point and is further refined by looking at the  
16 specific assets chosen as candidates for replacement.  
17 Based on that review, the Company may either retain an  
18 asset that has performed better than its peer group or  
19 accelerate the replacement of an asset that is  
20 performing below its peer group.

21 Q. Do all fleet vehicles have similar established life-  
22 cycles?

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1 A. No. We establish lifecycles by spec code and they  
2 vary depending on factors such as vehicle usage,  
3 complexity, and application. For example, a utility  
4 truck in Manhattan used seven days a week for three  
5 shifts could be replaced before an older vehicle in  
6 Westchester that has two shifts of usage in a typical  
7 week.

8 Q. What would be the ramifications of not meeting the  
9 purchase requirements in the XM-2 category?

10 A. The cost to operate fleet vehicles and equipment  
11 beyond its economic life compounds if not replaced at  
12 an optimal point in its lifecycle. Over time, we have  
13 found that the cost to maintain this equipment can  
14 rise substantially in a short period of time if the  
15 replacement of equipment is deferred or delayed.  
16 Reduced spending on replacement equipment would result  
17 in older and less reliable fleet vehicles and  
18 equipment being kept in service. Vehicle availability  
19 may also be impacted, and in some cases, equipment  
20 would age beyond our ability to purchase replacement  
21 parts. The consequence of this would be the  
22 introduction of an adverse effect on operating  
23 personnel's ability to respond to emergencies and to

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1 perform routine maintenance and necessary construction  
2 projects. The Company cannot operate vehicles, such  
3 as red wagons, flush trucks, or bucket trucks that are  
4 not road worthy or capable of performing their  
5 functions. If adequate numbers of vehicles are not  
6 available, responses to system equipment failures,  
7 storm and weather related events and other emergent  
8 conditions could adversely affect customer restoration  
9 time.

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

18 Q. Do the proposed spending levels include any cost  
19 reduction efforts?

20 A. Yes, the Company's Transportation group annually  
21 evaluates the process for determining vehicle  
22 replacement described earlier. In some cases,  
23 Transportation employees have been able to work with

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1 manufacturers and engineers to improve maintenance  
2 designs and remove common causes of failures. For  
3 instance, Transportation continues to purchase flush  
4 trucks designed to eliminate several high priced  
5 components while incorporating a simpler more  
6 efficient water heating system and hydraulic drive  
7 system which reduces the overall procurement cost.  
8 These improved designs have reduced maintenance costs  
9 by eliminating known high maintenance components. And  
10 finally, by competitively bidding large contracts to  
11 multiple vendors, negotiating volume discounts with  
12 the major Original Equipment Manufacturers and  
13 establishing multi-year agreements the Company  
14 leverages its buying power by reducing up-front costs.  
15 Transportation also employs qualified mechanics who  
16 use the appropriate technology to effectively diagnose  
17 and repair equipment. We believe that these factors  
18 reduce initial cost and maintenance, all of which  
19 translate into being able to prolong the life of our  
20 assets and/or maximize the effect of our capital  
21 replacement programs. In addition, we continue to  
22 monitor and analyze the fleet size and seek fleet  
23 reduction opportunities.

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

3 A. We project to spend \$40.0 million in RY1, \$40.0  
4 million in RY2, and \$40.0 million in RY3.

5 **XM-4**

6 Q. Please describe the category of equipment known as XM-  
7 4.

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

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

16 A. The XM-4 Budget replaces Shop Equipment at the Van  
17 Nest Shops Operations Facility, the Transformer Shop  
18 in Astoria, and the Electric Operations Metering  
19 Facility located at Van Dam Street in Long Island  
20 City. The equipment requirement is based upon work  
21 load, which includes emergency fabrication of  
22 specialized parts, such as obsolete motor and pump  
23 seals, wear rings for pumps, and bushings; substation

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1 bus bars, bushings, tap changer items, bus duct, and  
2 disconnect switches; Compressed Natural Gas ("CNG")  
3 bypass equipment, cutting and taping tools, and  
4 regulator stations; and steam turbine and generator  
5 seals, blades, and bearings. The mentioned facilities  
6 support the electric distribution operations, Power  
7 Generation/Steam Plant equipment, Gas Transmission and  
8 distribution equipment, and Substation operations.  
9 For example, under XM-4, tools and equipment have been  
10 used to make repairs to feeder pipe lines, fabricating  
11 gas regulating stations, and repairs to disconnect  
12 switches and circuit breakers.

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

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

19 A. For the next three years we plan on replacing a  
20 computerized Numerical Control ("CNC") milling  
21 machine, a large horizontal boring machine and two  
22 manual lathes.

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1 Q. Describe the types of equipment recently purchased in  
2 XM-4?

3 A. In 2016 we completed the purchase of a hydraulic shear  
4 and a heavy duty bending break. We also performed the  
5 foundation and electrical work for the installation of  
6 these machines. We purchased four band saws,  
7 including a very large one. In 2017 we purchased a  
8 CNC lathe, a CNC five axis machine and three manual  
9 lathes. In 2018 we purchased an abrasive water jet  
10 cutting machine and completed the installation of the  
11 CNC lathe and five axis machine.

12 Q. How much do you plan to spend from RY1 to RY3 in this  
13 category?

14 A. We expect to spend approximately \$0.4 million annually  
15 from RY1 through RY3 for XM-4 equipment.

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

19 A. Yes, the equipment purchased with the XM-4 budget is  
20 procured through the Company's Supply Chain  
21 organization, which employs a bidding process for  
22 vendors on pricing of pieces of specialized equipment.  
23 This process can yield lower prices for equipment, and

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1 in some cases, cost savings can be acquired through  
2 combining the purchase of multiple pieces of equipment  
3 through a single vendor.

4 Q. Can you explain the discrepancies in the prior five  
5 years and the projected five years?

6 A. Yes. The amount spent during the past five years  
7 included substantial upgrades to our machine tools.  
8 Many of the machines that we replaced were over 20  
9 years old, were difficult to obtain replacement parts  
10 for and our maintenance costs were increasing. Most  
11 of the older large and high maintenance equipment has  
12 been replaced. We anticipate some upgrades to our  
13 shop in the next five years but at a reduced expense  
14 from the previous five years.

### 15 **III. RESEARCH AND DEVELOPMENT**

16 Q. Please describe the R&D organization.

17 A. The R&D organization conducts R&D efforts for both Con  
18 Edison and O&R. R&D is organized by energy commodity,  
19 with an emphasis on projects that further the  
20 Company's objectives: (1) reduce risk and enhance  
21 public and employee safety; (2) increase operational  
22 performance and flexibility; and (3) enhance customer  
23 experience and engagement. R&D, guided by corporate

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1 goals and objectives, and in consultation with other  
2 Company organizations, determines priorities, and  
3 develops the portfolio.

4 Q. What is the purpose of Con Edison's R&D program?

5 A. Con Edison's energy systems require continual  
6 modernization and reinforcement at all levels,  
7 including transmission and distribution. R&D assesses  
8 projects that take into account the aspects that are  
9 unique to our system, such as the significant  
10 population and energy infrastructure density of the  
11 Company's service area. Energy infrastructure density  
12 refers to the significant underground urban congestion  
13 of high-load density, large underground secondary  
14 network electric systems, and the multi-layered  
15 underground infrastructure of gas and steam pipes.  
16 This, in addition to their close proximity to water  
17 lines, telecommunication lines, sewer piping, subway  
18 infrastructure, and vehicular infrastructure, make any  
19 improvement or repair more complicated and time  
20 consuming.

21 Q. Why does the Company itself undertake R&D?

22 A. It has been the Company's experience that  
23 manufacturers are not willing to unilaterally develop

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1 technologies for challenges unique to the Company  
2 without any broader market potential. In order to  
3 stimulate development, the Company has found that it  
4 needs to fund research in its various sectors, often  
5 through full-scale demonstrations and pilot programs,  
6 in collaboration with partners where possible, to  
7 prove feasibility for concepts of value to the Company  
8 and its customers.

9 Q. Are there associated consequences to working in New  
10 York City streets that influence R&D projects?

11 A. Yes. The New York City Department of Transportation  
12 ("DOT") prefers that the Company limit street  
13 excavation to periods that are less impactful on  
14 pedestrians and vehicles, including working at night  
15 or on weekends, and under heightened noise  
16 restrictions. Also, due to New York City's  
17 installation of bike lanes and expanded pedestrian  
18 areas, the reduction of available vehicular lanes puts  
19 even further limitations on the opening up of streets  
20 to access the Company's energy systems. As a result  
21 of these constraints, the Company is working both on  
22 its own and with others to develop trenchless  
23 technology, which refers to the repair or

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1 rehabilitation of energy infrastructure without the  
2 need to excavate.

3 Q. Was a document, entitled "Shared Services - Research &  
4 Development - O&M and Capital," Exhibit \_\_\_(SSP-2),  
5 prepared under your direction and supervision?

6 A. Yes, it was.

7 MARK FOR IDENTIFICATION AS EXHIBIT \_\_\_(SSP-2)

8 Q. Is Con Edison projecting a change in R&D expenditures  
9 for RY1, RY2, and RY3 in relation to the level of  
10 expenditures in the twelve months ending September 30,  
11 2018 ("Historic Year")?

12 A. Yes. We are requesting an increase of \$100,000 in RY1  
13 and \$300,000 in RY3 in the overall R&D funding level  
14 required to accomplish the work in the R&D portfolio.  
15 The ratio of spending between the gas and electric  
16 commodities will also change, with an increase in the  
17 electric commodity spend and a decrease in the gas  
18 commodity spend. Additional detail is provided in  
19 Exhibit\_\_\_(SSP-2).

20 Q. How is the R&D portfolio developed?

21 A. The R&D portfolio is developed and prioritized in  
22 conjunction with the operating organizations. R&D's  
23 program is a combination of research undertaken

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1 collaboratively with external entities as well as  
2 projects developed and conducted internally. In  
3 addition to evaluating past successes and/or failures,  
4 the portfolio is continually refined to recognize new  
5 challenges to Company operations, to better define new  
6 needs - for example, improving resiliency - and  
7 planning and operational needs for integrating  
8 Distributed Energy Resources ("DERs") such as  
9 distributed generation, storage, building management  
10 systems.

11 Q. Please explain how Con Edison's R&D portfolio is  
12 established and managed.

13 A. The first step in the process is to determine whether  
14 a project meets the New York State Public Service  
15 Commission's definition of R&D. An analysis of each  
16 potential project is undertaken, with expected  
17 advantages reviewed against financial resources  
18 required for successful project development. The  
19 analysis considers:

20 (1) The probability of achieving success in a  
21 reasonable time period;

22 (2) the benefits of conducting the project(s),  
23 both qualitative and quantitative;

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1           (3) the cost of deploying the project if the  
2           research is successful.

3           These and other metrics, such as risk mitigation, are  
4           used to select and prioritize projects. Electric, Gas  
5           and Steam R&D activities, and their programs and  
6           budgets, are concurrently developed and reviewed to  
7           avoid possible duplications and to identify potential  
8           synergies with other R&D programs. There are, for  
9           example, potential synergies across commodities for  
10          EH&S tools, inspection techniques, damage assessment,  
11          weather impact, sensors and communications. Emphasis  
12          is placed on projects that show near and mid-term  
13          benefits, as well as long-term solutions. The project  
14          list is then reviewed and approved with senior  
15          management.

16   Q.    How often is the portfolio reviewed?

17   A.    The R&D portfolio is reviewed on an annual basis to  
18          assess potential projects, both those already  
19          authorized and new concepts.

20   Q.    Have there been successful R&D projects through the  
21          years?

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- 1 A. Yes. The Company has a long history of successful R&D  
2 project completions. Projects that have improved our  
3 Electric operations include:
- 4 1. The "Distributed Generation Quick Connect Plug"  
5 electric R&D project successfully developed and  
6 demonstrated a device that enhances the method of  
7 connecting generators to the secondary grid  
8 during a cascading event. By developing and  
9 installing the Distribution Generation ("DG")  
10 Plug at pre-determined locations, crews will be  
11 able to connect generators without splicing in a  
12 shorter timeframe. This will help with customer  
13 restoration efforts and be more cost effective by  
14 reducing the amount of cable splicing performed  
15 by the crews.
- 16 2. The "Structure Monitoring System" electric R&D  
17 project successfully developed and demonstrated a  
18 cost effective manhole monitoring system that can  
19 report back information such as the presence of  
20 elevated temperature, combustible gases and  
21 contact voltage. In 2017 the Company installed  
22 approximately 1,000 Structure Observation System  
23 ("SOS") units in critical Metropolitan Transit

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1 Authority ("MTA") structures, collecting data  
2 points from these structures. We have also  
3 collected many non-communicating units and  
4 analyzed their mode of failure to make further  
5 improvement to the SOS design to withstand the  
6 harsh underground environment. We finalized a  
7 new SOS Generation 1.5 design, which includes  
8 more sensors for better detection of conditions  
9 in our underground. The major additions are  
10 longer battery capacity, infrared camera module,  
11 power harvesting input, improved gas intake  
12 design, and three external sensor inputs  
13 (salinity, ground temperature and contact  
14 voltage).

15 3. The Company successfully pilot tested a meter  
16 collar, installed between the electric meter  
17 socket and the meter, which will facilitate the  
18 installation of customer sited distributed energy  
19 resource ("DER") and will also provide DER  
20 production data. The meter collar reduces  
21 customer costs for DER interconnection, including  
22 possible avoidance of service upgrades to the  
23 customer's main service panel. The DER

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1 production data will enable new opportunities for  
2 customer engagement such as shadow billing, other  
3 energy insights, and support for bill dispute  
4 resolution. The Company in 2018 has been  
5 installing these meter collars at customer DER  
6 locations in Staten Island along with the  
7 Advanced Metering Infrastructure ("AMI") meter  
8 installations there.

9 4. The "Technoeconomic Analysis of Electric Rail  
10 Regenerative Braking Benefit to Electric Power  
11 System" successfully studied and determined the  
12 technical and economic feasibility of the  
13 recuperation of rail regenerative braking energy.  
14 The MTA consumes approximately 2,150 GWh per year  
15 for traction power, and MTA New York City Transit  
16 alone consumes about 80% of the total annual MTA  
17 energy consumption. Today, only a small portion  
18 of the regenerative braking energy by MTA trains  
19 is recovered, contributing to supplying the train  
20 auxiliary loads and equipment, e.g. the onboard  
21 air-conditioning system. A subsequent project  
22 will investigate the optimal recuperation of rail  
23 regenerative braking energy.

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1 Q. Please describe some recent successful gas projects  
2 conducted under the current program.

3 A. Successful gas R&D projects include the following:

- 4 1. A natural gas dispersion study to understand how  
5 natural gas in a typical apartment's kitchen  
6 environment migrates through the room in order to  
7 understand the best placement for a residential  
8 methane detector and to evaluate the benefits of  
9 lowering the minimum alarm level of the  
10 Underwriter Laboratories standard governing  
11 residential methane detectors from 25% of the  
12 lower explosive limit ("LEL") to 10% LEL.
- 13 2. Development of a prototype Emergency Main Shut-  
14 Off System ("EMSOS") for a large diameter, low-  
15 pressure metallic mains to serve as an alternate  
16 to installing shut-off valves. The EMSOS  
17 stations will be placed in strategic locations in  
18 the distribution system in order to provide a  
19 lower cost alternative to installing isolation  
20 valves and will be available to provide for main  
21 isolation during emergencies.
- 22 3. Performed demonstration project of the Picarro  
23 Surveyor technology as a means of using

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1           advancements in leak detection technology for  
2           leak surveys while also seeking to minimize  
3           emissions of natural gas from the gas system.

4           4.    Developed a prototype ground frost monitoring  
5           station that measures and forecasts the depth of  
6           frost, which determines the performance of gas  
7           leak survey patrols over cast iron mains when a  
8           frost condition exists.

9    Q.    Are all R&D projects successful?

10   A.    No.    Because of the nature of R&D, some projects do  
11       not result in a successful product.  To address that  
12       challenge, most projects are conducted in phases to  
13       reduce the risk from overcommitting resources in  
14       advance, allowing one phase to be completed before  
15       committing resources, or not, to the next phase of the  
16       project.  However, the Company can never be sure of  
17       the final outcome for any R&D project.

18   Q.    You mentioned that the Company works collaboratively  
19       with others, please describe the Company's  
20       collaborative research efforts.

21   A.    For projects where the Company shares a common  
22       interest with others in the industry, the Company  
23       works with various utilities, industry, government,

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1           academia, and private organizations to conceptualize  
2           and develop new products.

3    Q.    Please name some of the groups that the Company  
4           collaborates with in the electric area.

5    A.    In the electric area, the Company works with the  
6           Electric Power Research Institute ("EPRI"), New York  
7           State Energy Research and Development Authority  
8           ("NYSERDA"), the Center for Energy Advancement through  
9           Technological Innovation ("CEATI"), the National  
10          Electric Energy Testing, Research & Applications  
11          Center ("NEETRAC"), and the New York Battery and  
12          Energy Storage Consortium ("NY-BEST").

13   Q.    Can you please further describe some of the mentioned  
14          organizations, such as EPRI, CEATI, NEETRAC and NY-  
15          BEST?

16   A.    EPRI works on the generation, delivery, and use of  
17          electricity for the benefit of the public. It is an  
18          independent, nonprofit organization that brings  
19          together scientists and engineers as well as experts  
20          from academia and the industry to help address  
21          challenges in electricity.

22          CEATI is a user-driven organization committed to  
23          providing technology solutions to its electrical

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1 utility participants, who are brought together to  
2 collaborate and act jointly to advance the industry  
3 through the sharing and developing of practical and  
4 applicable knowledge.

5 NEETRAC is a membership-based organization within the  
6 School of Electrical and Computer Engineering at  
7 Georgia Tech, which focuses on electric energy  
8 delivery and provides a wide array of analytical,  
9 engineering, research, and testing services to help  
10 improve electric grid reliability and efficiency.

11 NY-BEST was created to position New York State as a  
12 global leader in energy storage technology, including  
13 applications in transportation, grid storage, and  
14 power electronics. It serves as an important  
15 connector for all stakeholders including  
16 manufacturers, academic institutions, utilities,  
17 technology and materials developers, start-ups,  
18 government entities, engineering firms, systems  
19 integrators, end-users, and policy makers encompassing  
20 all stages of energy storage product development and  
21 use.



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1 peak demand on the grid and increasing network  
2 capacity utilization;

- 3 • Fast ramping support to mitigate the impact of  
4 solar generation on system load profiles;
- 5 • Support of renewable based power to remote  
6 locations and end-of-grid locations where the  
7 standard wires based solution is more expensive  
8 or time consuming.

9 **R&D - Gas**

10 Q. Please describe the Company's collaborative research  
11 efforts in the gas sector.

12 A. Con Edison works extensively with three research  
13 collaboratives that include other gas companies in the  
14 U.S. and Canada. These collaboratives are NYSEARCH,  
15 which began in New York, and Operations Technology  
16 Development ("OTD") and the Sustained Membership  
17 Program ("SMP") that are both part of the Gas  
18 Technology Institute ("GTI"). NYSEARCH and OTD both  
19 consist of member gas companies, some of which are  
20 members of both groups, such as Con Edison. The  
21 Company also works with the American Gas Association  
22 ("AGA") as well as the United States Department of  
23 Transportation Pipeline of Hazardous Materials Safety

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1 Administration ("PHMSA"). In addition, R&D staff  
2 maintains regular contact with other utilities, gas  
3 trade groups, universities, and technology developers  
4 as a further source for new ideas.

5 Q. Please provide some examples of collaborative research  
6 for the gas sector.

7 A. Working collaboratively with NYSEARCH, fifteen  
8 utilities throughout the nation and several government  
9 agencies over a nearly fifteen-year period, the  
10 EXPLORER robots have been developed for in-line  
11 inspection of our gas transmission mains. These  
12 robotic tools enable the inspection of un-piggable  
13 transmission mains without disruption in service. Un-  
14 piggable mains are those that are designed with plug  
15 valves and/or complex pipe bends that make the use of  
16 standard in-line inspection tools impossible. In  
17 addition, we have researched the advancement of  
18 residential methane detectors, and the development of  
19 non-destructive inspection and repair technology for  
20 the Company's polyethylene distribution  
21 infrastructure. The collaborative members for these  
22 projects are GTI through its OTD program, NYSEARCH,  
23 and AGA.

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1 Q. Please describe the Company's internal R&D program.

2 A. Con Edison's internal R&D program primarily focuses on  
3 problems that are unique to the Company's system. The  
4 program also focuses on the development of selected  
5 products that the Company may need to deploy in a  
6 timeframe that is earlier than that required by others  
7 in our industry, such as advanced methane detectors.

8 Q. Does the Company have internal programs for electric  
9 and gas systems?

10 A. Yes. Each area has a program that combines the  
11 collaborative groups as well as internal projects that  
12 we are developing in-house. The internal programs are  
13 discussed in "Shared Services - Research & Development  
14 - O&M and Capital," Exhibit \_\_\_(SSP-2).

15 Q. Is R&D funding currently subject to a reconciliation  
16 mechanism?

17 A. Yes, under the current Gas Rate Plan, Gas R&D funding  
18 is subject to a downward-only reconciliation  
19 mechanism.

20 Q. Is the Company proposing that Gas R&D expenditures  
21 continue to be subject to reconciliation during the  
22 Rate Year?

23 A. No.

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1 Q. Please explain why.

2 A. The Company does not believe that there is a  
3 reasonable basis for subjecting this individual  
4 element of Company expense to reconciliation and  
5 certainly not to downward-only reconciliation. A  
6 downward reconciliation of these programs has long  
7 lasting implications on our ability to pursue  
8 technological advancements by reducing funding for  
9 future efforts due to short term decline in  
10 expenditures.

11 Q. Didn't the Company propose, along with other signatory  
12 parties, downward-only reconciliation for Gas R&D  
13 expenses as part of the Joint Proposal made to the  
14 Commission in those prior rate cases?

15 A. Yes. The Company agreed to this provision as part of  
16 the give-and-take of the gas rate settlement process.  
17 However, downward-only reconciliation is particularly  
18 unreasonable when setting rates for a single year.

19 Q. Please explain why.

20 A. R&D's estimate of expenditures for gas is subject to  
21 variation as a result of unanticipated events and  
22 opportunities during the course of the Rate Year. A  
23 downward-only reconciliation mechanism fails to

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1 recognize that there is a reasonable likelihood that  
2 actual R&D expenses in any one year can be higher than  
3 forecasted and that it is in the customers' interest  
4 for the Company to make such expenditures to take  
5 advantage of R&D opportunities. The current  
6 mechanism, which is applicable to a multi-year period,  
7 provides some recognition of the annual variability of  
8 such expenditures by permitting the Company to  
9 accommodate the uncertainties inherent in undertaking  
10 and managing R&D projects. A one-year, downward-only  
11 reconciliation for gas projects would fail to address  
12 this annual variability in a reasonable manner.

### 13 **Knowledge Management System**

14 Q. Does the Company have an information management system  
15 to help manage the abundant R&D knowledge that has  
16 been accumulated over the years across the enterprise?

17 A. Currently we do not. We are proposing to develop and  
18 implement a R&D Knowledge Management System ("KMS").  
19 The KMS will support knowledge transfer of R&D  
20 expertise and expedite the innovation process in the  
21 Company. The KMS functionalities will include the  
22 ability to query across information repositories on  
23 corporate servers, mining for information over the

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1 corporate intranet and the Internet, automated  
2 categorization of existing and new knowledge for  
3 faster retrieval and mining, a scalable knowledge  
4 warehouse that stores the content and metadata of  
5 existing and future R&D or related documents, the  
6 ability to capture and manage tacit knowledge of  
7 experts and their experiences, and maintenance of a  
8 knowledge directory that links people to knowledge  
9 (*i.e.*, who knows what). In addition, the KMS will  
10 have the ability to track all R&D spending throughout  
11 the Company for R&D tax credit purpose and also  
12 include a digital workspace for users to collaborate,  
13 co-create and innovate while drawing upon the  
14 extensive knowledge base provided by the KMS.  
15 Estimated capital cost of the KMS is \$1 million.  
16 Additional information is provided in the KMS  
17 Whitepaper (Exhibit \_\_\_(SSP-2)).

18 Q. Do you propose any changes to the Company's R&D  
19 program?

20 A. Yes, we propose using the surcharge known as the  
21 Millennium Fund to also fund research efforts in the  
22 Gas Technology Institute's Utilization Technology  
23 Development ("UTD") program that the Company deems

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1 appropriate. The Commission authorized the creation  
2 of this fund in an Order issued on February 14, 2000  
3 in Case 99-G-1369 (February 2000 Order).

4 Q. Please explain why the Company proposes this change in  
5 this rate case.

6 A. The February 2000 Order recommendation on page 7  
7 states "Money collected via the surcharge mechanism  
8 should not be directed to fund natural gas appliance  
9 research \*\*\*." It further states "An LDC can petition  
10 the Commission for waiver of either of these  
11 conditions, if it believes that specific circumstances  
12 warrant". It has been almost 20 years since the  
13 Commission issued the February 2000 Order. Much has  
14 changed in New York State in that intervening period  
15 with respect to both state energy policy as well as  
16 natural gas supply. We believe that a waiver is  
17 appropriate now and that the categories of R&D  
18 programs eligible for funding under the February 2000  
19 Order should be expanded to include natural gas  
20 appliance programs.

21 Q. Please provide examples of policy and market changes  
22 since the February 2000 Order was issued.

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1 A. The R&D funding restriction related to natural gas  
2 appliances is no longer consistent with current New  
3 York State policy and environmental priorities. When  
4 this Order was issued, the view was that appliances  
5 are not part of the LDC's distribution system and,  
6 therefore, appliance research should not be funded by  
7 distribution ratepayers. Con Edison's Smart Solutions  
8 for Natural Gas Customers program and the Commission's  
9 approval of some of the demand-side initiatives in the  
10 Smart Solutions program demonstrates that the  
11 Commission now expects utilities to investigate more  
12 efficient means to meet what had been customers'  
13 traditional peak day natural gas needs, such as  
14 heating. Achieving efficiency or enhancing the  
15 flexibility of customer peak day demand are means for  
16 the Company to displace the need for additional  
17 interstate pipeline capacity and investment in  
18 utilization research can lead to more innovative non-  
19 pipe solutions to interstate pipeline capacity.

20 Q. Is the Company requesting a change in the Millennium  
21 surcharge to fund participation in the UTD Program?

22 A. No, the Company will use the existing funds collected  
23 to also include the UTD Program costs and is not

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1 otherwise requesting additional funds to use in this  
2 fund.

3 Q. Is the Company submitting this testimony as a request  
4 for waiver of the provision that excludes the use of  
5 the Millennium Funds for gas appliance research?

6 A. Yes, the Company requests that the Commission treats  
7 this testimony as its formal request for waiver.

8 Q. Has the Commission previously permitted the use of  
9 Millennium Funds for UTD research?

10 A. Yes, in National Fuel Gas Distribution Corporation's  
11 ("NFG") 2004 rate proceeding (04-G-1047), the  
12 Commission approved rate plan provided that NFG would  
13 be permitted to use Millennium Funds for approved end-  
14 use energy efficiency programs, not including DG  
15 projects, up to a total limit of \$500,000 annually.  
16 In addition, in the most recent Keyspan Gas East  
17 Corporation D/B/A National Grid ("KEDLI") and the  
18 Brooklyn Union Gas Company D/B/A National Grid  
19 ("KEDNY") rate proceedings KEDLI/KEDNY did not  
20 proposal a waiver of the restriction for UTD funding  
21 from the Millennium Funds, but proposed to include in  
22 rates the cost to fund UTD participation, which the  
23 DPS Staff Gas Policy and Supply Panel supported.

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1 The Company believes it would be a more efficient use  
2 of funds to use the Millennium Fund surcharge by  
3 obtaining a waiver instead of requesting separate  
4 funds for UTD.

5 Q. If a waiver is approved, how would the Company report  
6 on research activities of the UTD Program?

7 A. The Company would continue to report as required by  
8 the Commission's December 31, 1998 Order in Case 98-G-  
9 1304 Order (*i.e.*, the Company would continue to submit  
10 reports by April 1 every three years). If the  
11 Commission grants the waiver here, we would modify our  
12 report to include reporting on the UTD Program.

### 13 **IV. CORPORATE SECURITY**

14 Q. Please explain the responsibilities of Corporate  
15 Security.

16 A. Corporate Security's core mission is that of a  
17 comprehensive security program that allows for a  
18 proactive partnership with both our operating and  
19 support organizations along with external law  
20 enforcement, and governmental and regulatory agencies.  
21 To meet our mission, we have incorporated  
22 comprehensive security processes to protect critical  
23 infrastructure. These processes encompass a wide

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1 array of functional responsibilities including:  
2 policies and procedures, investigative and tactical  
3 response, cyber forensic investigations, electronic  
4 security systems, physical security measures, central  
5 station monitoring, compliance with governmental and  
6 regulatory initiatives and standards, security  
7 awareness training, and regular interaction with law  
8 enforcement at every level. We also provide oversight  
9 and guidance to both Facilities and operating  
10 organizations regarding their physical security  
11 measures and contract guard services at the various  
12 Company locations for which these organizations are  
13 responsible.

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

16 A. The Company is proposing three capital projects.  
17 These are: (1) the replacement of obsolete CCTV  
18 cameras throughout the Company; (2) the replacement of  
19 obsolete Digital Video Recorders ("DVRs") and Network  
20 Video Recorders ("NVRs") throughout the Company, and  
21 (3) cyber forensic investigative tools.

22 Q. What are the forecasted capital expenses for Security  
23 programs?

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1 A. The Company plans to spend approximately \$2 million in  
2 RY1, \$2 million in RY2, and \$2 million in RY3 in  
3 capital for these security programs.

4 Q. Do you have an exhibit entitled "Shared Services-  
5 Corporate Security-Capital" detailing the three  
6 capital programs?

7 A. Yes, exhibits were prepared for the three capital  
8 projects under my direction and supervision.

9 MARK FOR IDENTIFICATION AS EXHIBIT \_\_\_\_ (SSP-3)  
10 Con Edison recognizes its electric, gas and steam  
11 systems are a critical component of the infrastructure  
12 of New York City and Westchester County. To  
13 adequately safeguard its facilities, Con Edison  
14 continues to incorporate comprehensive security  
15 processes to protect the Company, its employees and  
16 its physical assets, such as generating stations and  
17 substations. Electronic physical security mitigation  
18 measures currently implemented consist of CCTV,  
19 intrusion detection, card access and DVR equipment.  
20 We continue to add facilities where we have these  
21 systems to our Security Operations Center ("SOC")  
22 where they are monitored on a 24x7 basis. This

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1 provides a central point for coordinating response  
2 protocols for security events and alarms.

3 **Camera Rollout Program**

4 Q. Please explain the first capital project being  
5 requested.

6 A. The first capital project replaces old and obsolete  
7 CCTV cameras and increases the number of cameras at  
8 critical locations. Each year more cameras are added  
9 to our network and currently there are almost 1,800  
10 cameras connected to the SOC. The industry standard  
11 for the useful life of most cameras is seven years,  
12 and although we deploy them for a longer period, at  
13 some point they are no longer supported by the  
14 manufacture, parts are no longer available and they  
15 are deemed "beyond economic repair." Corporate  
16 Security provides monthly updates regarding the  
17 operating status of cameras that are connected to the  
18 SOC. Corporate Security is responsible for  
19 standardizing and providing subject matter expertise  
20 on the most cost-effective CCTV cameras to install.  
21 As cameras continue to fail, requiring more servicing,  
22 they lose their capability of capturing quality video  
23 and even experience total video loss.

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1 Corporate Security intends to systematically replace  
2 outdated digital cameras with Internet Protocol ("IP")  
3 cameras, which will increase clarity and resolution  
4 for investigative purposes.

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

8 Q. Do you have an exhibit that provides additional  
9 information regarding the CCTV camera replacement  
10 project?

11 A. Yes. Additional information is shown in Exhibit \_\_\_\_  
12 (SSP-3) on the pages entitled "Corporate Security -  
13 Companywide Camera Rollout Program."

14 **DVR/NVR Replacement**

15 Q. Please explain the second capital project being  
16 requested.

17 A. The Company has over 180 DVRs and NVRs recording the  
18 1,800 cameras referred to above. This capital project  
19 would replace old and obsolete DVRs/NVRs on a  
20 rotational basis each year.

21 Q How do you select which DVRs/NVRs to replace each  
22 year?

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1 A. Initially we would replace the DVRs which record older  
2 analog cameras with the more technically capable NVRs  
3 and then replace the older NVRs by the criticality of  
4 the location.

5 Q. What is the life expectancy of a good quality DVR or  
6 NVR?

7 A. Under ideal conditions, which take into account  
8 temperature and dust control, the life expectancy is  
9 five to six years.

10 Q. What are the projected costs for this program?

11 A. The projected capital cost for the replacement of old  
12 and obsolete DVRs/NVRs is \$900,000 annually in RY1,  
13 RY2 and RY3.

14 Q. Do you have an exhibit that provides additional  
15 information regarding the DVR/NVR replacement project?

16 A. Yes. Additional information is shown in Exhibit \_\_\_\_  
17 (SSP-3) on the pages entitled "DVR/NVR replacement."

18 **Cyber Forensics**

19 Q. Please explain the third capital project being  
20 requested.

21 A. Corporate Security's cyber forensic investigative team  
22 has an operational need to purchase specialized  
23 equipment in order to meet the needs of acquiring,

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1           preserving, and evaluating Industrial Control System  
2           devices.

3   Q.   Do you have an exhibit explaining the addition of the  
4        cybersecurity forensic specialized equipment?

5   A.   Yes.  This program is discussed in further detail in  
6        Exhibit \_\_\_\_ (SSP-3).  This Exhibit is submitted on a  
7        confidential basis so as not to compromise the  
8        Company's cybersecurity efforts by potentially  
9        disclosing our strategies to persons that may seek to  
10       do harm to the Company.  This exhibit explains the  
11       need for additional equipment for forensic  
12        cybersecurity.

13   **V. HUMAN RESOURCES**

14   Q.   What is the HR organization responsible for?

15   A.   The HR organization consists of the following groups:  
16        Benefits, Compensation, Employee and Labor Relations,  
17        HR Support and Employee Wellness Center ("EWC").  The  
18        mission of HR is to "Advance workplace solutions,  
19        safety, and services through our commitment to  
20        excellence, innovation, engagement and wellness."  Our  
21        priorities of Ensuring Operational Excellence through  
22        Process Improvements, Productivity and Compliance and  
23        of Improving Safety support this mission and continue

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1 to be the basis for our initiatives, programs,  
2 services, and performance measures.

3 Q. What programs is HR sponsoring in this testimony?

4 A. HR is sponsoring one O&M program change: strike  
5 contingency. HR is also sponsoring a capital funding  
6 request: a HR PeopleSoft Upgrade.

7 Q. Do you have an exhibit titled "Shared Services - Human  
8 Resources - O&M and Capital" detailing these programs  
9 and their associated costs?

10 A. Yes.

11 Q. Was it prepared under your direction and supervision?

12 A. Yes, it was.

13 MARK FOR IDENTIFICATION AS EXHIBIT \_\_\_\_ (SSP-4)

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

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

18 Q. What are the forecasted expenditure levels for the HR  
19 PeopleSoft Upgrade program?

20 A. The company plans to spend approximately \$6.0 million  
21 in 2019 and \$2.3 million in RY1.

22 Q. What steps does HR take to control costs?

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1 A. HR controls costs by strengthening business processes  
2 through conducting self-assessments and employing  
3 technical solutions to replace manual processes as  
4 reflected in our HR capital project.

5 **HR Payroll System**

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

8 A. The HR capital project addresses the need to upgrade  
9 the HR Payroll system. Upgrading systems supported by  
10 vendors are critical in staying current on security  
11 patches and Internal Revenue Service("IRS") changes  
12 released as tax updates. The upgrade project will  
13 include new functionality called "Fluid Pages" which  
14 will allow for the deployment of the system to mobile  
15 devices.

16 Q. What is the HR Payroll System?

17 A. The HR Payroll system is the application that manages  
18 personnel data, time and labor, payroll, and benefits  
19 for all active employees and retirees for Con Edison,  
20 O&R and Con Edison Transmission.

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

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1 A. As referenced in Exhibit \_\_\_\_ (SSP-4), operating a  
2 payroll system without support is not recommended.  
3 Oracle will stop releasing tax updates for an  
4 unsupported product version, which means the Company  
5 would not have the latest information for withholding  
6 payroll and other taxes. In addition, failure to  
7 upgrade would impact the Company's ability to apply  
8 critical bug fixes and security patches.

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

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



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1 as shown in Exhibit \_\_\_\_ (SSP-4). This is based on our  
2 most recent experience with the contingency planning  
3 that occurred in 2016 for Local 1-2, and in 2017 for  
4 Local 3. One-fourth, or \$450,000, will be included in  
5 each rate year. The Accounting Panel will address the  
6 proper allocation of these O&M costs.

7 **VI. LEARNING & INCLUSION**

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

9 A. The L&I organization consists of the following groups:  
10 Talent Management, the office of Diversity and  
11 Inclusion, and TLC. We are responsible for delivering  
12 innovative training and development solutions that  
13 inspires employees to be engaged and deliver their  
14 best performance to achieve business excellence. Our  
15 mission is to deliver relevant, state-of-the-art  
16 training and development options to:

- 17 • Enhance technical and leadership skills and  
18 competencies of our employees
- 19 • Foster a culture of inclusion, equity and  
20 respect for all
- 21 • Engage employees to demonstrate behaviors  
22 that support our company values

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- 1                   • Advance meaningful performance and career
- 2                    development planning
- 3                   • Implement optimized sourcing and recruiting
- 4                    results

5                   **Transforming Learning Through Innovation**

6 Q.    What program is L&I sponsoring in this testimony?

7 A.    L&I is sponsoring one capital funding request:

8        "Transforming Learning Through Innovation."

9 Q.    Do you have an exhibit titled "White paper-Learning  
10        Inclusion Digital Learning Transformation" detailing  
11        this initiative and it's associated costs?

12 A.    Yes.

13 Q.    Was it prepared under your direction and supervision?

14 A.    Yes, it was.

15 MARK FOR IDENTIFICATION AS EXHIBIT (SSP-5).

16 Q.    Why is the project important to the company?

17 A.    This project is critical to the future of Learning in  
18        the Company as we strive to achieve our corporate  
19        priorities: safety, operational excellence, and a  
20        "plus one" customer experience. The goal is to  
21        develop and implement a learning model that provides  
22        technical proficiency and leadership skills to  
23        employees through various learning channels that will

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1           increase engagement, knowledge retention and  
2           compliance while offering cost effective training  
3           solutions across a variety of delivery channels.  
4           Employees will have an optimal level of competency  
5           with the flexibility to learn quickly to meet the  
6           demands of changing regulatory, industry, and  
7           technology environments. The project includes the  
8           integration of a mobile video training platform (cloud  
9           based) a content management platform and ultimately  
10          the replacement of the existing enterprise Learning  
11          Management System (eTrain). Our goal is to implement  
12          a state of the art learning program that blends our  
13          current successful learning process with the  
14          appropriate digital learning technologies to achieve  
15          high levels of performance.

16   Q.    What would the Capital funding include?

17   A.    The Capital funding would include a Mobile Learning  
18          Cloud-based Platform, a Content Management System and  
19          an LMS.

### 20   **VII. FACILITIES AND FIELD SERVICES**

21   Q.    Please explain the role of Facilities and Field  
22          Services.

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1 A. Facilities and Field Services is a support  
2 organization comprised of three major groups:  
3 (1) Facilities, which provides logistical support  
4 activities and maintains the Company's properties;  
5 (2) Transportation Operations, which provides  
6 maintenance and repairs to the corporate fleet and  
7 manages the fleet vehicle replacement program; and  
8 (3) Astoria Operations, which provides crane and  
9 rigging services, tanker support, technical services,  
10 Company-wide material delivery services, and manages  
11 and operates a hazardous waste storage facility in  
12 Astoria. The organization also provides logistical  
13 and support services during contingent and emergency  
14 situations.

15 Q. What projects and programs are Facilities and Field  
16 Services sponsoring?

17 A. Facilities and Field Services is sponsoring eleven  
18 capital projects and programs, which we have grouped  
19 into four separate project categories:

- 20 • Demolition and New-Build projects (three projects)
- 21 • Critical Repair and Upgrade programs and projects
- 22 (four projects)

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1 • Safety and Environmental Programs and Projects (three  
2 projects)

3 • Transportation Operations Project

4 Q. Have you prepared exhibits titled "Shared Services -  
5 Facilities and Field Services - Capital"?

6 A. Yes, we have.

7 Q. Were these exhibits prepared under the Panel's  
8 direction and supervision?

9 A. Yes, they were.

10 MARK FOR IDENTIFICATION AS EXHIBITS \_\_\_\_ (SSP-6)

11 Q. What are the forecasted expenditures for your  
12 Facilities and Field Services Capital projects and  
13 programs during RY1 through RY3?

14 A. The Company expects to spend approximately \$133.7  
15 million in RY1, \$91.1 million in RY2, and \$56.5  
16 million in RY3 for Facilities Capital projects and  
17 programs.

18 Q. What steps does Facilities and Field Services take to  
19 control costs?

20 A. For Facilities and Field Services projects, a team  
21 consisting of Engineering, Project Planning, Finance  
22 Planning and Analysis, and the Department's General  
23 Managers and Vice President meet on a weekly basis to

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1 review each project, its current working estimate, its  
2 construction status, and to discuss any projected cost  
3 under/over-runs in order to best manage the project  
4 portfolio. A similar team also meets with the  
5 Construction Services Department monthly to discuss  
6 project cost and construction status. These meetings  
7 provide an understanding of the relative position of  
8 each project in the Facilities' portfolio and help to  
9 allocate resources to keep projects on track and costs  
10 under tight control.

11 **Demolition and New-Build Projects**

12 Q. What does the first category of Facilities and Field  
13 Services project plan support?

14 A. The demolition and new-build project category supports  
15 the McKeon Door demolition project, the Sherman Creek  
16 Service Center project, and the Brinkerhoff Service  
17 Center project.

18 McKeon Door Demolition

19 Q. Please describe the McKeon Door building.

20 A. The McKeon Door building is a 133,000-sq.ft., one-  
21 story warehouse/light manufacturing structure with a  
22 two-story office space (mezzanine) at the north end of  
23 Company owned property in Brooklyn, adjacent to the

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1           Gowanus substation. The building structure consists  
2           of steel framing, exterior concrete/masonry walls,  
3           with several roll-up doors, and a brick veneer. The  
4           building interior includes a concrete floor slab with  
5           cement finish, interior Concrete Masonry Unit  
6           partitions, and various fire walls. The roof system  
7           includes steel open-web type bar joists on steel  
8           girders, a corrugated steel roof deck, built-up  
9           roofing and interior roof drains connected to the  
10          combined sewer. A water sprinkler system, electrical  
11          power and lighting, HVAC systems, along with water and  
12          sanitary sewer systems, are installed within the  
13          building.

14   Q.    For what purpose was this property purchased?

15   A.    The Company purchased the McKeon Door property in 2006  
16          to provide for the anticipated expansion of the  
17          adjacent Gowanus Substation. The building is  
18          presently vacant and has been used for various  
19          Facilities Operational functions such as salt storage.

20   Q.    What are the current plans for the property?

21   A.    We plan to demolish and remove the entire building  
22          structure and all its components, with perimeter  
23          foundation walls demolished down to 12 inches below

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1 grade. The existing piles and pile caps supporting  
2 the building structure will not be removed. Clean  
3 fill will be installed over the entire building  
4 footprint, including the perimeter wall areas, topped  
5 with bluestone graded to the surrounding area. A new  
6 chain-link fence and gate will be installed around the  
7 entire property for security and personnel protection.  
8 We plan on executing this demolition project starting  
9 in 2019 and completing the work in 2021.

10 Q. What are the estimated costs for the demolition?

11 A. The estimated capital cost is \$17 million, \$2 million  
12 in 2019, \$9 million in RY1 and \$6 million in RY2.

13 Q. Is there a need to demolish the property in the  
14 immediate future or can it wait for the planned  
15 Substation project?

16 A. The existing McKeon Door building has various safety  
17 and structural concerns. The building has been  
18 inspected several times since its purchase and found  
19 to have roof leaks and other structural issues with  
20 the existing roof bar joist system. The open-web bar  
21 joists are constructed with a "U" shaped channel  
22 design that is prone to holding stagnant water, and  
23 therefore corrosion, as opposed to a more reliable and

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1 robust open angle design utilized in modern joist  
2 construction. Continued deterioration could lead to  
3 the collapse of the building roof-structure. While  
4 there have been efforts in the past to repair roof  
5 leaks in various areas of the roof system,  
6 comprehensive and costly roof replacement work has not  
7 been done as the intent upon purchase was to demolish  
8 the building to accommodate the planned Gowanus  
9 expansion.

10 Q. Does the Company have current plans for the McKeon  
11 Door property following the demolition?

12 A. Yes. The Company is evaluating the McKeon Door  
13 property for use as a Service Center. The Company  
14 will be conducting exploratory work for this  
15 development beginning in 2022 and currently plans to  
16 begin construction in 2023.

17

18 Sherman Creek Service Center

19 Q. Is the Company planning to develop a new service  
20 center in northern Manhattan? If so, why?

21 A. Yes. As outlined in the Sherman Creek White Paper,  
22 the Company is continuing with planning for a new  
23 service center on Company-owned property in Northern

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1 Manhattan. The facility will provide relief to the  
2 congestion experienced at the existing Manhattan and  
3 Bronx service centers, which continues to be a safety  
4 concern for pedestrian and vehicular traffic, as well  
5 as an impediment to productivity and response times  
6 for the various Con Edison field operation  
7 organizations.

8 Q. The new facility was included in the 2017 Rate Plan  
9 and according to that filing, expected to be online by  
10 2019. Why has it been delayed?

11 A. As detailed in the Sherman Creek White Paper, during  
12 its initial planning for the facility, the Company was  
13 approached by the City of New York with a proposal to  
14 include the Company's planned facility in the City's  
15 rezoning of Inwood. The rezoning proposal provided  
16 for increased development rights on the Company's two  
17 largest parcels, thereby permitting a consolidation of  
18 the planned facility and for the sale (once the new  
19 facility came online) of the other Company-owned  
20 parcels that had originally been planned as part of  
21 the new facility. By delaying design development, the  
22 Company was able to work with the City and achieve a  
23 significant enhancement in the design and expected

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1 efficiency of the planned development. This is in  
2 addition to improvements with the Company's existing  
3 operations in its surrounding properties through the  
4 sale of additional City property to the Company and  
5 the ability to consolidate gas and electric operations  
6 into one facility.

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

9 A. The total estimated project cost based on engineering  
10 conceptual estimates is \$137 million. Planning for  
11 the project began in 2017 and is projected to be  
12 completed in mid-2021 (RY2). To date, approximately  
13 \$2 million has been spent on design and other related  
14 development costs. Assuming savings through the  
15 design-build approach, the Company is projecting  
16 spending at the following levels over the next three  
17 years: \$25 million in 2019; \$78 million in RY1 (2020);  
18 and \$32 million in RY2 (2021), for a total of \$137  
19 million. As detailed in the Sherman Creek White  
20 Paper, the Company is seeking an additional \$110  
21 million in RY1 and RY2 to complete construction of  
22 this project.

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1 Brinkerhoff Work Out Center

2 Q. Is the Company considering developing a new Work Out  
3 Center at its Company owned property in Jamaica,  
4 Queens?

5 A. Yes.

6 Q. What is the current construction estimate for the new  
7 Brinkerhoff Work Out Center?

8 A. \$19 million dollars, based on a Central Engineering  
9 conceptual estimate, however the Company expects to  
10 achieve a savings by employing a design-build approach  
11 for the development.

12 Q. What level of funding is sought in this rate plan  
13 request?

14 A. As noted, the estimated project cost is \$19 million  
15 dollars. We plan to spend \$2 million dollars on  
16 planning and design costs associated with the proposed  
17 service center in 2022. The \$17 million balance is  
18 for construction which is expected to go forward in  
19 2023-24 and therefore not included in this rate  
20 filing.

21 **Critical Repairs and Upgrade Projects and Programs**

22 Q. What does the second category of Facilities and Field  
23 Services capital spending plan support?

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1 A. The capital spending plan supports:

- 2 o Service Center Renovation and Store Room
- 3 Modernization Program
- 4 o Critical Infrastructure - Short Term Priority
- 5 Projects and Programs
- 6 o Roof Program Projects
- 7 o Facility Security Program upgrades Projects

8 The expenditure amounts are discussed below and are  
9 included in the previously mentioned capital exhibit  
10 SSP-6.

11 Q. Please explain the critical repair and upgrade  
12 activities of the Facilities group.

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

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

4 A. Most of the Company's facilities were constructed  
5 anywhere from 20 to 60 years ago. Projects set forth  
6 in the Exhibit are needed in order to correct  
7 potentially unsafe conditions, address environmental  
8 issues, comply with local, state, or federal  
9 regulatory requirements/building codes, maintain the  
10 structural integrity of the buildings, improve the  
11 overall condition of the buildings, and guarantee that  
12 the various equipment and systems required to operate  
13 these facilities are functional, economical, and  
14 practical.

15 Q. How does Facilities minimize costs?

16 A. Facilities minimizes costs in two ways; both relate to  
17 the proper identification and then strict monitoring  
18 of projects and their associated costs. With the  
19 assistance of Central Engineering - Facilities  
20 Engineering, Facilities identifies its projects via  
21 periodic programmatic assessments, such as the  
22 Facilities Roof Inspection, Steel/Concrete/Façade  
23 Inspection, Emergency Diesel Generator and Electrical

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1 System, Bathroom/Locker Room and HVAC Evaluation  
2 Programs, which the Company performs approximately  
3 every five years. The Company also uses the  
4 Engineering Service Request ("ESR") process, which  
5 evaluates a particular problem, assesses various  
6 solution options and then provides a conceptual scope  
7 of work/budgetary order of magnitude cost estimate.  
8 Facilities uses this information to then prioritize  
9 projects according to the following program  
10 categories: "compliance", "critical infrastructure -  
11 short term priority", "critical infrastructure -  
12 programs", "roof,", "energy efficiency", and "service  
13 center renovation". By studying, evaluating, and  
14 assessing the condition of equipment and systems,  
15 developing work scopes and cost estimates, and  
16 categorizing and prioritizing projects accordingly,  
17 Facilities develops an understanding of where to most  
18 effectively allocate its project funding and  
19 resources. This method had generally identified  
20 emergent projects and programs, such as, "compliance"  
21 and "critical infrastructure - short term priority" as  
22 targets for funding in the earlier years of its  
23 program rather than renovation projects and programs

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1 such as, "critical infrastructure - programs, "roofs,"  
2 "energy efficiency" and "service center renovations"  
3 being deferred until later years.

4 Critical Infrastructure - Short Term

5 Priority Projects and Programs

6 Q. Are there additional categories of projects that need  
7 to be undertaken?

8 A. Yes. There are two categories of work performed under  
9 Facilities Buildings and Yards - Critical  
10 Infrastructure, which are broken down into either  
11 Short-Term Priority "Projects" or "Programs". This  
12 category has a white paper included in Exhibit \_\_\_\_  
13 (SSP-6), entitled "Facilities Critical Infrastructure  
14 Short Term Priority/Program".

15 Q. Please first describe the projects under Critical  
16 Infrastructure - Short Term Priority Projects  
17 (emergent).

18 A. These are projects that we have initiated because they  
19 are deemed necessary to maintain the structural  
20 integrity of the Company's Facilities' buildings, to  
21 allow them to operate as designed, or to protect  
22 critical equipment (e.g., high maintenance or obsolete  
23 HVAC systems, LAN Room AC Installations, Yard Paving).

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1 We add Critical Infrastructure Short Term Priority  
2 projects to the list as ESRs are completed, equipment  
3 nears end-of-life, or programmatic assessments are  
4 performed that deem these projects as high priority.

5 Q. Can you please provide examples of some of these  
6 short-term priority projects?

7 A. Yes. Examples of projects in this category involve  
8 rehabilitating severely corroded building and yard  
9 drainage systems, rehabilitating building envelopes  
10 such as facades, windows and exterior walls,  
11 performing yard paving and/or resurfacing, and  
12 replacing or refurbishing failing and problematic HVAC  
13 systems. There are several projects currently listed  
14 in this category for the rate years, however history  
15 has shown that additional projects may arise that need  
16 to be undertaken on an expedited basis. The Critical  
17 Infrastructure Short-Term Priority projects category  
18 is a contingency fund for such emergency situations.  
19 Examples of past short-term priority capital projects  
20 include:

- 21 • 3rd Ave Yard Stores Building 1 - Remediation of  
22 Cracks on Building Walls for \$2.3 million in 2020 &  
23 2021.

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1       • Victory Blvd - Conference Room A/C Unit for \$0.2  
2       million in 2020.

3       • Van Nest Compressed Gas Cylinder Storage for \$0.3  
4       million scheduled for 2020.

5   Q.   Now, please describe the projects under Critical  
6       Infrastructure - "Programs" (programmatic, lower  
7       priority).

8   A.   These capital programs are also intended to maintain  
9       and improve the overall conditions at the buildings  
10      and yards as well as maintain the facilities.

11      We list projects in the Critical Infrastructure -  
12      Programs Category either as a result of a completed  
13      ESR or program assessment or based on engineering or  
14      historical knowledge of the systems and equipment  
15      (e.g., since the expected life of a Freon-based HVAC  
16      system is approximately 20 to 25 years, units that are  
17      15 years or older will be listed in the five-year  
18      plan). A completed ESR provides a scope of work and  
19      budgetary order of magnitude cost estimate required to  
20      address a system problem. The full scope of these  
21      projects is outlined in the white paper entitled  
22      "Facilities Critical Infrastructure Short-Term  
23      Priority/Programs".

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1 Q. Does Exhibit \_\_\_\_ (SSP-6) detail the expected critical  
2 infrastructure programs to be undertaken in the next  
3 several years?

4 A. Yes. This Exhibit \_\_\_\_ (SSP-6) lists these upcoming  
5 programs.

6 Q. Do you have an example of how Facilities Engineering  
7 studied, evaluated and assessed the condition of  
8 equipment/systems, and then developed the most  
9 efficient work scope to address a problem?

10 A. Yes. One example of the process described above is  
11 the Rye Headquarters HVAC Replacement Project,  
12 detailed in the white paper entitled "Critical  
13 Infrastructure Short-Term Priorities/Programs". As  
14 you can see, Facilities Engineering weighed two  
15 different options at different ends of the cost  
16 spectrum, analyzing equipment age,  
17 condition/maintenance history and environmental  
18 impacts before choosing an effective, cost-efficient  
19 replacement.

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

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1 A. In RY1, we project expenditures of \$13.5 million; in  
2 RY2, we project to spend \$13.5 million; and in RY3, we  
3 project to spend \$13.5 million. The capital exhibit  
4 shows the associated projects we are requesting.

5

6 Roof Replacement Program

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

9 A. Facilities Engineering inspects each roof on a  
10 periodic basis and recommends critical repairs or roof  
11 replacements as required. A roof generally has a  
12 life-span of 20 to 25 years, provided that repairs are  
13 made in accordance with the five-year inspection  
14 reports. We plan to address the roof replacements at  
15 various facilities across our territories, including  
16 The Learning Center, Victory Boulevard, 16th Street,  
17 Atlantic Avenue, and Bruckner Boulevard as indicated  
18 in Exhibit \_\_\_ (SSP-6), white paper entitled "Roof  
19 Replacement/Repair Program). Note that these roof  
20 projects are intended to be completed prior to  
21 failure/water leakage into the building.

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

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1 A. For roof replacement and other anticipated work as a  
2 result of the ongoing roof inspection program, we  
3 project spending approximately \$5.0 million in RY1,  
4 \$5.0 million in RY2, and \$9.0 million in RY3.

5 Q. Please explain the projected increase from RY1 to RY3.

6 A. Facilities Engineering, with the assistance of an  
7 outside consultant, performs periodic roof inspections  
8 to assess the condition and damage at the various  
9 facilities. The Company looks to evaluate each roof  
10 every five years. Based on the roof condition and  
11 level of damage, the assessment provides each location  
12 with a numerical rating (*i.e.*, from 1-10, with 10 being  
13 the worst). This information, along with the year  
14 inspected, can be seen in the Roof White Paper and in  
15 Exhibit \_\_\_ (SSP-6). Facilities Engineering uses that  
16 information, along with the importance/criticality of  
17 the facility (*i.e.*, TLC, Headquarter Buildings, etc.)  
18 and stakeholder feedback (obvious leaks/complaints) to  
19 establish the five year plan.

20 Facilities Service Center Renovation

21 and Store Room Modernization

22 Q. Please explain your Facilities Service Center  
23 Renovation and Store Room Modernization Program.

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1 A. Service Center Renovation projects are performed each  
2 year to maintain and improve on overall conditions at  
3 Con Edison buildings and yards. This program will  
4 renovate various office spaces located within the  
5 Company's Headquarter Buildings (such as Flatbush Ave,  
6 Rye HQ, and Davis Ave) and Service Centers (such as  
7 Worth Street and Eastview), many of which have not  
8 been renovated since their original construction.  
9 Much of the infrastructure at Con Edison buildings and  
10 yards is outdated. The air conditioning is  
11 essentially unchanged since it was installed, with  
12 inefficient controls that result in unsatisfactory  
13 comfort levels in the buildings. As part of the  
14 renovations, all the distribution ductwork and  
15 controls will be replaced, including Variable Air  
16 Volume ("VAV") systems that change the air flow  
17 depending on need. Similarly, lighting will be  
18 completely replaced with an energy-efficient system  
19 that responds to a central controller and dims at the  
20 perimeter to respond to available daylight. All  
21 renovated floors will have wireless access.  
22 The Storeroom Modernization project aims to  
23 consolidate the various storerooms within service

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1 centers, originally created by individual operating  
2 groups, into one main storeroom in each service  
3 center. The primary purpose of the project will be to  
4 reduce material and tool redundancy, minimize physical  
5 storeroom footprints, streamline and standardize  
6 processes, and optimize staffing required to manage  
7 the storerooms. Additionally, there is significant  
8 opportunity to update processes by reducing or  
9 eliminating paper-based transactions and employing  
10 state-of-the-art technology for ordering and tracking  
11 material. Note that Stores hired an expert in this  
12 field to complete a study of the locations and  
13 recommend the best way to consolidate and/or  
14 streamline operations in College Point, E 16th Street,  
15 Eastview, Rye, W 28th Street, Victory Blvd, 3rd Ave,  
16 and Van Nest. The study was completed in 2018 and  
17 will provide the foundation for a long-term  
18 improvement plan.

19 Q. Please explain the need and associated benefits for  
20 such a program.

21 A. Most Con Edison buildings are over twenty-five years  
22 old, with certain locations, such as Cleveland Street  
23 and Rye Service Centers, over sixty years old.

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1 Interior offices, in certain cases, do not meet  
2 current space-use or industry safety standards. Con  
3 Edison's policies emphasize open communication and  
4 collaboration. The Company's open floor plan reflects  
5 and supports this management approach. The planned  
6 renovations will bring the floors to the industry  
7 standard for new office buildings, with the intent to  
8 provide a work environment that is attractive,  
9 flexible, productive, easy to maintain, and will  
10 require no substantial investment for many years.  
11 Currently, storerooms in each service center are  
12 comprised of nonadjacent rooms or spaces, often  
13 serving individual operating groups in Electric, Gas,  
14 Steam and Customer Operations. Because of the  
15 locations and configurations of these spaces, there is  
16 duplication of material and personnel. An architect  
17 with expertise was engaged and has provided  
18 recommendations on how to physically consolidate the  
19 storerooms and optimize storage space utilization.  
20 Adopting these recommendations will result in savings  
21 and efficiencies but will require physical  
22 construction and technology investment to accomplish.  
23 Q. Are there reasonable alternatives to the program?

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1 A. These spaces can be repainted and cleaned to make  
2 cosmetic improvements to the office environment and  
3 employee comfort, but few of the benefits described  
4 above can be reasonably achieved.

5 Facility Security Program upgrades Projects

6 Q. What is the Company planning to do for the Security  
7 Program Upgrades?

8 A. The Facilities Security Program will include  
9 upgrade/enhancements to a number of facilities.

10 Q. Do you have an exhibit explaining the facility  
11 security program upgrades projects?

12 A. Yes. This program is discussed in further detail in  
13 Exhibit \_\_\_ (SSP-6). This Exhibit is submitted on a  
14 confidential basis so as not to compromise the  
15 Company's security efforts by potentially disclosing  
16 our strategies to persons that may seek to do harm to  
17 the Company. This exhibit explains the need for  
18 facility security program upgrades projects.

19 **Safety and Environmental Programs and Projects**

20 Q. What does the third category of Facilities and Field  
21 Services capital spending plan support?

22 A. The capital project plan for the Safety and  
23 Environmental Program and Projects category supports:



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1 sensors, BMS and software) and attributed to the  
2 energy inefficient building façades (e.g., building  
3 envelope components such as windows). This program  
4 will address the ECM items identified in the building  
5 Energy Audits as well as Local Law 88, which requires  
6 large non-residential buildings to upgrade their  
7 lighting systems to meet current NYC Energy  
8 Conservation Codes. Projects specifically include the  
9 replacement of over 2,000 windows at the Corporate  
10 Headquarters Building at Irving Place, replacement of  
11 HVAC systems/phasing out of R-22 refrigerant  
12 throughout the Regional Headquarters and Service  
13 Centers, and the installation of new LED lights and  
14 daylight harvesting controls at the Regional  
15 Headquarters and Service Centers. The details for  
16 these various projects may be found in the white paper  
17 entitled "Facilities Building and Yards Energy  
18 Efficiency Program", found in Exhibit \_\_\_\_ (SSP-6).

19 Q. How much do you plan to spend on the Facilities Energy  
20 Efficiency Program?

21 A. This program will spend approximately \$5.0 million  
22 RY1, \$3.0 million in RY2 and \$3.0 million in RY3.

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1                                    Compliance Projects and Programs

2    Q.    Please explain the compliance projects.

3    A.    Compliance projects are required to address  
4           potentially unsafe conditions and environmental issues  
5           to comply with the latest local, state, or federal  
6           regulatory requirements and building codes.

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

9    A.    The estimated capital costs for this category of  
10           projects are \$5.0 million in RY1, \$5.0 million in RY2,  
11           and \$5.0 million in RY3.    The RY1 and RY2 expenditures  
12           are primarily for projects to comply with Local Law 11  
13           ("LL11"), which must be completed by the time  
14           indicated in the filing report submitted by New York  
15           City Department of Buildings ("NYCDOB") and for the  
16           installation of a new fire hydrant system at Eastview  
17           Service Center.

18   Q.    Please summarize each project.

19   A.    **Irving Place Local Law 11 - Cycle 9 Façade Repairs -**  
20           Per the white paper entitled "Facilities Buildings and  
21           Yards All Other (Safety Environmental Regulatory),  
22           attachment 1", the recently completed LL11 engineering  
23           façade inspection of Irving Place resulted in a final

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1 report that was submitted to the NYCDOB. The Final  
2 Report depicts several UNSAFE and SWARMP (Safe With a  
3 Repair and Maintenance Program) conditions. We  
4 estimate the cost to eliminate these conditions at  
5 \$8.7 million capital and work began in 2019.

6 **Installation of a new Fire Hydrant system at Eastview**  
7 **Service Center.**

8 This project, for 2020, 2021 and 2022, at an  
9 approximated cost of \$9.9 million, provides for the  
10 construction of a new fire hydrant system in  
11 accordance with the Codes Rules and Regulations of New  
12 York, Article 12, Part 1060.6 "Fire Protection  
13 Equipment, Yard Hydrant Systems". For more  
14 information, please refer to white paper "Facilities  
15 Buildings and Yards All Other (Safety Environmental  
16 Regulatory)".

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

19 A. Yes. The projects mentioned above are examples of  
20 larger jobs in this category. We anticipate there  
21 will be other emerging projects that will result from  
22 future environmental, local law, and safety  
23 regulations. The white paper entitled "Facilities

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1 Buildings and Yards All Other (Safety, Environmental  
2 Regulatory)" included in Exhibit (SSP-6), contains  
3 additional examples of capital compliance projects.  
4 These projects are generally required for compliance  
5 with the Occupational Safety and Health Administration  
6 ("OSHA"), the New York State Department of  
7 Environmental Conservation ("NYSDEC") and other  
8 regulatory agencies.

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

11 A. Yes. One such large project concerns the Facilities  
12 Cooling Towers Upgrade program, which will address  
13 Legionella concerns. Smaller-cost projects include  
14 upgrading the Davis Ave Stairwell D 1st Floor Landing,  
15 and upgrading the Victory Blvd Emergency Generator.  
16 These projects are included in Exhibit \_\_\_\_ (SSP-6).

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

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

21 SWSS Correction Project

22 Q. Please describe the purpose of the Southwest  
23 Stormwater System ("SWSS")?

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1 A. The SWSS is located in the southwestern portion of the  
2 Astoria Site along 18th Avenue and collects storm  
3 water from approximately 18 acres of the facility and  
4 discharges to the East River via Outfall B. We  
5 reconstructed the SWSS in 2015 and incorporated  
6 several pollution reduction controls into the design  
7 of the system, including oil/grit separators,  
8 sediment/silt filters, and oil-separation devices.  
9 These controls were intended to reduce the amount of  
10 total suspended solids ("TSS"), oils, polychlorinated  
11 biphenyls ("PCBs"), and other pollutants from  
12 discharging into the East River.

13 Q. How has the system operated since the new system went  
14 into operation?

15 A. PCBs have continued to be identified in onsite  
16 stormwater at concentrations sporadically exceeding  
17 the NYSDEC action level of 200 parts per trillion  
18 ("ppt"). As per the NYSDEC, we need to stay under (or  
19 very close to) 200 ppt for 18-24 months to avoid a  
20 State Pollutant Discharge Elimination System ("SPDES")  
21 permit that will result in violations when we exceed  
22 the limit moving forward.

23 Q. What measures have been taken to address this issue?

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1 A. The Company has retained a consultant to investigate  
2 PCBs in the SWSS. The consultant's investigations,  
3 which were conducted in 2016 and 2017, identified the  
4 likely contributors of PCBs and TSS into the SWSS, as  
5 well as categories for system improvements, which  
6 include: Source Control - Actions targeting removal of  
7 PCBs at the source (*i.e.*, field returned transformers)  
8 via operational controls, surficial sediment removal,  
9 and deposition prevention; and Stormwater Collection  
10 and Conveyance - Actions that improve the  
11 functionality, operation and maintenance and  
12 efficiency of the stormwater collection and conveyance  
13 system.

14 Q. Please explain further.

15 A. In order to address "Source Control" issues, the  
16 consultant recommended improving Field Returned  
17 Transformer ("FRT") processing and storage practices  
18 since dirt and debris on the FRTs are suspected to be  
19 a primary source of PCBs that may enter the SWSS  
20 during rain events. We will therefore look to  
21 construct a new on-site FRT Wash-down Area/Canopy that  
22 will be an enclosed and/or covered structure for  
23 receiving and washing down dirt and debris from

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1 transformers before they are temporarily stored  
2 outside, where rainwater can wash PCB contaminated  
3 dirt/debris into the SWSS drainage system. This  
4 capital project is estimated at approximately \$10  
5 million.

6 In order to address the "Stormwater Collection and  
7 Conveyance" issues and improve stormwater runoff from  
8 the East Storage Yard, which presently overwhelms  
9 downstream catch basins, the consultant recommended to  
10 supplement the SWSS drainage collection system by  
11 adding catch basins and slot drains. Additional  
12 stormwater catch basins within the East Storage Yard  
13 would improve drainage and reduce the flow of runoff  
14 from this area to the North Storage Yard. This would  
15 also alleviate the bypassing and clogging of catch  
16 basins with high sediment loads, and help to capture  
17 and treat runoff from the Site, more effectively—  
18 reducing the frequency of inlet filter clogging across  
19 the site. Additional catch basins would also reduce  
20 stormwater runoff from flowing across the Site cover,  
21 which could reduce PCB concentrations. It is also  
22 recommended that the existing concrete/asphalt system  
23 of the Astoria East Yard be completely removed and

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1 replaced with a new concrete system that includes  
2 proper drainage. In addition to improving Stormwater  
3 Collection and Conveyance, replacing the Astoria East  
4 Yard concrete slab and asphalt would address slips,  
5 trips, and fall safety hazards associated with the  
6 area. Note that the existing eight inch heavy duty  
7 concrete slab which makes up a majority of the yard  
8 was installed approximately fifty years ago, and has  
9 suffered extensive damage from aging, freeze-thaw  
10 cycles, and the leaching of lime and salt  
11 contamination. In most locations, the top two inches  
12 of cover has eroded, exposing the wire mesh that  
13 absorbs shrinkage strains; embedded rebar have also  
14 rusted from exposure to the elements. The asphalt  
15 areas located between the concrete slabs have also  
16 deteriorated, exacerbating the safety hazard to  
17 personnel. These uneven surfaces could result in  
18 forklift accidents that could potentially cause  
19 injuries, transformer damage, and transformer oil  
20 spills.

21 Q. Do you have an exhibit explaining the SWSS Correction  
22 Project?

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1 A. Yes. This project is discussed further in the white  
2 paper entitled "Astoria SouthWest Storm Water System  
3 Corrective Action Plan," in Exhibit\_\_\_(SSP-6).

4 Q. What are the projected costs associated with the SWSS  
5 Correction Project in RY1 - RY3?

6 A. We plan to spend approximately \$1 million in RY1, and  
7 \$13 million in each of RY2 and RY3.

8

9 **Transportation Operations Fuel Station Upgrade**

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

12 A. Transportation Operations provides automotive  
13 engineering and fleet support for the Company,  
14 including managing fuel deliveries to Company fueling  
15 stations, creating specifications for new vehicle and  
16 equipment purchases, fleet vehicle maintenance and  
17 repairs, administering parts and service contracts for  
18 fleet vehicle support and managing the XM-2 capital  
19 budget for vehicle procurement.

20 Q. How does Transportation minimize costs?

21 A. Transportation Operations continues to purchase clean  
22 Alternative Fuel Vehicles that reduce gasoline and  
23 diesel fuel consumption. As discussed in the XM-2

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1 section, Automotive Engineering continually works with  
2 vehicle manufacturers to incorporate fuel saving  
3 technology and energy efficient ancillary components  
4 in vehicles, such as the use of battery power instead  
5 of diesel generators for work-site power. Along the  
6 same lines, we are introducing bucket trucks that use  
7 electric power to operate the boom. In addition, we  
8 are committed to looking at ways to reduce the fleet  
9 size (e.g. vehicle pooling, etc.) and we continue to  
10 use our relationships with suppliers and manufacturers  
11 to obtain skills training for our staff of mechanics.  
12 Improved skills have allowed Transportation to  
13 maintain a diverse fleet with no staffing increases.  
14 And finally, we also work with Purchasing to leverage  
15 better pricing initiatives by establishing multi-year  
16 vehicle purchasing contracts and by consolidating  
17 parts and service contracts.

18 Q. What does the Transportation capital spending plan  
19 support?

20 A. The capital project plan for Transportation supports:  
21 o Upgrade of an existing gasoline and diesel Fuel  
22 station

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1 Q. Is this project detailed in the exhibit\_\_\_\_(SSP-6)  
2 entitled "Shared Services - Facilities and Field  
3 Services - Capital"?

4 A. Yes it is.

5 Gasoline and Diesel Fuel Station Upgrade Project

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

8 A. Currently, the Company has twelve gasoline/diesel  
9 fueling stations and eight CNG fueling stations.

10 Generally, Company vehicles go to these locations to  
11 refuel by using a Company-issued gas card system.

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

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

16 Q. Can you please explain the gasoline and diesel fuel  
17 station upgrade project?

18 A. This capital project funds the replacement of obsolete  
19 and deteriorating equipment at the Company's twelve  
20 fueling stations.

21 Q. Is there a need to upgrade these stations?

22 A. Yes. These fuel stations provide fuel for the daily  
23 operation of the Company's fleet of cars, trucks and

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1 equipment. Due to the obsolescence of the equipment  
2 at these locations, replacement parts are becoming  
3 difficult to obtain, and as a result, the stations are  
4 more subject to potential outages. There are also  
5 environmental concerns because of the potential for  
6 fuel to leak into the environment.

7 Q. Are there other potential issues if these stations are  
8 not available?

9 A. Yes. If a major failure were to occur at a station,  
10 the station could be out-of-service for a considerable  
11 amount of time until repairs are completed. This  
12 would impact the ability to fuel Company vehicles at  
13 the site, resulting in the use of more costly retail  
14 fueling sites. These upgrades will improve the  
15 operation and reliability of the fuel stations and  
16 reduce the risk of an environmental event at any site.

17 Q. What is the current status of this project?

18 A. The Company has completed the above ground upgrades  
19 (fuel dispensers, card readers, etc.) to all twelve  
20 fueling stations. In addition, the Eastview fuel  
21 station upgrade, including replacement of the  
22 underground tanks and associated piping has been  
23 completed; the Rye station underground tank and

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1 associated piping replacement will be completed early  
2 in 2019; and the Yonkers station underground tank and  
3 associated piping replacement will be completed by  
4 year-end 2019.

5 Q. Are there any other stations that require additional  
6 renovations and what is their status?

7 A. Yes. Due to the age of the underground equipment at  
8 the Neptune Avenue station, the tanks and associated  
9 piping requires replacement. This work is scheduled  
10 to be completed in 2020.

11 Q. What is the projected cost of the Neptune Avenue  
12 station upgrade project?

13 A. The Neptune Avenue fuel station upgrade project is  
14 estimated to cost \$3.0 million and will be completed  
15 in RY1.

16 **VIII. BUSINESS COST OPTIMIZATION INITIATIVES**

17 Q. Please discuss the type of costs that the Shared  
18 Services organization incurs.

19 A. Shared Services provides a broad array of services  
20 supporting internal customers across the Company.  
21 Services include the management and maintenance of  
22 most Company facilities, the purchase and maintenance  
23 of the Company's vehicle fleet, and certain managed

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1 services that support operations (including device  
2 testing, logistics and environmental services).

3 Shared Services also negotiates, executes and manages  
4 contracts used throughout the Company and is  
5 responsible for other key functions including research  
6 and development, corporate security and emergency  
7 preparation services.

8 Q. Is the Shared Services organization undertaking  
9 specific BCO initiatives?

10 A. Yes. The Shared Services organization has identified  
11 and will be implementing eight BCO initiatives during  
12 RY1-RY3 that are designed to improve service to its  
13 internal customers and reduce the overall cost of  
14 services provided to our internal customers.

15 Q. Are the cost savings produced by the Shared Services  
16 organization's BCO initiatives considered "direct  
17 savings?"

18 A. No. Given that Shared Services is an internal service  
19 provider, the savings from its BCO initiatives benefit  
20 Shared Services' internal customers. Therefore, these  
21 savings are presented as "influenced savings" within  
22 each of the Company's organizations supported by  
23 Shared Services. That is, the savings are reflected

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1 in the forecasted costs of other departments rather  
2 than the Shared Services department. We discuss the  
3 individual Shared Services BCO initiatives in order of  
4 the magnitude of anticipated savings. The amount of  
5 savings associated with the Company's various BCO  
6 initiatives are presented in the exhibits of the  
7 Company's Accounting Panel.

8 Q. Please discuss Shared Services' first BCO Initiative.

9 A. The first BCO initiative is Category Management, which  
10 refers to the various areas of spending that Shared  
11 Services manages on behalf of its internal customers.  
12 Category Management is a best-in-class business  
13 practice among today's leading Supply Chain  
14 organizations. Con Edison's Category Management  
15 initiative focuses on achieving savings and producing  
16 value throughout the term of contracts by demand  
17 planning, marketplace analysis, strategic sourcing,  
18 continuous improvement, and supplier relationship  
19 management.

20 Q. What is the process for Shared Services to implement  
21 effective Category Management?

22 A. Category Management is a selective and deliberative  
23 process. Significant data gathering, analysis and

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1 engagement with internal customer groups is undertaken  
2 before a "category", or area of spend, is subject to  
3 the Category Management BCO Initiative. Factors  
4 influencing when a category is subject to review  
5 include total spend, number of suppliers, number of  
6 stakeholders and complexity of the category.

7 Implementation is done in "waves." A group of  
8 categories is selected and referred to as a "wave".

9 Q. What Category Management activities have been  
10 completed or are in-process?

11 A. The Con Edison procurement team has completed Wave 1,  
12 which includes categories such as, gas keyhole  
13 services, paving & restoration and environmental  
14 services. Currently, the team is working on Wave 2,  
15 which consists of electric construction, information  
16 technology hardware and services, electric  
17 transmission construction and facility services.  
18 Shared Services developed the savings associated with  
19 this initiative by comparing supplier pricing provided  
20 by a competitive bid process against historical  
21 spending for each category. The program is expected  
22 to move on to Waves 3 & 4 and will deliver savings

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1 throughout the rate case period for Shared Services  
2 and other departments.

3 Q. What potential challenges may impact the actual level  
4 of savings achieved from the Category Management BCO  
5 Initiative?

6 A. Actual savings in each year may vary based on:

- 7 • Duration in searching, recruiting and hiring  
8 professionals with the requisite skillsets and  
9 capabilities for Con Edison's Procurement group to  
10 execute the Category Management methodology  
11 successfully; and  
12 • Outside influences (e.g., trade tariffs, increases in  
13 minimum wage) that could impact negotiated contracts  
14 and lower savings estimates.

15 Q. Please discuss Shared Services' second BCO initiative.

16 A. The Integrated Supply (Material) initiative focuses on  
17 awarding contracts for high-volume, low-value material  
18 items to one or a limited number of suppliers with a  
19 strong market presence. This solution will drive down  
20 unit pricing and reduce logistics costs over time. In  
21 addition, we also plan to deploy technology tools  
22 (e.g., vending machines, tool lockers) that can  
23 regulate the rate of consumption and improve end-user

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1 satisfaction. Supply Chain is currently in a  
2 procurement process to select these supplier(s).

3 Q. What are some components of the Integrated Supply  
4 Material BCO initiative that are driving cost savings  
5 for internal customers and thus Con Edison customers?

6 A. Components driving savings are lower unit pricing,  
7 direct delivery to regional Store locations,  
8 leveraging industrial vending solutions and  
9 integration of the yet to be selected supplier's IT  
10 platform with Oracle. The scope of this initiative  
11 includes several thousand material items along with  
12 new processes and technology to support direct  
13 delivery to over a dozen regional store locations. We  
14 have earmarked this initiative for implementation in  
15 2019 and expect savings to begin in 2020. Shared  
16 Services developed the savings associated with the  
17 Integrated Supply Material BCO initiative using data  
18 resulting from the competitive procurement process.

19 Q. What potential challenges may impact the actual level  
20 of savings achieved from the Integrated Supply  
21 Material BCO initiative?

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1 A. Factors that will affect the timing and amounts of  
2 savings for the Integrated Supply Material BCO  
3 initiative include:

- 4 • Unforeseen complexity with implementation, change  
5 management and IT tools (e.g., scanners, barcodes)  
6 that will replace longstanding logistics processes;
- 7 • Delays in migration of the volume of spending and  
8 transactions associated with the reduction in the  
9 number of suppliers; and
- 10 • Unforeseen integration complications of the yet to  
11 be selected supplier's transaction platform with Con  
12 Edison's internal Oracle IT system and other  
13 supplier tools.

14 Q. What is Shared Services' third BCO initiative?

15 A. Shared Services' third BCO initiative is Integrated  
16 Supply Equipment. This initiative focuses on reducing  
17 costs associated with buying, handling and managing  
18 Transmission and Distribution ("T&D") equipment. This  
19 initiative would reduce the number of suppliers in  
20 order to manage the overall forecasting, buying,  
21 handling and payment of T&D equipment. This  
22 initiative emphasizes cost savings through forecasting  
23 tools for purchasing equipment and effectively

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1           controlling equipment levels. Due to the capacity of  
2           doing one Integrated Supply initiative at a time and  
3           the ability to drive change, the equipment initiative  
4           will begin in late 2020 and the savings are projected  
5           to be realized in 2021 and will primarily impact  
6           Electric and Central Operations. Shared Services  
7           developed the savings associated with the Integrated  
8           Supply Equipment BCO initiative based on industry  
9           knowledge of this type of program.

10    Q.    What potential challenges may impact the actual level  
11           of savings achieved from the Integrated Supply  
12           Equipment BCO Initiative?

13    A.    Shared Services will implement the Integrated Supply  
14           Material initiative before the Integrated Supply  
15           (Equipment) initiative. If that initiative is  
16           delayed, this one will be as well. Other factors  
17           affecting the timing and amount of savings for this  
18           initiative include:

- 19           • Planning and change management for the new processes  
20           and unforeseen complexity with IT tools that will  
21           replace longstanding logistics processes;

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- 1     • Delays in migration of the volume of spending and  
2       transactions associated with the reduction in the  
3       number of suppliers; and
- 4     • Unforeseen integration complications of the yet to be  
5       selected supplier's transaction platform with Con  
6       Edison's internal Oracle IT system and other supplier  
7       tools.

8    Q.   Please describe Shared Services' Transportation Fleet  
9       BCO initiative.

10   A.   Shared Services' fourth BCO initiative pertains to the  
11       management of the Company's transportation fleet. The  
12       current transportation fleet consists of approximately  
13       5,000 vehicles and units of equipment (e.g. backhoes,  
14       front-end loads, trailers). The transportation fleet  
15       initiative focuses on reducing costs by "right-sizing"  
16       the fleet and improving efficiencies in the  
17       maintenance and management of the fleet. Leveraging  
18       data and analytics, in addition to extensive  
19       engagement with the operating groups, we have  
20       identified under-used vehicles that are candidates for  
21       pooling or retirement. Efforts are underway with  
22       operating groups to finalize plans on how vehicles can  
23       be removed from the fleet. The removal of these

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1 vehicles will eliminate their associated maintenance  
2 costs and avoid expenditures to replace such vehicles.  
3 Designs for a pooling program are underway and will  
4 reduce costs by using existing vehicles more  
5 efficiently. Other efforts are underway to reduce  
6 costs associated with the maintenance of vehicles and  
7 various services associated with managing the fleet.  
8 Shared Services developed the Transportation Fleet  
9 Initiative savings by analyzing the Company's existing  
10 fleet usage and identifying the under-used vehicle  
11 population. Removing these vehicles from service or  
12 repurposing them will result in lower maintenance  
13 costs and vehicle replacement expenditures. This  
14 initiative will be ongoing through 2022 and provide  
15 savings to other departments throughout the company.

16 Q. What are the Company's challenges to realizing the  
17 savings associated with the Transportation Fleet BCO  
18 initiative?

19 A. Although the Company has completed a preliminary  
20 review of its vehicle fleet and estimated how many  
21 vehicles are under-used, it may find in implementing  
22 this program that some of those "under-used" vehicles  
23 are fully needed to support operations. The Company

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1 will actively monitor and respond to such needs so  
2 that the initiative does not have an unintended  
3 negative impact on the Company's core operations.

4 Q. Please describe Shared Services' fifth BCO initiative.

5 A. Shared Services' fifth BCO initiative, Facility  
6 Consolidations, involves the consolidation of the  
7 number of suppliers the Company currently uses to  
8 support and maintain facilities in order to lower  
9 costs, improve supplier performance and foster  
10 internal efficiencies. Presently, the Company uses  
11 several dozen suppliers to perform a wide array of  
12 services (e.g., snow removal, HVAC, plumbing) to  
13 support and maintain the Company's portfolio of  
14 buildings. Through supplier consolidation, Con Edison  
15 expects to achieve better unit pricing by  
16 consolidating the fragmented spending. The strategy  
17 is to select a single supplier, or a small number of  
18 suppliers, with proven tools and metric driven  
19 processes, in order to improve the quality and  
20 accuracy of performance. Internal costs may also be  
21 lowered because these tools and processes are more  
22 user-friendly, work flows can be automated, and the  
23 number of transactions is reduced. Shared Services

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1 developed the projected savings associated with this  
2 BCO initiative by estimating projected contractor cost  
3 using a third party benchmark as compared with  
4 historical spending. The program is expected to  
5 produce cost savings starting in 2019 and during the  
6 rate plan and will provide savings to other  
7 departments throughout the company.

8 Q. What are the Company's challenges to realizing the  
9 savings associated with the Facility Consolidation BCO  
10 initiative?

11 A. Factors affecting the timing and amount of savings for  
12 this BCO Initiative are:

- 13 • Duration in searching, recruiting and hiring  
14 professionals with the requisite skillsets and  
15 capabilities for Con Edison's Procurement group to  
16 execute the Category Management methodology  
17 successfully; and
- 18 • Outside influences (e.g., new laws and regulations)  
19 that could impact negotiated contracts and lower  
20 savings estimates.

21 Q. Please describe Shared Services' sixth BCO initiative.

22 A. Shared Services' sixth BCO initiative, R&D, pertains  
23 to the development and prioritization of R&D projects

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1 to facilitate cost reductions while also enhancing  
2 project management capabilities to better track  
3 savings and finalize projects for successful  
4 initiatives. R&D has an extensive portfolio of  
5 projects in various stages of development ranging from  
6 ideation to ready-to-implement. The strategy is to  
7 focus on projects that deliver cost reduction  
8 opportunities and productivity improvements. This is  
9 a broad strategy across all operating areas. In  
10 addition, the strategy places a greater focus on  
11 project management capacity within operations. This  
12 will aid in the enhanced development and faster  
13 implementation of R&D. The effort will also develop  
14 processes and track cost reductions from completed R&D  
15 initiatives that have been successfully implemented.  
16 Shared Services developed the expected savings  
17 associated with this initiative by estimating  
18 projected process improvements against existing  
19 practices to determine the net value savings. This  
20 initiative will start producing savings in 2019 that  
21 will continue through the rate period and provide  
22 savings to other departments throughout the Company.

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1 Q. What are the challenges to realizing the savings  
2 associated with the R&D BCO initiative?

3 A. Realizing the savings associated with this BCO  
4 initiative is heavily dependent on the Company's R&D  
5 projects resulting in process changes that lead to  
6 cost-savings. As R&D projects are difficult to  
7 predict, the number of projects that will produce cost  
8 savings, and the amount and timing of those savings is  
9 uncertain.

10 Q. Please describe Shared Services' Astoria Operations  
11 BCO initiative.

12 A. Shared Services' seventh BCO initiative consists of a  
13 fundamental re-visioning and redesign of the Astoria  
14 Operations' shared services organization. The Company  
15 plans to undertake a "clean sheet" conceptual redesign  
16 of Astoria's shared services organization. The  
17 current Astoria organization consists of five  
18 sections/functions (*i.e.*, Cranes and Rigging, Fleet  
19 Operations, Technical Services, Capital Tools, and  
20 Environmental Operations) and supports all areas of  
21 operation for the Company at its Astoria location.  
22 The initiative is currently underway and the Company  
23 is in the process of mapping the different services at

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1 the Astoria location and fully understanding the costs  
2 necessary to operate the location. This effort will  
3 be followed by identifying approaches to reduce costs,  
4 improve service levels and enhance efficiencies. Such  
5 approaches may range from continuous improvements to  
6 contracting-out strategies. Specific approaches will  
7 be established in early-2019, followed by planning and  
8 implementation throughout the rest of the year.  
9 Shared Services developed the potential savings  
10 associated with the Astoria Operations BCO initiative  
11 by leveraging general industry knowledge and  
12 evaluating industry practices. This initiative will  
13 start producing savings in 2019 that will continue  
14 throughout the rate period and provide savings to  
15 other departments throughout the Company.

16 Q. What are the challenges to realizing the savings  
17 associated with the Astoria Operations BCO initiative?

18 A. The Company's savings estimates for the Astoria  
19 Operations BCO initiative are quite preliminary. As  
20 discussed above, the Company currently is developing a  
21 redesign plan for the Astoria shared services  
22 organization and based its projects on benchmarking  
23 with other companies. There will be differences in

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1 savings and approaches when the Company tailors its'  
2 redesign to Astoria.

3 Q. Please describe Shared Services' eighth BCO  
4 initiative.

5 A. Driven by the Supply Chain organization, the  
6 Automation & Innovation BCO initiative focuses on the  
7 application of lean processes and innovative  
8 technology to existing business processes in order to  
9 enhance efficiencies. The business processes being  
10 reviewed have high transaction counts, are largely  
11 manual in nature and are transacted primarily within  
12 Supply Chain with a small number transacted across the  
13 Company. The strategy is to explore prevailing  
14 industry trends and innovative technologies to reduce  
15 transaction costs. Cost reductions may be achieved  
16 through streamlining processes, automating manual  
17 processes, and optimizing existing transaction  
18 systems. These efforts would reduce the number of  
19 labor hours needed to process transactions and savings  
20 would be achieved through attrition over the Rate Case  
21 period. Some solutions may include robotic process  
22 automation, artificial intelligence or business  
23 process outsourcing. Shared Services developed the

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1 potential savings associated with the Automation and  
2 Innovation initiative by leveraging general industry  
3 knowledge and evaluating industry practices. This  
4 initiative will be ongoing through 2022 and provide  
5 savings to other departments throughout the company.

6 Q. What are the challenges to realizing the savings  
7 associated with the Automation and Innovation BCO  
8 Initiative?

9 A. The major factors affecting the amount and timing of  
10 savings for the Automation and Innovation BCO  
11 initiative include:

- 12 • Complexities, costs and "time to market"  
13 associated with integrating new software with  
14 existing transaction platforms (e.g., Oracle);
- 15 • Duration in searching, recruiting and hiring  
16 professionals with the requisite skillsets and  
17 capabilities to deploy advanced technologies.

18 Q. Do you have an exhibit that provides additional  
19 information regarding the integrated supply project?

20 A. Yes. Additional information is shown in Exhibit \_\_\_\_  
21 (SSP-7) on the pages entitled "Shared Services -  
22 Integrated Supply - Capital."

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1 Q. Were these exhibits prepared under the Panel's  
2 direction and supervision?

3 A. Yes, they were.

4 MARK FOR IDENTIFICATION AS EXHIBIT \_\_\_\_ (SSP-7)

5 Q. Does this conclude this Panel's testimony?

6 A. Yes, it does.

# Demand Analysis and Cost of Service Panel Testimony

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## I. INTRODUCTION

1 Q. Would the members of the Demand Analysis and Cost of Service  
2 Panel (the "Panel") please state their names and business  
3 address?

4 A. William Atzl, Yan Flishenbaum, Lucy Villeta, and Christine  
5 Kim, 4 Irving Place, New York, New York 10003.

6 Q. By whom are you employed, in what capacity, and what are your  
7 professional backgrounds and qualifications?

8 A. **(Atzl)** We are employees of Consolidated Edison Company of New  
9 York, Inc. ("Con Edison" or the "Company"). I am Director of  
10 the Rate Engineering Department. My background is as  
11 follows: In 1983, I graduated from the State University of  
12 New York at Stony Brook with a Bachelor of Engineering degree  
13 in Mechanical Engineering. In 1989, I graduated from Pace  
14 University with a Master of Business Administration degree in  
15 Management Information Systems. I am a Licensed Professional  
16 Engineer in the State of New York. My first job was with  
17 Long Island Lighting Company in 1983 where I held the  
18 position of Assistant Engineer in the New Business  
19 Department. In 1984, I joined Orange and Rockland Utilities,  
20 Inc. ("O&R") as a Commercial and Industrial Representative in  
21 the Commercial Operations Department. At O&R, I also held  
22 the positions of Commercial and Industrial Engineer, Program

1 Administrator - Demand-Side Management, Manager - Demand-Side  
2 Management Operations, Manager - Energy Services and Pricing,  
3 and Manager - Regulatory Affairs. In October 1999, I joined  
4 Con Edison and held the position of Department Manager -  
5 Electric and Gas Rate Design - O&R and Director prior to my  
6 present position. I have testified in numerous regulatory  
7 proceedings before the New York State Public Service  
8 Commission ("Commission"), New Jersey Board of Public  
9 Utilities and Pennsylvania Public Utility Commission.

10 **(Flishenbaum)** I am a Department Manager in the Rate  
11 Engineering Department. I received a Bachelor of Business  
12 Administration Degree in Economics from Pace University in  
13 2001 and a Master of Business Administration Degree in  
14 Finance and Economics from New York University in 2008. In  
15 2001, I began my employment with Con Edison in the Cost  
16 Analysis Area of the Rate Engineering Department. In 2003, I  
17 was promoted to Analyst, mainly involved in the development  
18 of the costing methodologies related to unbundling. I was  
19 promoted to Senior Analyst in 2005. In 2008, I was promoted  
20 to Senior Rate Analyst responsible for developing the  
21 Company's cost-of-service models. In 2013 I was promoted to  
22 Section Manager of the Electric Rates area of the Rate  
23 Engineering Department. I was promoted to my current  
24 position in 2016. I previously testified before this  
25 Commission.

1           **(Villeta)** I am Section Manager of the Cost Analysis Section  
2           of the Rate Engineering Department. I received a Bachelor of  
3           Business Administration Degree in Finance with a minor in  
4           Management Information Systems from Pace University in  
5           September 1989. In October 1989, I began my employment with  
6           Con Edison as a Management Intern with rotational assignments  
7           in Forecasting and Economic Analysis, Accounting Research and  
8           Procedures ("ARP") and Power Generation Services. In June  
9           1990, I accepted my permanent assignment as an Associate  
10          Accountant in ARP. In 1995, I was promoted to Budget Analyst  
11          in Central Customer Service. In 1998, I was promoted to  
12          Senior Analyst in Customer Operations responsible for  
13          managing the Call Center and Service Center budget. In 2001,  
14          I was promoted to Financial Manager of Staten Island and  
15          Electric Services. I have been in my current position since  
16          November 2005 and have previously testified before this  
17          Commission.

18          **(Kim)** I am the Section Manager of the Load Research section  
19          in the Rate Engineering Department. In that capacity, I am  
20          responsible for preparing demand analyses related to all  
21          Company services. Additionally, I have a variety of duties  
22          related to load research sample design and data analysis. I  
23          began my employment with Con Edison in 2010 as a Senior  
24          Energy Analyst in Forecasting Services. In 2013 I moved into  
25          Load Research as a Senior Rate Analyst and in 2018 was

1 promoted to Section Manager. I received a Bachelor of Arts  
2 degree in Economics from New York University in 2007, and a  
3 Master of Science degree in Quantitative Methods and Modeling  
4 from Baruch College in 2012. Prior to working for Con Edison,  
5 I worked as an analyst for MCEnergy Inc., an energy  
6 consulting company that provides consulting services and  
7 negotiates energy deals for various real estate investment  
8 trusts throughout the country. I have not previously  
9 testified before this Commission.

10 **II. PURPOSE OF TESTIMONY**

11 Q. What is the purpose of the Panel's testimony?

12 A. Our testimony:

- 13 (1) presents the Company's Class Demand Study;
- 14 (2) presents the Company's Electric Embedded Cost-of-  
15 Service ("ECOS") study; and
- 16 (3) presents an analysis of the Company's marginal  
17 transmission and distribution ("T&D") costs for  
18 electric service and explains its status; and
- 19 (4) describes and requests capital funds for a computer  
20 system enhancement program associated with performing  
21 bill analyses on certain off-system data, including  
22 enhancements to reflect changes to billing and data  
23 requirements and data handling.

24

1 **III. CLASS DEMAND STUDY**

2 Q. Have you prepared an exhibit showing the Class Demand Study?

3 A. Yes. Exhibit \_\_\_ (DAC-1) is entitled "Consolidated Edison  
4 Company of New York, Inc., Class Demand Study - Electric  
5 Department, Year 2017." It includes five pages of  
6 descriptive text, a two-page index, and over 150 pages of  
7 tabular reports.

8 Q. Please describe the purpose of the Class Demand Study.

9 A. The Class Demand Study presents energy and demand cost  
10 responsibility measures for each Company service class and  
11 for NYPA delivery service customers. These cost  
12 responsibility measures, in turn, were used in the ECOS Study  
13 presented in this proceeding.

14 Q. Please describe the cost responsibility measures developed in  
15 the Class Demand Study.

16 A. There are two general types of cost responsibility measures  
17 used in the ECOS study - energy cost responsibility measures  
18 and demand cost responsibility measures. Energy cost  
19 responsibility measures reflect total kilowatthours that  
20 customers use over the entire year. Demand cost  
21 responsibility measures reflect customer demands during peak  
22 periods and are divided into two categories. The first is  
23 system peak responsibility, which reflects customer demands  
24 at the time of the Con Edison system peak. The second is  
25 class non-coincident peak responsibility, which reflects

1 customer demands at the times of individual class peaks. The  
2 Class Demand Study develops a set of demand and energy cost  
3 responsibility measures for various delivery systems. We  
4 describe these delivery systems later in our testimony.

5 Q. What period does your study cover?

6 A. It covers calendar year 2017, and includes specific analyses  
7 of the summer and winter peak periods for that year.

8 Q. Please explain the general organization of Exhibit \_\_\_\_ (DAC-  
9 1), Schedule 1.

10 A. The title page is followed by five pages of explanatory notes  
11 and an index for the study's tabular data. Tabular Reports 2  
12 through 4 show step-by-step development of demand and energy  
13 cost responsibility measures for each service class. Tabular  
14 Reports 5 through 8 summarize results of the detailed class-  
15 by-class analyses contained in Reports 2 through 4.

16 Q. Please summarize the demand and energy cost responsibility  
17 measures developed in the Class Demand Study and indicate  
18 where these data are found.

19 A. The following table shows this information:

<u>Cost Responsibility Measure</u>	<u>Report Number</u>
Energy Responsibility	5
Class Summer and Winter System	
Peak Demand Responsibility	6
Class Summer and Winter Non-Coin.	
Demand Resp. by Delivery System	8

1 Q. Please describe the explanatory notes that detail the method  
2 used in developing Exhibit \_\_\_ (DAC-1), Schedule 1.

3 A. The text briefly explains the procedures used to develop the  
4 class energy and demand responsibility estimates shown in the  
5 Exhibit. It includes a short discussion of Con Edison's  
6 customer load testing program, which is the starting point  
7 for many of the calculations in the Exhibit. Finally, it  
8 provides a brief description of each report in the Exhibit.

9 Q. Please explain the analyses shown in Reports 2 through 4.

10 A. These reports show the step-by-step development of demand  
11 cost responsibilities for each service class. Data are first  
12 organized by energy or demand strata. The strata data are  
13 then added to develop subclass data, and the subclass data  
14 are further aggregated into class data. Report 2 shows the  
15 starting data utilized in developing the class demand  
16 responsibilities. Report 2 shows either sample test customer  
17 load research data or time-of-day billing profile data by  
18 stratum.

19 Report 3 shows a summary of class population data by stratum  
20 for each service class.

21 Finally, Report 4 shows the resulting class demand  
22 responsibilities by stratum for each service class.

23 Reports 2, 3, and 4 are provided by class for both the summer  
24 and winter peak periods.

1 Q. Please continue with your explanation of the remaining  
2 reports in this Exhibit.

3 A. Report 5 shows electrical energy flows for the Con Edison  
4 System for the year 2017. This report forms the basis for  
5 energy cost responsibility measures, and develops the annual  
6 energy flow, in kilowatthours, through the various paths of  
7 the electrical T&D system, starting at the system input level  
8 and continuing to the customers' meters. It considers cable  
9 and equipment losses and unaccounted-for-energy. The report  
10 shows total kilowatthours registered at the customers'  
11 meters, total kilowatthours at the system input level, sales  
12 to other utilities, and kilowatthours delivered to the local  
13 distribution system.

14 Q. Please continue with your explanation of Report 5.

15 A. Report 5 also shows the kilowatthours distributed and sold,  
16 the distribution efficiency for each delivery system, and the  
17 resultant annual energy distribution efficiency for each  
18 customer class. This efficiency calculation reflects the  
19 various paths that energy takes from delivery system input to  
20 customers.

21 Q. Please explain what you mean by "delivery system."

22 A. Power generally flows from generation sources to customer  
23 loads through an electrical grid composed of high voltage  
24 transmission lines and substations, and lower voltage  
25 distribution lines and substations. For purposes of the

1 Class Demand Study, the grid is subdivided into separate  
2 serially-connected systems, which are called delivery  
3 systems.

4 Q. Please continue with your explanation of the reports shown in  
5 Exhibit \_\_\_ (DAC-1), Schedule 1.

6 A. Report 6 provides a summary of the class demand  
7 responsibilities for each season, obtained from the  
8 individual pages of Report 4. Report 6A develops the low  
9 tension non-coincident billing kilowatts based on the low  
10 tension kilowatthours shown in Report 5.

11 Report 7 is similar to Report 5, except that it shows in  
12 greater detail the kilowatthour flow, by class, from the  
13 system input level through the various delivery systems, to  
14 the customers' meters.

15 Report 8 traces the class non-coincident summer and winter  
16 peak demands through the various levels of the delivery  
17 system, starting at the customers' meters and terminating at  
18 the system input level.

19 Q. As a typical example of the calculation procedure used for  
20 each class in this exhibit, please describe the method  
21 employed in developing the summer and winter class demand  
22 responsibility estimates for Service Classification ("SC") 1,  
23 the Residential and Religious class.

24 A. Referring first to Report 2 (summer page 1, winter page 1),  
25 the data in Columns 3 through 9 were developed from load

1 tests that the Company performed on sample residential and  
2 religious test customers. Column 2 lists the sample test  
3 strata. Columns 3 and 4 show the range of consumption or  
4 demand for the customers in each test stratum. Column 5  
5 shows the number of customers in each stratum for which test  
6 results were obtained. Column 6 shows the calculated average  
7 consumption or demand per customer for each test stratum.  
8 Columns 7 and 8 show the load test results reduced to average  
9 kilowatts per customer for each test stratum. Column 7 lists  
10 the average of July and August (December and January averages  
11 are used for winter) maximum demands per customer. Column 8  
12 lists the maximum coincident demand per customer for each  
13 test stratum, based on averages for five selected system peak  
14 days for the summer or five selected system peak days for the  
15 winter during the test period. Column 9, derived from  
16 Columns 7 and 8, shows the calculated coincidence factor for  
17 each test stratum.

18 Q. Please describe the derivation of the coincidence factors.

19 A. The coincidence factors are derived from interval-metered  
20 data collected during the load test program. For each  
21 stratum of test customers, the recorded half-hourly demand  
22 data obtained from each test location were averaged for the  
23 five seasonal system peak days. For this study, the  
24 coincidence factor is defined as the ratio of the per-  
25 customer maximum coincident half-hour demand of a stratum of

1 test customers, averaged for five days, to the per-customer  
2 individual maximum non-coincident half-hour demands of the  
3 test customers in that stratum.

4 Q. Please continue your explanation of the SC 1 reports.

5 A. Turning to Report 3, the stratum definitions are shown in  
6 columns 3 and 4. The stratum level customer count and  
7 kilowatthours for the residential class shown in columns 5  
8 and 6 were derived from billing records for the year 2017.  
9 Column 7 contains the average usage by stratum based on  
10 columns 5 and 6. The summer and winter coincident maximum  
11 half-hour demands for each stratum in the class population  
12 were then calculated using the respective sample test stratum  
13 load characteristics. These results appear in Column 11, and  
14 the computations are described in footnotes.

15 Q. Please continue.

16 A. Since each stratum's maximum half-hour demand (shown in  
17 Column 11) occurs at different times, complete daily profile  
18 curves were computed for each stratum in the class, again  
19 based on test results. The summation of all 24-hour stratum  
20 load curves at the customers' meters produced composite  
21 summer and winter load curves for the entire class. The  
22 summer and winter coincident half-hour demands for each  
23 stratum shown in Column 5 of Report 4 were obtained by  
24 examining the stratum load curves at the time of the class  
25 peak. The summer and winter class load curves were further

1 examined to determine the average class demands for the  
2 highest continuous four-hour period. Those results are shown  
3 in Column 6 of Report 4.

4 The demands described so far have all been based on  
5 measurements and calculations at the customers' meters. To  
6 determine the system input level class responsibility shown  
7 in Column 8, the class demand at the customers' meters was  
8 divided by the annual distribution efficiency for the class.  
9 The class distribution efficiencies are shown on Report 5 of  
10 this exhibit. After applying class distribution  
11 efficiencies, the calculated grand total of all the class  
12 load curves, developed through the procedures described thus  
13 far, closely approximates but does not exactly match the  
14 known total system load curve at each half-hour. The total  
15 discrepancy during the high load periods of the day is  
16 generally found to be a few percent during any half-hour.  
17 For sampled classes, a percentage adjustment factor for every  
18 half-hour was applied to each of the class demands. For  
19 those classes with sampled test data that were borrowed, an  
20 adjustment factor equal to two times the above-mentioned  
21 adjustment factor was applied. Classes that are 100%  
22 profile-metered did not receive any adjustment. After  
23 adjusting the class data, the total of all class profiles  
24 exactly matched the total system load curve. The demand  
25 values in Columns 7, 9, and 10 of Report 4 are the adjusted

1 class demands. These values are the average demands obtained  
2 from class load profiles for the four peak hours of the  
3 seasonal system peak load shape or the class peak load shape.

4 Q. Please continue with the explanation of the development of  
5 the demands for SC 1.

6 A. Report 6 (starting at Page 6-1), Columns 5, 6, 7, and 8,  
7 summarizes the class seasonal demand responsibilities  
8 developed in Report 4. Report 6A (starting at Page 6A-1),  
9 Column 7, develops the low tension non-coincident billing  
10 kilowatts, using the total non-coincident billing kilowatts  
11 in Report 3 and the relationship of low tension kilowatthours  
12 to total kilowatthours found in Report 5.

13 Report 7 (starting at page 7-1) provides a more detailed  
14 analysis of the kilowatthour flow for each class through each  
15 of the delivery systems listed in Column 3. Column 4, which  
16 comes directly from Report 5, Column 4, shows total  
17 kilowatthours (high tension plus low tension service)  
18 delivered to customers' meters. Column 5 of Report 7 shows  
19 only low tension kilowatthours delivered to the customers'  
20 meters. Column 6 shows kilowatthour input to the secondary  
21 (line) transformers, and Column 7 shows kilowatthours  
22 distributed at the system input level. Kilowatthours shown  
23 in Columns 6 and 7 are calculated using the electrical path  
24 efficiencies shown in Report 5.

1 Report 8 (starting at Page 8-1) traces the four-hour class  
2 non-coincident peak, obtained from Column 7 of Report 4,  
3 through each of the delivery systems shown in Columns 5  
4 through 7. Report 8 utilizes the energy flows shown in  
5 Report 7, and assumes that the energy delivered through each  
6 component of the system has a load factor identical to that  
7 of the entire class.

8 Q. Do the computations and analyses, which you have just  
9 described for SC 1, apply to the other classes shown in this  
10 exhibit?

11 A. Yes. With a few exceptions, which we will describe, the  
12 analyses for the remaining classes are similar to those for  
13 SC 1.

14 Q. Please describe the exceptions to which you referred.

15 A. For customers served under time-of-day rates, the data shown  
16 in Report 2 were obtained from the time-of-day billing  
17 profile recorders.

18 For street lighting and traffic signals load shape  
19 estimation, lamp wattages in service and lamp burning hours  
20 (with an allowance made for lamp outages) were used to arrive  
21 at the estimated class demand responsibilities.

22 For computing class demand responsibilities for NYPA Delivery  
23 Service to the railroad or electric traction customers,  
24 including New York City Transit Authority Substation Delivery

1 to the subway systems, high tension demands were obtained  
2 from billing recorder profiles.

3 Q. Were any changes in methodology made to the development of  
4 demand cost allocation factors?

5 A. Yes. The Company load (represented by SC99 in the exhibits)  
6 was included in the Class Demand Study so that the usage  
7 incurred by Company facilities (which accounts for 0.18% of  
8 the Total System Load) would be accounted for, as it would  
9 otherwise be captured in Unaccounted for Losses. This will  
10 aid in the effort to mitigate socialized losses to other  
11 service classes included in the study.

12 Q. Does the calculation of the Company load in the Class Demand  
13 Study follow the methodology of the other service classes?

14 A. Yes. All the calculations done with the Company load follow  
15 the methodology described for Reports 2 through 8 above.

16 **IV. ECOS STUDY**

17 Q. Did you prepare an exhibit showing the ECOS study and  
18 unbundled cost components analysis?

19 A. Yes, Exhibit \_\_\_\_ (DAC-2) is entitled "Consolidated Edison  
20 Company of New York, Inc. - Embedded Cost of Service -  
21 Electric Department - Year 2017 Rates in Effect January 1,  
22 2019."

23 Q. Please provide a general description of the ECOS study.

24 A. The ECOS study and unbundled cost components exhibit consists  
25 of five schedules. Schedule 1 shows the results of the

1 study. Schedule 2 shows the Merchant Function Charge ("MFC")  
2 calculations. Schedule 3 shows the unbundled metering costs,  
3 consisting of the meter ownership, meter service provider  
4 (including meter installations) and meter data service  
5 provider functions. Schedule 4 shows metering costs  
6 associated with customers eligible for the Mandatory Hourly  
7 Pricing ("MHP") program. They consist of the meter  
8 ownership, meter service provider (including meter  
9 installations) and meter data service provider costs the  
10 Company incurs to serve MHP-eligible customers. Schedule 5  
11 shows the unbundled costs for printing and mailing a bill and  
12 receipts processing functions.

13 Q. Please continue.

14 A. The ECOS study (Schedule 1) analyzes, on a class basis for a  
15 past period, revenues and book (accounting) costs for  
16 specific cost categories.

17 Q. What cost categories are analyzed in this ECOS study?

18 A. The ECOS study analyzes costs and revenues associated with  
19 the Company's delivery system (i.e., transmission and  
20 distribution), and customer-related cost categories or  
21 functions, and also includes cost categories related to the  
22 electric merchant function, competitive metering functions,  
23 MHP functions, the receipts processing function and the  
24 printing and mailing a bill function. The major supply  
25 function costs, i.e., purchased power and generation costs,

1 are not included in the ECOS study. Also, revenues and  
2 expenses associated with the uncollectible component of the  
3 MFC, System Benefits Charge ("SBC"), Demand Side Management  
4 ("DSM"), and Regulatory 18-A Assessment have been excluded  
5 from the study.

6 Q. What time period does the ECOS study cover?

7 A. The study covers Con Edison's electric operations for the  
8 calendar year 2017.

9 Q. What electric revenues are reflected in the ECOS study?

10 A. Electric revenues reflect 2017 customer usage priced at  
11 delivery rates which went into effect January 1, 2019.

12 Q. What customer classes are analyzed in the ECOS study?

13 A. The study analyzes classes of customers corresponding to SCs  
14 contained in our electric rate schedules, including retail  
15 access customers and customers of NYPA served by Con Edison  
16 under the P.S.C. No. 12 - Electricity schedule.

17 Q. Did the Panel make any methodological changes to the ECOS  
18 Study since the Company's last filing?

19 A. Yes. The Panel has refined the minimum system methodology  
20 for the development of demand and customer components of  
21 transformers. In the case of underground transformers,  
22 network protectors, including related equipment, we have  
23 classified them as entirely demand related in the process of  
24 developing demand and customer components for this asset  
25 class. Network protectors are associated with network

1 transformers that have a much larger kVA rating than the  
2 range of underground transformers reflected in the Company's  
3 minimum system calculation.

4 Q. Please continue.

5 A. Similarly, in the development of demand and customer  
6 components of overhead transformers, the Panel has classified  
7 capacitors and voltage regulators as entirely demand related  
8 as their kVA ratings are outside the range used in the  
9 minimum system calculation.

10 Q. Please continue with a description of the ECOS study and  
11 explain how the results of the ECOS study are expressed.

12 A. The results of the ECOS study are expressed as Total Company  
13 ("total system") and class rates of return.

14 Q. What is the total system rate of return shown in the ECOS  
15 study?

16 A. The total system rate of return is 10.24% as shown on Table  
17 1, Page 1, Column (1), Line 17 of the ECOS study. In  
18 addition, Table 1 shows rates of return for all classes  
19 analyzed in the ECOS study. For example, the SC 1 return is  
20 9.95%, the SC 9-General Large-Non-Time-of-Day ("NTD") return  
21 is 10.67% and the NYPA return is 9.20%.

22 Q. Has the Commission historically employed "tolerance bands"  
23 around the system rate of return in developing class revenue  
24 responsibilities?

1 A. Yes. Based on past practice, class revenue responsibility  
2 has been measured with respect to a +10% tolerance band  
3 around the total system rate of return. Classes would not be  
4 considered "surplus" or "deficient" if the class ECOS rate of  
5 return falls within this tolerance band. Classes that fall  
6 outside this range would be either surplus or deficient by  
7 the revenue amount, including appropriate state and federal  
8 income taxes, necessary to bring the realized return to the  
9 upper or lower level of the band. We propose to continue  
10 this practice in this case.

11 Q. Based on the application of the +10% tolerance band around  
12 the calculated total system rate of return of 10.24%, what  
13 are the ECOS study class surpluses and deficiencies?

14 A. The revenue surpluses are shown on Table 1, Line 26 and the  
15 revenue deficiencies are shown on Line 27. For example, the  
16 NYPA class has a revenue deficiency of \$348,919 below the  
17 lower level of the tolerance band. The SC 9-General Large-  
18 TOD class has a revenue surplus of \$5,453,743 above the upper  
19 level of the tolerance band.

20 Q. What is the significance, for example, of the NYPA class  
21 deficiency?

22 A. The deficiency is the amount of revenue increase, at current  
23 rates, required to bring NYPA's return to the lower level of  
24 the tolerance band around the system rate of return.

1 Q. Please describe what is shown on Table 1A, which is the last  
2 page of Exhibit \_\_\_ (DAC-2).

3 A. Due to the application of a 10% tolerance band around the  
4 system rate of return, the total of the ECOS surpluses and  
5 deficiencies in this study is a net system surplus. To  
6 ensure that ECOS study indications are revenue neutral to the  
7 Company, Table 1A adjusts classes with a rate of return below  
8 the system average based on their respective non-competitive  
9 delivery revenues used in the study to offset the net system  
10 surplus.

11 Q. Were any further adjustments made to Table 1A?

12 A. Yes, based on review of the ECOS study results, the Panel  
13 chose to exclude the SC 13 cost indications from the Table 1A  
14 analysis.

15 Q. Please explain the reasoning behind this decision.

16 A. SC 13 has only one account, a large residential housing  
17 complex that currently operates its own generator. Its use  
18 of the Con Edison system is erratic, changing not only from  
19 day to day, but from one cost study to another.  
20 Specifically, the current transmission and high tension  
21 allocation factors for this class are roughly 41% and 33%,  
22 respectively, of their 2013 equivalents.

23 Q. Why would you choose to exclude the ECOS Study results for SC  
24 13 from the Table 1A analysis and not do the same for other  
25 classes?

1 A. Recognizing the \$2.2 million surplus, which is over 80% of  
2 the SC 13 class revenues, could create tremendous rate  
3 instability. To change rates now, knowing that the cost  
4 indications could shift significantly in the next study, does  
5 not allow for proper cost assignment to a customer whose  
6 potential use of the Company's distribution system remains  
7 unchanged.

8 Q. Please continue with your explanation of Table 1A.

9 A. A check was made to make sure that classes affected by the  
10 adjustment described above remained within the tolerance band  
11 after reflecting the adjustments shown in Table 1A. The  
12 adjusted ECOS study indications are used in revenue  
13 allocation as described in the testimony of the Electric Rate  
14 Panel.

15 Q. Let us now turn to the methodology used in developing the  
16 ECOS study. Please describe the procedures followed in the  
17 preparation of this study.

18 A. There are two main steps in the preparation of the ECOS  
19 study: (1) functionalization and classification of costs to  
20 operating functions, such as transmission, distribution,  
21 customer accounting and customer service with further  
22 division into sub-functions, such as distribution demand,  
23 distribution customer, and services; and (2) allocation of  
24 these functionalized costs to customer classes.

1 Q. Please describe the functionalization and classification  
2 step.

3 A. The functionalization and classification step assigns the  
4 broad accounting-based cost categories to the more detailed  
5 categories employed in the ECOS study. This level of detail  
6 is required to differentiate, for example, demand-related  
7 costs from customer-related costs. This allows for the  
8 proper allocation of these costs to the classes based on cost  
9 causation.

10 Q. Please continue.

11 A. During the process of functionalization, all costs are  
12 classified as being demand-related, energy-related or  
13 customer-related. Demand-related costs are fixed costs  
14 created by the loads placed on the various components of the  
15 electric system. Energy-related costs are variable costs  
16 resulting from the total kilowatthours delivered during the  
17 year. Customer-related costs are fixed costs that are caused  
18 by the presence of customers connected to the system,  
19 regardless of the amounts of their demand or energy usage.

20 Q. Please describe the allocation step in the study.

21 A. The allocation step allocates the functionalized and  
22 classified costs to the customer classes based on the  
23 appropriate demand, energy or customer allocation factors,  
24 which are shown on Table 7 of the ECOS study.

25 Q. Please explain the general organization of the ECOS study.

1 A. The ECOS study begins with explanatory notes detailing  
2 sources of data and methods used in the preparation of the  
3 ECOS study followed by seven tables of cost data.

4 Q. Does the ECOS study present unbundled functional costs for  
5 competitive services as set forth in the Commission's  
6 Statement of Policy on Unbundling and Order Directing Tariff  
7 Filings, issued August 25, 2004, in Case 00-M-0504  
8 ("Unbundling Policy Statement")?

9 A. Yes. The ECOS study separately identifies the following  
10 competitive functions: merchant function, meter ownership,  
11 meter service provider, meter installations, meter data  
12 service provider, receipts processing, and printing and  
13 mailing a bill.

14 Q. What costs are included in the merchant function?

15 A. The merchant function contains costs associated with procuring  
16 electric commodity, including an allocation of customer care-  
17 related activities, customer service-related activities, and  
18 Information Technology.

19 Q. What costs are included in the allocation of customer care and  
20 customer service-related activities?

21 A. The customer care allocation includes costs associated with  
22 the Company's Call Centers, Service Centers, and credit and  
23 collection/theft activities. The customer service allocation  
24 also includes an assignment of outreach and education costs.

25 Q. How were these costs allocated to the merchant function?

1 A. Pursuant to the Unbundling Policy Statement, customer care and  
2 customer service-related costs were allocated to the merchant  
3 function on the basis of total revenues (including SBC,  
4 Regulatory 18-A Assessment, MSC, MAC, T&D, NYPA, MFC,  
5 Metering and BPP revenues).

6 Q. How were IT costs allocated to the merchant function?

7 A. Pursuant to the Unbundling Policy Statement, IT costs were  
8 allocated on the basis of total revenues with 50 percent of  
9 the resultant allocation included in the merchant function.

10 Q. Have you further unbundled the merchant function for use in  
11 developing rate components for competitive services?

12 A. Yes. The ECOS study includes the development of separate  
13 supply-related and credit and collection-related ("C&C-  
14 related") MFC components to recover the costs for these  
15 commodity-related competitive services from three categories  
16 of customers.

17 Q. How have you defined these costs?

18 A. The MFC is made up of two components. The first consists of  
19 the costs associated with procuring commodity and an  
20 allocation of IT and outreach and education associated with  
21 commodity (hereafter referred to as the competitive supply-  
22 related MFC component). The second consists of costs  
23 associated with credit and collection/theft (hereafter  
24 referred to as the competitive credit and collection related  
25 MFC component). Only full service customers will pay the

1 competitive supply-related and competitive credit and  
2 collection-related MFC components.

3 Q. How are these components allocated to the service  
4 classifications within the study?

5 A. One hundred percent of electric procurement activity costs and  
6 25 percent of credit and collection/theft, IT, and outreach  
7 and education costs were allocated on a per kilowatthour  
8 basis. The remaining 75 percent of credit and  
9 collection/theft, IT, and outreach and education costs were  
10 allocated on a per customer basis.

11 Q. Why were the customer care-type costs, such as credit and  
12 collection/theft, allocated predominantly on the basis of  
13 number of customers, while the electric procurement activity  
14 was allocated entirely on a volumetric (i.e., kWh consumption)  
15 basis?

16 A. The Company followed basic cost causation principles and  
17 determined that customer care-type activities are  
18 predominantly driven by the existence of customers on the  
19 system as opposed to their usage characteristics.  
20 On the other hand, the functional cost of purchasing commodity  
21 is aligned with sales volumes. This allocation is consistent  
22 with the Order Adopting Unbundled Rates and Backout Credits  
23 and Specifying Terms for the Recovery of Revenues Lost As a  
24 Result of Such Rates and Credits, issued April 15, 2005, in

1 Case 04-E-0572, ("April 15 Order"), approving Con Edison's  
2 unbundled rates.

3 Q. Is the allocation of the MFC components to various groups of  
4 customers shown in Exhibit \_\_\_\_ (DAC-2)?

5 A. Yes. Schedule 2 of Exhibit \_\_\_\_ (DAC-2), pages 1 and 2, shows  
6 the allocation of the competitive supply-related MFC cost  
7 components and the competitive C&C-related MFC cost components  
8 to the residential and two non-residential/commercial  
9 categories of customers. The Exhibit presents these two  
10 components as percentages of total revenues, i.e., the sum of  
11 the T&D and competitive revenues (MFC, Metering, BPP and POR  
12 Discount Credit and Collection revenues) used in the ECOS  
13 study. Separate percentages are shown for the residential and  
14 the two non-residential/commercial groups of customers for use  
15 in the development of the MFC, as detailed in the testimony of  
16 the Electric Rate Panel.

17 Q. Did the Company unbundle costs associated with metering?

18 A. Yes. The Company unbundled the metering function and created  
19 five separate costing functions: (1) Meter Ownership, (2)  
20 Meter Service Provider, (3) Meter Installations, (4) Meter  
21 Data Service Provider and (5) Utility Metering.

22 Q. Did the Company allocate the separate metering functions to  
23 various groups of customers?

24 A. Yes. Schedule 3, pages 1, 2 and 3 of Exhibit \_\_\_\_ (DAC-2),  
25 shows the allocation of the metering functions to the customer

1 classes eligible to take metering services competitively.  
2 Schedule 3 presents the costs for the competitive metering  
3 functions as percentages of the T&D and competitive revenues  
4 (MFC, Metering and BPP revenues) used in the ECOS study.  
5 Separate percentages are shown for the CECONY and the NYPA  
6 Non-Time-of-Day classes.

7 Q. How are the unbundled metering costs for MHP-eligible  
8 customers shown in the ECOS study?

9 A. Schedule 4, of Exhibit \_\_\_\_ (DAC-2), separately identifies  
10 metering costs associated with customers that are MHP-  
11 eligible within the conventional SC 8, 9 and 12 service  
12 classes and the TOD SC 5, 8,9, 12 and 13 service classes.  
13 These costs are shown in the ECOS as separate MHP functions.  
14 The functions are (1) meter ownership-MHP; (2) meter service  
15 provider-MHP which contains costs associated with installing  
16 and maintaining interval meters; and (3) the meter data  
17 service provider-MHP function, which consists of phone line  
18 installation costs and ongoing meter reading and  
19 communication expenses. Schedule 4 of Exhibit \_\_\_\_ (DAC-2)  
20 shows the above described components of the \$95.22 MHP  
21 metering charge.

22 Q. Is the allocation of unbundled costs for the printing and  
23 mailing a bill and receipts processing functions shown on  
24 Exhibit \_\_\_\_ (DAC-2), Schedule 5?

1 A. Yes. Schedule 5 of Exhibit \_\_\_\_ (DAC-2), pages 1 and 2, shows  
2 the unbundled costs for printing and mailing a bill and  
3 receipts processing functions. The printing and mailing a  
4 bill function and the receipts processing function consist of  
5 the customer accounting expense of accepting customer payments  
6 and billing customers, including both direct costs and an  
7 allocation for Call Center and Walk-in Center operations based  
8 on a detailed study of those activities. Credit and  
9 collection, education and outreach, and uncollectibles  
10 expenses were allocated to these functions on the basis of  
11 functional revenues. The unbundled average unit cost for  
12 receipts processing is 57 cents per bill. The average unit  
13 cost for printing and mailing a bill is 61 cents per bill.  
14 The costs for these two functions combined yield \$1.18 per  
15 bill in unbundled costs. The costs associated with billing  
16 and payment processing do not vary by service classification  
17 and, thus, the system-wide \$1.18 per bill in unbundled costs  
18 is applicable to all service classifications. The Electric  
19 Rate Panel makes a recommendation about how to handle these  
20 costs.

21 **V. MARGINAL COST ANALYSIS**

22 Q. Did you perform an analysis of the marginal cost to supply an  
23 additional kW of load on the transmission and distribution  
24 (T&D) delivery system?

1 A. Yes, the analysis is shown on Exhibit \_\_\_\_ (DAC-3),  
2 "Consolidated Edison Company of New York, Inc. - Electric  
3 Marginal Cost of Service Analysis."

4 Q. Please provide a general background and description of the  
5 marginal cost analysis that you are presenting.

6 A. The Commission's Order Approving Electric and Gas Rate Plans,  
7 issued January 25, 2017, in Case 16-E-0060 directed that a  
8 more granular marginal cost study be performed. The Company  
9 retained the Brattle Group, Inc. ("Brattle") to direct this  
10 effort and a revised marginal cost study was prepared. The  
11 Company filed the results of this study in Cases 16-M-0411  
12 Distributed System Implementation Plan (DSIP), 16-E-0060 and  
13 15-E-0751, In the Matter of the Value of Distributed Energy  
14 Resources ("VDER"), on July 31, 2018. A summary of the  
15 revised marginal cost study showing total system marginal  
16 costs is attached as an Exhibit to this testimony, Exhibit  
17 \_\_\_\_ (DAC-3).

18 Q. Please provide a general description of the revised marginal  
19 cost study.

20 A. As a result of the collaboration with Brattle, the marginal  
21 cost analysis was developed at the network/substation level,  
22 using projected costs and loads that cover the 10-year time  
23 period used in the study. The study calculates marginal cost  
24 as the unit investment (in dollars per kilowatt, \$/kW) needed  
25 to accommodate incremental load growth at the levels in the

1 study. This unit investment is based on the net cost of  
2 incremental capacity resulting from the investment. To  
3 account for the difference in installation years, the study  
4 converts the calculated marginal cost values into net present  
5 values ("NPVs"). The marginal costs are derived to the  
6 maximum extent practicable from either engineering estimates  
7 or actual costs of specific projects.

8 Q. Please continue.

9 A. The study covers load areas served by the Company's network  
10 and radial systems. The study develops marginal costs by  
11 identifying load growth that drives expansion of a system  
12 element and examining the costs of constructing and operating  
13 that element. More specifically, the study identified five  
14 cost centers of the transmission and distribution system  
15 where expansions due to load growth were or are planned.

16 They are:

- 17 1. High Voltage System Cost Center (Transmission)
- 18 2. Load Area Substation and Sub-transmission Cost Center
- 19 3. Primary Feeder Cost Center
- 20 4. Distribution Transformer Cost Center
- 21 5. Secondary Cable Cost Center

22 For each cost center, the study develops the unit cost of  
23 planned or undertaken projects to serve incremental demand.

24 The study converts total investment dollars to annual  
25 marginal costs using carrying charges, O&M and other

1 applicable loading factors, such as common plant and working  
2 capital. For transmission, sub-transmission and area station  
3 segments of the system, marginal costs were developed on a  
4 year-by-year basis to reflect the phased-in nature of the  
5 Company's construction schedules for these portions of the  
6 system, which often cover a number of years.

7 Q. Please continue.

8 A. We developed marginal costs for the primary, transformer and  
9 secondary segments of the system based on samples of recent  
10 engineering jobs. These samples reflected both network and  
11 non-network investment.

12 Q. Turning to Exhibit \_\_\_ (DAC-3), please describe this Exhibit.

13 A. Exhibit \_\_\_ (DAC-3) presents total system transmission and  
14 distribution marginal costs. These costs are presented in  
15 nominal dollars and are stated on a per-kW of system peak  
16 basis.

17 Q. Did the Panel develop a comparison of marginal costs to  
18 current T&D revenues for guidance in setting rates under  
19 economic development programs?

20 A. No. Given the current uncertainty around the technical  
21 aspects of distribution marginal cost estimation, as  
22 expressed in the Staff Whitepaper Regarding Future Value  
23 Stack Compensation, Including For Avoided Distribution Costs,  
24 filed December 12, 2018, in Case 15-E-0751 ("Staff  
25 Whitepaper"), the status of the revised marginal cost study

1 is unclear. It's unclear whether studies such as our revised  
2 marginal cost study will be approved by the Commission, for  
3 example in Case 15-E-0751, as a proper representation of our  
4 marginal costs,. We believe that the revised marginal cost  
5 study, if it is to be used, should be used for all relevant  
6 purposes, e.g., DER compensation and guidance for the  
7 development of economic development rate reductions.  
8 Accordingly, the Company does not support using the revised  
9 marginal cost study to guide the development of economic  
10 development rate reductions if the Commission does not adopt  
11 it for DER compensation and other relevant purposes.  
12 In addition, we note that we may further update this analysis  
13 during this rate case depending on developments in the  
14 process for reviewing marginal cost studies that may occur in  
15 the context of the DSIP filings. We note that in the Staff  
16 Whitepaper, Staff states (p. 4) that the appropriate forum for  
17 considering marginal cost study improvement and associated  
18 deliberations is as part of utility DSIP filings.

19 **VI. RATE CASE ENHANCEMENTS PROJECT**

- 20 Q. Please describe the Company's Customer Usage System ("CUS").
- 21 A. The purpose of CUS is to centralize and summarize data  
22 necessary for Rate Engineering to report on or develop various  
23 rate structures. CUS is integral to Rate Engineering's  
24 overall strategic system replacement plan, which includes the  
25 replacement, enhancement, and integration of the functionality

1 of four separate obsolete mainframe systems that we use. Over  
2 the last few years, as we have completed and tested new  
3 components, a need has arisen for additional functional  
4 enhancements to support electric and gas demand analysis, rate  
5 design, and rate impact activities and to expand functionality  
6 to improve efficiency and decrease the need for manual  
7 processes.

8 A number of items are being addressed within the scope of this  
9 Rate Case Enhancement project: (1) system requirements  
10 associated with anticipated billing changes not included in  
11 the original scope (e.g., capacity tag billing, net metering,  
12 campus billing, incentive rate designs, and REV proceeding  
13 outcomes); (2) technology and software enhancements including  
14 the need for additional fields, derivations, and data mining;  
15 (3) further automation related to the creation and storage of  
16 load shapes, e.g., Independent System Operator (ISO) market  
17 support activities, enhancements to the existing Load Shape  
18 Library, and the linkage of load shape storage facilities such  
19 as Meter Data Management to Dynamic Load Shaping modules; and  
20 (4) additional server purchases and installation costs  
21 required to store larger volumes of customer billing and  
22 interval data. As Rate Engineering demands continue to  
23 evolve, it is critical that we have a flexible system to  
24 handle rate case analytic needs as they arise.

25 Q. Please describe the Rate Case Enhancements project.

1 A. The on-going Customer Usage System (CUS) project began because  
2 certain legacy systems were coded in software that is now  
3 obsolete. The goal is to replace and retire the existing  
4 legacy processes to achieve an integrated data warehouse and  
5 to automate production of snapshot billing determinant  
6 reports, which will eliminate the need to manually query  
7 multiple sources on multiple platforms. The CUS project will  
8 facilitate a more thorough and timely rate analyses, and CUS  
9 will function as a strategic data warehouse for Rate  
10 Engineering and other users across the Company. Moreover,  
11 without these enhancements, the Company will not be able to  
12 meet certain reporting requirements, such as reactive power  
13 data, when the legacy systems are retired.

14 Q. What specific enhancement projects are you proposing?

15 A. This enhancement project will serve to integrate and  
16 centralize billing determinants and reports used for rate and  
17 bill impact analyses, allow for the evaluation of alternative  
18 rate designs, and eliminate numerous manual processes  
19 currently performed in rate design, bill impact analysis, and  
20 demand analysis.

21 Q. Please discuss the timeline and funding associated with this  
22 project.

23 A. This project is budgeted as multi-year capital projects with  
24 total expected expenditures of \$9.8 million, covering the six-  
25 -year planning horizon through 2023.

1 Q. Is this system solely for electric-related data and analyses?

2 A. No. Please see the testimony of the Gas Rate Panel on this  
3 subject.

4 Q. Have you prepared, or had prepared under your supervision, an  
5 exhibit entitled "RATE CASE ENHANCEMENTS PROJECT," Exhibit \_\_\_\_  
6 (DAC-4), that describes the capital expenditures as well as  
7 these enhancements?

8 A. Yes.

9 Q. Does this conclude your testimony?

10 A. Yes.

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INTRODUCTION

Q. Would the members of the Electric Rate Panel (the "Panel") please state their names and business address?

A. William Atzl, Ricky Joe, and Sherry Sung, 4 Irving Place, New York, New York 10003.

Q. By whom are you employed, in what capacity, and what are your professional backgrounds and qualifications?

A. **(Atzl)** We are employees of Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company"). I am Director of the Rate Engineering Department. My background is as follows: In 1983, I graduated from the State University of New York at Stony Brook with a Bachelor of Engineering degree in Mechanical Engineering. In 1989, I graduated from Pace University, White Plains, New York with a Master of Business Administration degree in Management Information Systems. I am a Licensed Professional Engineer in the State of New York. My first job was with Long Island Lighting Company in 1983 where I held the position of Assistant Engineer in the New Business Department. In 1984, I joined Orange and Rockland Utilities, Inc. ("O&R") as a Commercial and Industrial Representative in the Commercial Operations

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1 Department. At O&R, I also held the positions of  
2 Commercial and Industrial Engineer, Program Administrator  
3 - Demand-Side Management, Manager - Demand-Side  
4 Management Operations, Manager - Energy Services and  
5 Pricing, and Manager - Regulatory Affairs. In October  
6 1999, I joined Con Edison and held the position of  
7 Department Manager - Electric and Gas Rate Design - O&R  
8 and Director prior to my present position. I have  
9 testified in numerous regulatory proceedings before the  
10 New York State Public Service Commission ("Commission"),  
11 New Jersey Board of Public Utilities ("NJBPU") and  
12 Pennsylvania Public Utility Commission ("PAPUC").

13 **(Joe)** I am a Department Manager in the Rate Engineering  
14 Department. In 1993, I graduated from Rutgers College  
15 with a Bachelor of Arts degree in Economics. In 2001, I  
16 graduated from the Rutgers Graduate School of Management,  
17 with a Master's degree in Business Administration in  
18 Finance. I joined Con Edison in 2004 as a Senior Analyst  
19 in the Rate Engineering Department and worked in  
20 positions of increasing responsibility through 2012. In  
21 those positions, I worked on rate-related matters for  
22 O&R, including its regulated utility subsidiaries, as

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1 well as for Con Edison. In 2012, I moved to a position  
2 working on Con Edison electric and steam rate matters and  
3 gained more responsibilities with the promotion to my  
4 current position. Prior to joining Con Edison, I was  
5 employed by the NJBPU from 1993 to 2000,  
6 PricewaterhouseCoopers from 2000 to 2003, and Amerada  
7 Hess Corporation from 2003 to 2004. I have testified  
8 before the Commission, the NJBPU and the PAPUC.

9 **(Sung)** I hold the position of Senior Analyst in the Rate  
10 Engineering Department. In 2001, I graduated from Pace  
11 University with a Bachelor of Business Administration  
12 Degree in Management Science and minors in Mathematics  
13 and Finance. I joined Con Edison in 2017 and am  
14 responsible for revenue allocation and rate design for  
15 the Company's electric customers. Prior to joining Con  
16 Edison, I was employed by National Grid. I joined  
17 National Grid (formerly KeySpan Energy) as an intern in  
18 1999 in the Strategic Planning Department. Upon  
19 graduation, I moved to a position in the Gas Marketing  
20 Department and subsequently held positions of increasing  
21 responsibilities in the Regulatory and Pricing Department

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1 and the Gas Finance Department. I have not testified  
2 before the Commission.

3 SCOPE OF TESTIMONY

4 Q. What is the scope of your direct testimony in this  
5 proceeding?

6 A. Our testimony:

- 7 (1) presents the Company's proposal for revenue  
8 allocation and rate design;
- 9 (2) discusses the relationships between high tension and  
10 low tension rates in certain demand billed service  
11 classifications ("SCs");
- 12 (3) presents revenue and bill impacts showing the total  
13 bill effect of the proposed delivery rate changes on  
14 customers' bills and Company revenues, including  
15 three years of bill projections for selected  
16 customer usage levels in major classes that not only  
17 show the effects of the proposed delivery rate  
18 increase, but those of expected changes in certain  
19 other charges, such as changes in supply costs;
- 20 (4) proposes changes to the Business Incentive Rate  
21 ("BIR") regarding the term for the BIR rate  
22 reductions and the provision of electric facilities

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1 for publicly accessible electric vehicle ("EV")  
2 quick charging stations; and  
3 (5) describes proposed changes to the Company's Schedule  
4 for Electricity Service, P. S. C. No. 10 -  
5 Electricity ("Electric Tariff") and Schedule for  
6 PASNY Delivery Service P. S. C. No. 12 - Electricity  
7 ("PASNY Tariff") and other related tariff matters.

8 Q. Is the Panel sponsoring any exhibits?

9 A. Yes, we are sponsoring three exhibits:

- 10 • Exhibit \_\_\_ (ERP-1) High Tension / Low Tension Rate  
11 Differentials, Schedules 1-5;
- 12 • Exhibit \_\_\_ (ERP-2) - Rate Design, Schedules 1-9;  
13 and
- 14 • Exhibit \_\_\_ (ERP-3) - Summary of Economic  
15 Development Programs of Other Utilities.

16 **REVENUE ALLOCATION**

17 Q. Did the Accounting Panel supply you with the increased  
18 delivery revenue requirement for the twelve-month period  
19 ending December 31, 2020 (the "Rate Year")?

20 A. Yes, the increased delivery revenue requirement for the  
21 Rate Year amounts to \$485.4 million, including \$14.7  
22 million related to gross receipts taxes ("GRT"), which

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1 means the net increased delivery revenue requirement is  
2 \$470.7 million. For purposes of this testimony,  
3 "delivery revenue" will designate amounts associated with  
4 total delivery, including competitive and non-competitive  
5 amounts as well as certain items related to the Company's  
6 Monthly Adjustment Clause ("MAC"). References to  
7 transmission and distribution delivery revenue ("T&D  
8 delivery revenue") will reflect delivery amounts  
9 excluding the MAC items.

10 Q. Please describe the components of the \$470.7 million net  
11 increased delivery revenue requirement.

12 A. The total net increased delivery revenue requirement of  
13 \$470.7 million reflects: (1) a \$456.0 million increase in  
14 T&D delivery revenues, (2) a \$6.5 million increase in the  
15 retained generation component of the MAC, (3) a \$3.4  
16 million decrease in purchased power working capital, and  
17 (4) a \$11.6 million increase associated with the transfer  
18 of Energy Efficiency Transition Implementation Plan  
19 ("ETIP") costs that are currently recovered through a  
20 surcharge, i.e., System Benefits Charge ("SBC"), to  
21 delivery rates as proposed by the Accounting Panel and

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1 Customer Energy Solutions ("CES") Panel and as discussed  
2 further below.

3 Q. Please explain the classes to which these components are  
4 allocable.

5 A. The T&D delivery revenue increase is allocated to  
6 customers taking service under the Electric Tariff ("Con  
7 Edison Customers") and to the New York Power Authority  
8 ("NYPA" or "PASNY"). The increase in the retained  
9 generation component of the MAC is allocated to Con  
10 Edison full service and retail access customers. The  
11 decrease in purchased power working capital is allocated  
12 to Con Edison full service customers. The ETIP costs  
13 that were transferred to delivery rates are allocated to  
14 Con Edison full service and retail access customers.

15 Q. Please provide an overview of how you allocated the  
16 Company's T&D delivery revenue increase among Con Edison  
17 customers and NYPA.

18 A. We performed the following steps in allocating the T&D  
19 delivery revenue increase:

- 20 • Based on the rates that became effective January 1,  
21 2019 ("Current Rates"), we established the revenue  
22 for the rate year ("Current Revenue Level").

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- 1           •     Con Edison and NYPA Rate Year T&D delivery revenues  
2                     at the Current Revenue Level were realigned based on  
3                     Table 1A of the Company's 2017 Embedded Cost of  
4                     Service ("ECOS") study, which is Exhibit \_\_ (DAC-2)  
5                     - Schedule 1 in the Electric Demand Analysis and  
6                     Cost of Service ("DAC") Panel testimony. To  
7                     mitigate bill impacts for certain classes (i.e., SC  
8                     5 Rate I and SC 6), we propose to realign revenues  
9                     in the Rate Year based on one-third of the revenue  
10                    adjustments shown on Table 1A. Our intent is to  
11                    further realign revenues based on the remaining two-  
12                    thirds of the revenue adjustments shown on Table 1A  
13                    in subsequent years.
- 14           •     As discussed above, the \$470.7 million net Rate Year  
15                    delivery revenue increase includes certain  
16                    components that are allocated in different ways.  
17                    Therefore, the \$470.7 million net Rate Year delivery  
18                    revenue increase was adjusted, for revenue  
19                    allocation purposes, to exclude the: (1) \$6.5  
20                    million increase in the retained generation  
21                    component of the MAC, (2) \$3.4 million decrease in  
22                    purchased power working capital, and (3) \$11.6

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1 million increase associated with the transfer of  
2 ETIP costs. This results in a net decrease  
3 adjustment of \$14.7 million (i.e., \$3.4 million,  
4 less the sum of \$6.5 million and \$11.6 million),  
5 which was then subtracted from the \$470.7 million  
6 for an adjusted proposed T&D delivery revenue  
7 increase of \$456.0 million, which was allocated to  
8 Con Edison customers and NYPA, in proportion to  
9 their respective realigned Rate Year T&D delivery  
10 revenues. The \$11.6 million in ETIP costs  
11 transferred was allocated to the Con Edison full  
12 service and retail access customer classes based on  
13 kWh sales in each class. However, as discussed in  
14 the Rate Design section below, we are proposing a  
15 bill credit for Recharge New York ("RNY") customers  
16 to permit them to continue to receive an exemption  
17 from cost recovery associated with energy efficiency  
18 programs equivalent to the benefit of their  
19 exemption from the SBC. Therefore, an adjustment  
20 was made to increase the ETIP costs allocated to Con  
21 Edison customers by the projected amount of the RNY  
22 credit, prior to allocating these costs.

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- 1           •     The revenue adjustments we propose based on Table 1A  
2                   of the 2017 ECOS study for the Con Edison classes  
3                   and NYPA were added to the T&D delivery revenue  
4                   increase and ETIP costs allocated to each class to  
5                   determine the total T&D delivery revenue change  
6                   applicable to each class.
- 7           •     The total Rate Year T&D delivery revenue change for  
8                   each class was allocated among non-competitive T&D  
9                   delivery revenues, competitive service revenues,  
10                  reactive power demand charge revenues and customer  
11                  charge revenues.
- 12          •     The portion of the T&D delivery revenue change  
13                  assigned to competitive service revenues is  
14                  determined by taking the difference between the  
15                  competitive service revenues at the proposed rates,  
16                  designed in accordance with the Commission's  
17                  Statement of Policy on Unbundling and Order  
18                  Directing Tariff Filings, issued August 25, 2004, in  
19                  Case 00-M-0504 ("Unbundling Policy Statement"), and  
20                  the competitive service revenues at Current Rates.
- 21          •     The portion of the T&D delivery revenue change  
22                  associated with the change in reactive power demand

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1 charge revenue is determined for demand-billed  
2 customers as described below.

3 • Customer charges for SCs 1, 2 and 6 were increased  
4 to better reflect the Company's cost to provide  
5 service as further discussed in the Rate Design  
6 section of this testimony.

7 • The total Rate Year T&D delivery revenue change for  
8 each class was adjusted to exclude the changes in  
9 competitive service revenues and reactive power  
10 demand charge revenues to determine the class-  
11 specific non-competitive T&D delivery revenue  
12 changes. The non-competitive T&D delivery revenue  
13 changes were then adjusted to exclude the changes in  
14 customer charge revenues to determine Adjusted Non-  
15 competitive T&D Delivery Revenue changes, for the  
16 Rate Year.

17 • The Adjusted Non-competitive T&D Delivery Revenue  
18 changes for the Rate Year were restated as class-  
19 specific Adjusted Non-competitive T&D Delivery  
20 Revenue changes for the 12 months ended December 31,  
21 2017 ("Historic Period") for purposes of designing  
22 the proposed non-competitive T&D delivery rates,

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1           other than customer charges. The Historic Period is  
2           the period for which detailed billing data are  
3           available.

4 Q. Please describe how you developed the Adjusted Non-  
5 competitive T&D Delivery Revenue changes applicable to  
6 the Con Edison classes for the Historic Period.

7 A. Revenue ratios were developed for each class by dividing  
8 the Rate Year Adjusted Non-competitive T&D Delivery  
9 Revenues for each class by the Historic Period Adjusted  
10 Non-competitive T&D Delivery Revenues for each class at  
11 the Current Revenue Level. The revenue ratio for each  
12 class was applied to the Rate Year Adjusted Non-  
13 competitive T&D Delivery Revenue change for each class to  
14 determine each class's Adjusted Non-competitive T&D  
15 Delivery Revenue change for the Historic Period.

16 Q. Please explain the components of competitive service  
17 revenue and how you developed the change in competitive  
18 service revenue applicable to the Con Edison classes.

19 A. Competitive service revenues are comprised of revenues  
20 associated with: (a) the supply-related component of the  
21 Merchant Function Charge ("MFC"), including the purchased  
22 power working capital component; (b) the credit and

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1 collection ("C&C") related component of the MFC; (c)  
2 competitive metering charges; and (d) the billing and  
3 payment processing ("BPP") charge. The changes in  
4 competitive service revenues by class were developed by  
5 computing the difference between the competitive service  
6 revenues at the proposed rates, as described in the Rate  
7 Design section below, and the competitive service  
8 revenues at Current Rates.

9 Q. Please describe how you determined the change in the  
10 reactive power demand charge revenues.

11 A. The revenues associated with the change in reactive power  
12 demand charges were determined based on the difference  
13 between the current reactive power demand charge, i.e.,  
14 \$1.97, and the proposed charge to reflect updated costs,  
15 i.e., \$2.14. The difference was applied to the Rate Year  
16 kVar usage amounts to determine the change in reactive  
17 power demand charge revenues.

18 Q. Please describe how you determined the changes in  
19 customer charge revenues.

20 A. The changes in customer charge revenues were determined  
21 by computing the differences between SC 1, 2 and 6  
22 customer charge revenues based on current customer

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1 charges, and SC 1, 2 and 6 customer charge revenues based  
2 on proposed customer charges.

3 Q. Please describe NYPA's share of the T&D delivery revenue  
4 increase.

5 A. NYPA's share of the T&D delivery revenue increase,  
6 excluding GRT, was determined to be \$52.4 million. This  
7 amount was increased by one-third of the total ECOS study  
8 deficiency of \$1.8 million from Table 1A of Exhibit \_\_\_\_  
9 (DAC-2), to yield a total T&D delivery revenue increase  
10 to NYPA of \$53.0 million for the Rate Year.

11 Q. Why did you address only one-third of the NYPA deficiency  
12 of \$1.8 million?

13 A. As we stated in our discussion regarding the Con Edison  
14 classes, we propose to realign revenues in the Rate Year  
15 for the Con Edison classes based on one-third of the  
16 revenue adjustments to mitigate the customer impacts of  
17 this change. To be consistent in our treatment of all  
18 customer classes, including NYPA, we propose to apply  
19 one-third of the revenue adjustment applicable to NYPA as  
20 well. Our intent is to adjust NYPA revenues based on the  
21 remaining two-thirds of the NYPA deficiency in subsequent  
22 years.

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1 Q. Please describe how you restated the Rate Year T&D  
2 delivery revenue change applicable to NYPA for the  
3 Historic Period.

4 A. Revenue ratios were developed by dividing the applicable  
5 Rate Year NYPA T&D delivery revenues by the Historic  
6 Period NYPA T&D delivery revenues at the Current Revenue  
7 Level. The revenue ratios were applied to the Rate Year  
8 NYPA total T&D delivery revenue change to derive the NYPA  
9 total T&D delivery revenue change for the Historic  
10 Period.

11 **RATE DESIGN**

12 Q. Please explain how you designed the proposed T&D delivery  
13 rates for Con Edison SCs.

14 A. The rate design process for the Con Edison SCs consisted  
15 of the following steps:

- 16 1. Determine rates for competitive services in accordance  
17 with the Commission's Unbundling Policy Statement;
- 18 2. Increase customer charges for SCs 1, 2 and 6  
19 including voluntary TOD rates, with the exception of  
20 SC 1 Rate II discussed further below, to better  
21 reflect the Company's cost to provide service; and

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1 3. Design non-competitive delivery rates to recover the  
2 Adjusted Non-competitive T&D Delivery Revenue change  
3 assigned to each class.

4 Q. Please describe the first step of the rate design  
5 process.

6 A. The first step is to develop the rates for competitive  
7 services, i.e., the supply-related and C&C components of  
8 the MFC, competitive metering charges and the BPP charge.

9 Q. Please describe the MFC.

10 A. The MFC consists of two components: a supply-related  
11 component, including a purchased power working capital  
12 component, and a C&C related component. Separate MFCs  
13 were calculated for (1) SC 1 customers, (2) SC 2  
14 customers, and (3) all other customers.

15 Q. Please describe how you designed the MFC.

16 A. As shown in Exhibit \_\_\_ (DAC-2) - Schedule 2, Page 1, the  
17 costs associated with the supply-related component are:  
18 (1) 0.17043 percent of total Con Edison T&D delivery  
19 revenues at Current Rates for SC 1 customers,  
20 (2) 0.02410 percent of total Con Edison T&D delivery  
21 revenues at Current Rates for SC 2 customers, and

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1 (3) 0.06604 percent of total Con Edison T&D delivery  
2 revenues at Current Rates for all other Con Edison  
3 customers.

4 To determine the Rate Year revenue requirement associated  
5 with these costs for each SC group, the respective  
6 percentages were applied to the total Con Edison Rate  
7 Year T&D delivery revenue requirement at the proposed  
8 rate level. The resulting Rate Year revenue requirement  
9 for the supply-related portion of the MFC for each SC  
10 group was then divided by the Rate Year sales of full  
11 service customers for SC 1, SC 2, and other Con Edison  
12 classes, respectively, to determine the \$/kWh supply-  
13 related component of the MFC for each SC group.

14 Q. Have you recognized in the computation of the supply-  
15 related MFC rate component an allowance for working  
16 capital on purchased power?

17 A. Yes. In accordance with the Unbundling Policy  
18 Statement, we reflected in rates an allowance for working  
19 capital on purchased power. Specifically, the Accounting  
20 Panel provided us with a purchased power working capital  
21 allowance of \$7.836 million, excluding GRT. The proposed  
22 rate associated with purchased power working capital has

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1           been computed by dividing the purchased power working  
2           capital amount of \$7.836 million by Rate Year full  
3           service customers' sales to derive a 0.0395 cent per-kWh  
4           charge that was added to the applicable supply-related  
5           MFC component for each SC group.

6    Q.    Please continue.

7    A.    As shown on Exhibit \_\_ (DAC-2) - Schedule 2, Page 2, the  
8           total costs associated with the C&C-related component of  
9           the MFC are 0.76569 percent of total Con Edison T&D  
10          delivery revenues at Current Rates. To determine the  
11          total Rate Year C&C-related revenue requirement, this  
12          percentage was applied to the total Con Edison Rate Year  
13          T&D delivery revenue requirement at the proposed level.  
14          The total Rate Year C&C-related revenue requirement was  
15          then split between full service and Purchase of  
16          Receivable ("POR") customers based on the respective  
17          split of full service and POR forecasted Rate Year kWh  
18          sales. The portion of the C&C-related Rate Year revenue  
19          requirement to be recovered from full service customers  
20          through separate MFC rate components was further  
21          allocated among: (1) SC 1 customers, (2) SC 2 customers,  
22          and (3) all other customers based on the breakdown of

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1 relative class percentages for full service customers'  
2 portion of C&C costs as shown on Exhibit \_\_ (DAC-2) -  
3 Schedule 2, Page 2. The resulting Rate Year revenue  
4 requirements for the C&C-related portion of the MFC for  
5 each SC group were then divided by the respective Rate  
6 Year sales for full service customers to determine the  
7 \$/kWh C&C-related component of the MFC. The residual  
8 Rate Year C&C-related revenue requirement will be  
9 recovered through a percentage adder to the POR discount  
10 rate.

11 Q. Do you propose to revise the BPP charge?

12 A. No. As noted in the DAC Panel testimony, the current  
13 unbundled cost for electric billing and payment  
14 processing is \$1.18 per bill, i.e., the sum of the \$0.61  
15 per bill cost for printing and mailing and the \$0.57 per  
16 bill cost for payment processing. This is very close to  
17 the existing electric BPP charge so no change is  
18 warranted.

19 Q. Please explain how you developed the competitive metering  
20 charges for customers, other than customers eligible to  
21 take service under Rider M - Day-Ahead Hourly Pricing.

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1 A. As shown on Exhibit \_\_\_\_ (DAC-2), Schedule 3, competitive  
2 metering services recognize separate costing functions  
3 consisting of meter ownership, meter data service  
4 provider and meter service provider (including meter  
5 installation) costs. To determine the Rate Year revenue  
6 requirement associated with each of these costing  
7 functions for Rate I of SC Nos. 5, 8, 9, and 12, the  
8 percentages for these classes shown on Exhibit \_\_\_\_ (DAC-  
9 2), Schedule 3, were multiplied by the total Con Edison  
10 Rate Year T&D delivery revenue requirement at the  
11 proposed rate level. The percentages shown on Exhibit  
12 \_\_\_\_ (DAC-2), Schedule 3 represent the class share of each  
13 function as a percentage of total Con Edison T&D delivery  
14 revenues at Current Rates. The resulting Rate Year  
15 competitive metering-related revenue requirement for each  
16 SC subject to metering charges was divided by each SC's  
17 annual number of bills for the Rate Year to determine the  
18 \$/bill metering charge applicable to each competitive  
19 metering function.

20 Q. How do you propose to establish the meter ownership,  
21 meter service provider (including meter installation) and  
22 meter data service provider charges applicable to Rate I

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1 of SC Nos. 5, 8, 9, and 12 full service and retail access  
2 customers eligible to take service under Rider M - Day-  
3 Ahead Hourly Pricing and to Rate II customers in SCs 5,  
4 8, 9, and 12 and Rate I customers in SC 13?

5 A. We propose that the meter ownership, meter service  
6 provider (including meter installation) and meter data  
7 service provider charges applicable to these customers be  
8 set equal to the metering costs set forth on Exhibit \_\_\_  
9 (DAC-2), Schedule 4 to the DAC Panel's testimony,  
10 increased by the proposed overall percentage change in  
11 Con Edison Rate Year T&D delivery revenue.

12 Q. Please describe the second step in the rate design  
13 process.

14 A. The second step is the development of customer charges.  
15 Con Edison's residential customer charges are currently  
16 lower than customer costs indicated in the ECOS study and  
17 among the lowest in New York State as shown in the table  
18 below.

19

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Residential Customer Charges in NY

Company	Non-VTOD	VTOD
RG&E	21.38	25.36
Central Hudson	21.00	24.00
Central Hudson (2021)	19.50	22.50
O&R	20.00	32.00
O&R (pending)	19.50	32.00
National Grid	17.00	20.36
<b>Con Edison (proposed)</b>	<b>17.00</b>	<b>21.46</b>
Con Edison (current)	15.76	19.87
NYSEG	15.11	17.40

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Customer charges for SCs 1, 2 and 6, including VTOD rates, were increased to move customer charges closer to the customer costs indicated in the ECOS study.

Therefore, the customer charges applicable to voluntary TOD rates for SC 1 (Rates II and III) and SC 2 (Rate II) have been set equal to the proposed customer charges of Rate I for SCs 1 and 2, respectively, plus an incremental cost associated with a TOD meter.

Lastly, the customer charge applicable to SC 1 Special Provision D was kept at its current level. The current Electric Rate Plan closed this Special Provision to new applicants, and the two remaining customers are grandfathered through December 31, 2023.

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1 Q. Please describe the third step of the rate design  
2 process.

3 A. The third step is the design of the non-competitive  
4 charges for the Con Edison SCs to collect the Adjusted  
5 Non-competitive T&D Delivery Revenue change. We applied  
6 the following guidelines in designing the proposed rates:

- 7 • As explained in the Revenue Allocation section of  
8 this testimony, after accounting for the changes in  
9 the SC 1 Residential and Religious (Rate I), SC 2  
10 General Small (Rate I) and SC 6 Public and Private  
11 Street Lighting customer charges, the per-kWh  
12 charges for these classes were designed to recover  
13 the balance of the residual revenue requirements  
14 assigned to each respective class.
- 15 • Consistent with past practice, VTOD rates for SCs 1  
16 (Rates II and III) and 2 (Rate II) were designed to  
17 recover each class's overall T&D delivery revenue  
18 requirement. The rates were designed to be revenue  
19 neutral, i.e., the rates were designed to yield the  
20 same level of class revenues that the Company would  
21 receive under the proposed conventional rates.

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- 1           •     For SC 12 customers billed for energy only, the  
2                     minimum charge and the per-kWh charges were  
3                     increased by the Adjusted Non-competitive T&D  
4                     Delivery Revenue change applicable to the SC 12  
5                     (Rate I) customer class.
- 6           •     For Rate I of SCs 5, 8, 9 and 12, prior to applying  
7                     the revenue increase, 5 percent of the usage revenue  
8                     (i.e., revenue from per-kWh charges) was shifted  
9                     into demand revenue on a revenue neutral basis.  
10                    Then, the Adjusted Non-competitive T&D Delivery  
11                    Revenue changes were applied entirely to the demand  
12                    charges, including minimum charges. Since the  
13                    majority of transmission and distribution costs are  
14                    fixed or demand-related, shifting a portion of usage  
15                    revenue to demand revenue and applying the revenue  
16                    increase to demand charges more closely aligns how  
17                    costs are incurred and collected from customers.  
18                    The usage charges for these classes will remain at  
19                    their redesigned current levels (i.e., resulting  
20                    from the shift of 5 percent of usage revenues to  
21                    demand revenues on a revenue neutral basis). This  
22                    results in a higher percentage of revenue for these

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1 classes being recovered through fixed and demand-  
2 related charges.

3 • For demand-billed classes, high tension/low tension  
4 differentials have been reviewed to assess the high  
5 tension/low tension unit cost relationships based on  
6 the ECOS study. As explained in the High Tension /  
7 Low Tension Rate Differentials section of this  
8 testimony, no adjustments to high tension/low  
9 tension differentials are warranted in this case.

10 • The mandatory TOD rates for SCs 5, 8, 9, 12, and 13  
11 and VTOD rates for SCs 8, 9, and 12 were designed to  
12 collect the increased T&D delivery revenue  
13 requirement applicable to these classes. The  
14 Adjusted Non-competitive T&D Delivery Revenue  
15 changes for these classes were applied entirely to  
16 demand rates to better reflect the nature of  
17 transmission and distribution costs. In keeping  
18 with past practice, the per-kWh rates remain equal  
19 across these classes. Since we are applying the  
20 Adjusted Non-competitive T&D Delivery Revenue change  
21 entirely to demand charges, the per-kWh rates will  
22 remain at the current levels. VTOD rates were

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1           designed to recover the class revenue requirement of  
2           all customers not billed under mandatory TOD rates.

- 3           • As discussed in the Revenue Allocation section of  
4           this testimony, the reactive power demand charge,  
5           including the charge for induction-generation  
6           equipment, was increased to reflect updated costs.
- 7           • Standby rates applicable under Rate III and Rate IV  
8           of SC 5, and Rate IV and Rate V of SCs 8, 9, and 12,  
9           were developed consistent with the Commission's  
10          Opinion No. 01-04, Opinion and Order Approving  
11          Guidelines for the Design of Standby Service Rates,  
12          issued and effective October 26, 2001 in Case 99-E-  
13          1470 ("Standby Rates Order"). The Commission stated  
14          "the standby rates for each service classification  
15          should produce the same revenues as the standard  
16          rates, using the class billing determinants (Standby  
17          Rates Order, Appendix A, p. 2). The Standby Rates  
18          Order (p. 7) says that revenue neutral means "the  
19          full service class (not any individual customer)  
20          would contribute the same revenues if the full class  
21          was priced under either the standard service class  
22          rates or the standby rates (given the historic usage

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1 patterns of the customers in that class)." Standby  
2 rates for SC 13 (Rate II) were developed by  
3 increasing the current rates by the non-competitive  
4 T&D delivery revenue percentage increase applicable  
5 to SC 13 Rate I.

6 • Standby as-used daily demand delivery charges for  
7 each SC under Option B of Rider Q - Standby Rate  
8 Pilot were also developed to be revenue neutral to  
9 the class rates for the otherwise applicable standby  
10 service class. However, Rider Q Option B as-used  
11 daily demand delivery charges applicable to summer  
12 months were calculated to reduce Period 1 (i.e.,  
13 weekdays 8 AM to 6 PM) hours to four-hour periods  
14 based on event call windows under the Company's  
15 Commercial System Relief Program. Additionally,  
16 revenue was shifted from the as-used daily demand  
17 delivery charges applicable to the summer Period 2  
18 (i.e., weekdays 8 AM to 10 PM) to the Period 1 as-  
19 used daily demand delivery charges. This is  
20 consistent with the methodology used to set current  
21 Rider Q Option B rates as approved by the Commission  
22 in its Order Approving Tariff Amendments With

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1 Modifications, issued January 19, 2018, in Case 16-  
2 E-0060.

- 3 • Rates for the Company's Innovative Pricing Pilot  
4 under Rider Z, applicable to SC 1 customers, were  
5 determined in a manner revenue neutral to the  
6 otherwise applicable SC 1 Rate I and SC 2 Rate 1  
7 rates, respectively, using the methodology approved  
8 by the Commission in its Order Approving Tariff  
9 Amendments with Modifications, issued December 13,  
10 2018, in Case 18-E-0397. Rates for the Company's  
11 Innovative Pricing Pilot under Rider AA, applicable  
12 to SC 2 customers, were increased by the same  
13 percentage increase as the SC 2 per kWh rates.  
14 Customer charges under Riders Z and AA were  
15 increased to the levels proposed for SC 1 Rate I and  
16 SC 2 Rate 1 customer charges, respectively.
- 17 • The customer charges and distribution contract  
18 demand charges in SC 11 - Buy-Back Service - were  
19 set equal to the customer charges and contract  
20 demand charges in Rate III and IV of SC 5, Rate IV  
21 and Rate V of SCs 8, 9, and 12, and Rate II of SC  
22 13.

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1 Q. Please discuss how you designed the proposed delivery  
2 rates for NYPA.

3 A. Rate I and Rate II charges under the PASNY Tariff were  
4 increased by the total T&D delivery revenue percentage  
5 increase applicable to NYPA. High tension/low tension  
6 differentials were reviewed to assess the high  
7 tension/low tension unit cost relationships based on the  
8 ECOS study. As explained in the High Tension / Low  
9 Tension Rate Differentials section of this testimony, no  
10 adjustment to high tension/low tension differentials is  
11 warranted in this case. Consistent with the standby rate  
12 guidelines in the Standby Rates Order, Rate III and IV  
13 rates were developed for each class within the PASNY  
14 Tariff to be revenue neutral at the proposed revenue  
15 level, i.e., Rates III and IV were developed to produce  
16 the same delivery revenues as the equivalent non-standby  
17 rates.

18 Q. Did you change the competitive metering credits for  
19 customers served under the PASNY Tariff?

20 A. Yes. On Exhibit \_\_\_ (DAC-2) - Schedule 3, the embedded  
21 costs for each of the competitive metering functions are  
22 expressed as a percentage of total NYPA delivery revenues

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1 at Current Rates for non-TOD demand-billed customers. To  
2 determine the Rate Year revenue requirement associated  
3 with competitive metering functions for non-TOD demand-  
4 billed classes, the respective percentages were  
5 multiplied by the total NYPA Rate Year proposed revenue  
6 requirement. The resulting Rate Year revenue requirement  
7 associated with competitive metering functions for these  
8 non-TOD demand-billed customers was then divided by the  
9 applicable annual number of bills to determine the \$/bill  
10 metering credit applicable to each competitive metering  
11 function. For TOD-billed customers, the meter ownership,  
12 meter data service provider and meter service provider  
13 (including meter installation) charges were set based on  
14 metering costs, as shown on Exhibit \_\_ (DAC-2), Schedule  
15 4, and then increased by the proposed total percentage  
16 change in NYPA Rate Year T&D delivery revenue.

17 Q. Have you updated the rate reductions for the Excelsior  
18 Jobs Program ("EJP") (SC 9 Special Provision H)?

19 A. Not at this time. The EJP rate reductions are normally  
20 set based on marginal costs. On July 31, 2018, the  
21 Company filed a revised marginal cost of service ("MCOS")  
22 study along with its Distributed System Implementation

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1 Plan in Case 16-M-0411. However, the status of this MCOS  
2 study is unclear, as discussed by the DAC Panel.

3 Therefore, we propose to maintain EJP rate reductions at  
4 their current level.

5 Q. Have you verified that the proposed rates for the Con  
6 Edison classes and NYPA will produce the revenue increase  
7 proposed by the Accounting Panel when those rates are  
8 applied to projected Rate Year sales?

9 A. We have provided the Electric Forecasting Panel with the  
10 proposed rates, and they verified the amounts.

11

12 **HIGH TENSION / LOW TENSION DIFFERENTIALS**

13 Q. What is the high tension/low tension differential?

14 A. This differential refers to the difference between \$/kW  
15 annualized high tension and low tension demand rates for  
16 demand-billed classes, including NYPA.

17 Q. Did you make any adjustments to the high tension/low  
18 tension differential for demand-billed classes?

19 A. No. The demand rates for the demand-billed classes were  
20 not adjusted for the relationship between unit costs for  
21 high tension and low tension services.

22 Q. How was this determination made?

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1 A. The review of high tension and low tension differentials  
2 involves a three-step process.  
3 The first step in the process determines the  
4 relationships between high tension and low tension unit  
5 costs for each class based on the 2017 ECOS study.  
6 The high tension unit cost was determined by dividing the  
7 sum of the required revenue for cost components  
8 applicable to both high tension and low tension customers  
9 by the total billed demands for high tension and low  
10 tension service.  
11 The high tension/low tension unit cost differential was  
12 determined by dividing the sum of the required revenue  
13 for cost components applicable only to low tension  
14 customers by the total billed demands for low tension  
15 service.  
16 The low tension unit cost was determined by adding the  
17 high tension unit cost and the high tension/low tension  
18 unit cost differential. Finally, we divided the high  
19 tension unit cost by the low tension unit cost to  
20 determine the high tension/low tension ratio, which  
21 allows us to compare high tension/low tension  
22 differentials among classes on a common basis.

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1 The high tension unit costs, low tension unit costs, high  
2 tension/low tension \$/kW unit cost differentials and high  
3 tension/low tension ratios are shown on Exhibit \_\_ (ERP-  
4 1), Schedule 1.

5 Q. Please describe the second step in the process.

6 A. The second step in the process determines the high  
7 tension/low tension rate differentials and high  
8 tension/low tension ratios by class reflected in Current  
9 Rates. See Exhibit \_\_ (ERP-1), Schedule 2.

10 The Current Rates are adjusted to reflect the shift of 5  
11 percent of usage revenue to demand revenue on a revenue  
12 neutral basis that we described earlier for Rate I of SCs  
13 5, 8, 9 and 12. The redesigned demand rates are shown in  
14 Exhibit \_\_ (ERP-1), Schedule 3.

15 We determine annualized demand rates based on a weighted  
16 average of summer and winter rates. This calculation was  
17 performed for each rate block, and for the minimum  
18 charges that include a minimum number of kW, the rate was  
19 unitized to a per-kW rate by dividing it by the  
20 corresponding kW associated with the minimum charge. The  
21 high tension/low tension rate differential was determined  
22 by subtracting the annualized high tension rate from the

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1 annualized low tension rate. The high tension/low  
2 tension ratio was determined by dividing the annualized  
3 high tension rate by the annualized low tension rate.  
4 See Exhibit \_\_\_\_ (ERP-1), Schedule 4.

5 Q. Please describe the third step in the process.

6 A. The third step in the process compared, for each class,  
7 high tension/low tension ratios based on costs, derived  
8 in step one, to high tension/low tension ratios reflected  
9 in Current Rates, derived in step two. The differences  
10 between high tension/low tension ratios based on costs  
11 and high tension/low tension ratios reflected in Current  
12 Rates indicate that subsidies may exist and should be  
13 addressed to limit further subsidies. These ratios were  
14 compared by subtracting high tension/low tension ratios  
15 based on costs from the high tension/low tension ratios  
16 reflected in Current Rates. To the extent that the  
17 absolute value of the difference in ratios exceeded 10  
18 percentage points for a particular rate class, that class  
19 would be selected for adjustment. See Exhibit \_\_\_\_ (ERP-  
20 1), Schedule 5. Rates in selected classes would be  
21 adjusted by redistributing the revenues between the high  
22 and low tension services on a revenue neutral basis.

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1 Q. Should the high tension/low tension differentials be  
2 addressed in this case?

3 A. No. Based on the three steps discussed above, the  
4 Company determined that no rate class showed a difference  
5 in ratios exceeding 10 percentage points. Therefore, the  
6 Company is not proposing adjustments to high tension/low  
7 tension differentials at this time.

8 **REVENUE AND BILL IMPACTS**

9 Q. Having computed revised rates for each SC, have you  
10 prepared exhibits showing what the estimated impact on  
11 customers' bills would be under the proposed rates?

12 A. Yes. We prepared Exhibit \_\_\_ (ERP-2), the first page of  
13 which is entitled "CONSOLIDATED EDISON COMPANY OF NEW  
14 YORK, INC. ESTIMATED EFFECT ON ELECTRIC CUSTOMERS' BILLS  
15 AND COMPANY REVENUES RESULTING FROM PROPOSED ELECTRIC  
16 RATES BASED ON SALES AND REVENUES FOR THE 12 MONTHS ENDED  
17 DECEMBER 31, 2017."

18 Q. Please continue.

19 A. Exhibit \_\_\_ (ERP-2) includes nine schedules that compare  
20 present and proposed revenue levels and rates and show  
21 the estimated impacts on customers' bills resulting from  
22 the proposed rates.

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1 Q. Please explain each schedule.

2 A. Exhibit \_\_ (ERP-2) - Schedule 1, shows for the Electric  
3 Tariff, by SC, the number of monthly bills rendered,  
4 kilowatt hours delivered, and the revenues for the 12  
5 months ended December 31, 2017, that would have been  
6 derived from Con Edison full service and retail access  
7 customers at the conventional and TOD rates at the  
8 Current Revenue Level. The annualized revenues reflect  
9 the effect of an estimated MAC and market supply charge  
10 ("MSC") for both full service and retail access  
11 customers.

12 Exhibit \_\_ (ERP-2) - Schedule 2 shows, for the PASNY  
13 Tariff, the number of bills rendered on NYPA customer  
14 accounts, kilowatt hours delivered, and the annualized  
15 revenues for the 12 months ended December 31, 2017 that  
16 would have been derived at the Current Rates. The  
17 annualized revenues include an estimated supply cost for  
18 NYPA customers.

19 Exhibit \_\_ (ERP-2) - Schedule 3 shows a comparison of  
20 Current Rates and proposed Rate Year Con Edison Rates and  
21 Charges. It consists of 37 tables, headed by an index  
22 sheet, which covers all of the existing SCs. Each table

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1 consists of two columns. The left hand column shows the  
2 rates and charges at the Current Revenue Level, and the  
3 right hand column shows the proposed rates and charges.  
4 Exhibit \_\_ (ERP-2) - Schedule 4 shows a comparison of the  
5 Current Rates and proposed Rate Year rates and charges  
6 under the PASNY Tariff. It consists of seven tables.  
7 Each table consists of two columns. The left hand column  
8 shows the rates and charges at the Current Revenue Level,  
9 and the right hand column shows the proposed rates and  
10 charges.

11 Exhibit \_\_ (ERP-2) - Schedule 5 shows bill comparisons  
12 for Con Edison customers at Current Rates and at the  
13 proposed rates. It consists of tables that show  
14 comparisons of monthly bills at various consumption  
15 levels under conventional rates and charges at the  
16 Current Revenue Level and under the proposed conventional  
17 rates and charges for the Con Edison SCs. These  
18 comparisons show bills covering a reasonable range of  
19 monthly use for the classes shown.

20 Exhibit \_\_ (ERP-2) - Schedule 6 shows, for each TOD SC,  
21 the annual percentage change in customers' bills under  
22 TOD rates at the Current Revenue Level and proposed TOD

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1 rates based upon consumption levels for the 12 months  
2 ended December 31, 2017.

3 Exhibit \_\_ (ERP-2) - Schedule 7 shows, for each Con  
4 Edison SC, the estimated change in revenues under the  
5 proposed Rate Year conventional and TOD rates and  
6 charges, the overall percentage change by SC, and the  
7 estimated effect on customers' bills based on sales and  
8 revenues for the Historic Period.

9 Exhibit \_\_ (ERP-2) - Schedule 8 shows for the Historic  
10 Period the estimated increase in PASNY delivery service  
11 revenues under the proposed Rate Year rates and charges.  
12 The revenues and bill impacts shown in Exhibit \_\_\_\_ (ERP-  
13 2), Schedules 1, 2, 5, 6, 7 and 8 include the same MSC,  
14 SBC and DLM charges in the revenues and bill amounts at  
15 the Current Revenue Level and proposed revenues and bill  
16 amounts in order to demonstrate the impact of the change  
17 in delivery rates on a customer's total bill amount,  
18 including the increase in fixed generation costs to be  
19 included in the MAC, which is a component of the net Rate  
20 Year delivery revenue increase.

21 As discussed above, Current Rates and the Current Revenue  
22 Level are based on the rates that became effective

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1 January 1, 2019 since these are the Commission-authorized  
2 rates and revenue level that will be in effect prior to  
3 the changes proposed in this case.

4 The revenues and bill impacts therefore do not include  
5 the effect of changes outside the base rate level  
6 approved by the Commission, such as the tax sur-credit,  
7 ETIP cost recovery transferred from the SBC to base  
8 delivery rates, and RDM Adjustment revenues.

9 Q. Have you prepared any analyses that show the change in  
10 total Con Edison customers' bills taking into account  
11 both the increase in proposed delivery rates and other  
12 expected changes, such as changes in supply costs?

13 A. Yes. We have prepared Exhibit \_\_ (ERP-2) - Schedule 9  
14 entitled "PROJECTED ELECTRIC BILLS." In this schedule,  
15 we provide bill comparisons for the three 12-month  
16 periods commencing January 1, 2020, January 1, 2021, and  
17 January 1, 2022, at projected levels for the following  
18 customers: (1) an SC 1 residential customer using 300 kWh  
19 per month; (2) an SC 1 residential customer using 450 kWh  
20 per month; (3) an SC 2 customer using 600 kWh per month;  
21 and (4) an SC 9 Rate I customer with a maximum demand of  
22 30 kW and load factor of 50 percent.

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1 Q. Please explain Schedule 9.

2 A. Schedule 9 of Exhibit \_\_\_ (ERP-2) shows average monthly  
3 bills for these selected customers at current rates and  
4 proposed rates for each 12-month period. In these  
5 comparisons, the supply and delivery-related portions of  
6 the bills are also shown. The supply charges reflect the  
7 effect of projected MSC and MAC charges based on the  
8 supply cost projections made by Company witness Kimball  
9 (regarding Electricity Supply). The delivery charges  
10 consist of projected non-competitive T&D delivery charges  
11 and projected competitive service charges based on three  
12 years of projected delivery revenue requirements provided  
13 by the Accounting Panel. Delivery charges also include  
14 projections for various other charges, such as the SBC  
15 and DLM, for each of the three Rate Years.

16

17

**BUSINESS INCENTIVE RATE**

18 Q. What is the Business Incentive Rate ("BIR")?

19 A. The BIR (Rider J of the Electric Tariff) is a discounted  
20 delivery rate used to promote economic development in the  
21 Company's service territory. Although it has several  
22 eligibility components, it is primarily available to

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1 businesses that open in new or formerly vacant buildings  
2 or receive a comprehensive package of economic incentives  
3 conferred by a governmental agency.

4 Q. Is the Company proposing to continue its BIR program?

5 A. Yes. Since the BIR supports the Company's continuing  
6 efforts to foster economic development in its service  
7 territory, the Company proposes to extend the BIR  
8 application period during the term of the new rate plan.

9 Q. Is the Company proposing a change to the term of the BIR  
10 rate reductions?

11 A. Yes it is.

12 Q. Please explain your proposed change.

13 A. The Company is proposing to limit the maximum term of the  
14 BIR rate reductions, for new customers taking service  
15 under the BIR, to a maximum of 10 years. We propose to  
16 apply BIR rate reductions in full for the first five  
17 years, with a phase out over the remaining five years.

18 Q. What is the current term for the BIR rate reductions?

19 A. There are different terms for the various BIR program  
20 components.

21 Q. Please explain the existing terms for the BIR program  
22 components.

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1 A. The New York City or Westchester Comprehensive program  
2 has an initial term of service of no less than three  
3 years and no more than 10 years, which may be followed by  
4 a phase-out period of three to five years. BIR rate  
5 reductions for Business Incubator Graduates are available  
6 for a five-year non-renewable term with no phase-out  
7 period. BIR rate reductions for the EV Quick Charging  
8 Station Program are available for seven years with no  
9 phase-out. All other customers under the BIR have an  
10 initial term of 10 years followed by a five-year phase-  
11 out.

12 Q. Will the proposed change to the maximum term affect  
13 customers that are currently receiving a BIR rate  
14 reduction?

15 A. No. The Company is proposing that the new maximum term  
16 apply only to new applications received after the  
17 effective date of new rates in this proceeding. All  
18 other existing BIR customers would be grandfathered under  
19 their existing contracts.

20 Q. Why is the Company proposing to reduce the maximum term  
21 of the BIR rate reduction?

22 A. The Company has benchmarked the BIR to economic  
23 development programs offered by other utilities. The

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1 Company has determined that the maximum term for rate  
2 reductions under its BIR program is an outlier.

3 Q. Please explain what you mean when you say the term is an  
4 outlier?

5 A. Con Edison and O&R are the only public utilities in New  
6 York State that currently offer economic development rate  
7 reductions other than those available under the  
8 legislatively mandated EJP. The O&R Economic Development  
9 Rider provides discounts for a period of five years.

10 Q. Are there other rate discount incentive programs within  
11 New York State that have shorter terms?

12 A. Yes, the RNY program, which is offered by NYPA, has  
13 similar goals to the Con Edison BIR program, but offers  
14 eligible customers a seven-year term. The EJP provides  
15 rate reductions for a term of up to ten years. The EJP  
16 rate reductions are in the form of 12-month periods and  
17 require annual certification.

18 Q. You state that other utilities have economic development  
19 programs with shorter terms. What utilities are these?

20 A. A full list of the utilities that we have reviewed is in  
21 Exhibit ERP-4?

22 Q. What does this review indicate?

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1 A. There are 13 utilities in the exhibit from a variety of  
2 jurisdictions such as California, Florida, North  
3 Carolina, Kentucky, Kansas, Indiana, Ohio, and New York  
4 (O&R). Of these 13 utilities, the maximum term of the  
5 discount is five years. Of these utilities, about half  
6 have discounts that decline after the first year. Of  
7 these 13 utilities, two offer terms of four years, one  
8 offers a three-year term while another is offering two  
9 years.

10 Q. What does this sampling of incentive programs indicate to  
11 the Company?

12 A. The sample supports the Company's conclusion that the  
13 maximum term of the Company's program is an outlier and  
14 that its longer term is unnecessary and can be scaled  
15 back. This is why the Company is proposing a term that  
16 is shorter than the current term, but we note that it is  
17 still a longer term than that offered by most other  
18 utilities.

19 Q. Is the Company proposing to change the discount  
20 percentage of the BIR program?

21 A. The Company is proposing no change to the BIR discount  
22 percentage.

23 Q. Why is the Company not changing the discount?

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1 A. The existing tariff has attracted customers and worked as  
2 an economic development tariff. Accordingly, it will  
3 continue to provide an incentive for customers to  
4 relocate or renovate buildings in the service territory.

5 Q. Is the Company proposing any changes to the EV Quick  
6 Charging Station Program within the BIR?

7 A. Yes. As proposed by the Customer Energy Solutions Panel,  
8 a provision was added to General Rule 5.2.4 - Excess  
9 Distribution Facilities (Leaf 36) to provide separate  
10 electric facilities to a building for the purpose of  
11 providing publicly accessible EV fast charging, at no  
12 cost for customers that meet the requirements of the EV  
13 Quick Charging Program under the BIR. Reference to this  
14 new provision was added within Rider J (Leaf 202).

15 Q. Is the Company proposing any other changes for the BIR  
16 program?

17 A. No it is not.

18

19 **TARIFF CHANGES AND OTHER RELATED TARIFF MATTERS**

20 Q. Are you proposing a change to the provisions of the  
21 Electric Tariff that require the Company to provide  
22 compensation for losses related to service outages?

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1 A. Yes. General Rule 21.1, Continuity of Supply (Leaf 171),  
2 currently provides compensation to (a) residential  
3 customers for actual losses of perishable prescription  
4 medicine and up to \$515 for food spoilage, and (b)  
5 commercial customers for loss of perishable merchandise  
6 up to \$10,200. Claimants must provide proof of loss,  
7 with the exception of residential claimants who are  
8 reimbursed without proof of loss for food spoilage up to  
9 \$225 upon submission of an itemized list. We propose to  
10 increase the compensation limits for residential  
11 customers for food spoilage with and without proof of  
12 loss from \$515 to \$540 and from \$225 to \$235,  
13 respectively, and for commercial customers from \$10,200  
14 to \$10,700.

15 Q. What is the basis for the proposed increases?

16 A. The proposed compensation limits were set following the  
17 methodology prescribed in the Commission's November 23,  
18 2007 Order Concerning Tariff Provisions Governing  
19 Reimbursement For Food Spoilage in Case 06-E-0894  
20 ("Reimbursement Order"). The methodology in the  
21 Reimbursement Order provides for updating the  
22 compensation limits based on applying the Gross Domestic

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1 Product Deflator ("GDPD") to current reimbursement  
2 limits. Based on the percentage change in the Implicit  
3 Price Deflators ("IPD") for GDPD for personal consumption  
4 expenditures, which the Bureau of Economic Analysis lists  
5 under Table 1.1.9, from the third quarter 2015 amount  
6 (103.415) to the third quarter 2018 amount (108.450),  
7 current tariff compensation limits were increased by 4.9  
8 percent and rounded to the nearest multiple of \$5 for  
9 residential customers and the nearest multiple of \$100  
10 for commercial customers. We used the third quarter 2015  
11 IPD amount for comparison because that amount was the IPD  
12 at the time the current compensation limits became  
13 effective, on February 1, 2017.

14 Q. Are there changes required to the revenue decoupling  
15 mechanism ("RDM") Allowed Pure Base Revenue targets for  
16 the Con Edison service classes (Leaf 351) and PASNY  
17 tariff (Leaf 22)?

18 A. Yes. These targets will be revised at the end of this  
19 proceeding to set forth the annual revenue targets for  
20 Con Edison service classes and NYPA based on the final  
21 revenue requirement level approved by the Commission.

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1 Q. Is the Company proposing any tariff changes as a result  
2 of the Tax Sur-credit being transferred to base rates?

3 A. Yes, the Company has amended General Rule 26.9 - Tax  
4 Sur-credit (Leaf 359) in the Electric Tariff and the  
5 Additional Delivery Charges and Adjustments section  
6 (Leaf 23) in the PASNY Tariff to indicate that Tax  
7 Sur-credits will no longer be provided after December  
8 31, 2019 through the Tax Sur-credit mechanism since  
9 the benefits associated with the Tax Cuts and Jobs Act  
10 of 2017 will be reflected in base rates.

11 Q. Are you proposing any changes to the Transition  
12 Adjustment mechanism?

13 A. Yes, we have updated General Rule 28, Transition  
14 Adjustment for Competitive Services (Leaf 360), to  
15 specifically state the competitive services revenue  
16 targets used in the determination of the Transition  
17 Adjustment.

18 Q. Is the Company proposing any tariff changes to reflect  
19 the transfer of ETIP costs, as discussed earlier in your  
20 testimony?

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1 A. Yes. The following tariff changes were made as a result  
2 of ETIP costs being transferred to base rates.

3 • General Rule 26.4 - SBC (Leaf 355) has been revised  
4 to exclude, from recovery through the Energy  
5 Efficiency Tracker Surcharge Rate, costs associated  
6 with programs funded through base delivery rates.  
7 This is consistent with the transfer of ETIP costs  
8 from the SBC to the base delivery rates as proposed  
9 by the Customer Energy Solutions Panel.

10 • The transfer of ETIP costs from the SBC to delivery  
11 rates impacts the RNY economic development program  
12 rates. As discussed in the Revenue Allocation  
13 section of this testimony, the Company will be  
14 providing credits to RNY customers as part of the  
15 transfer. The RNY credit is shown in the Special  
16 Provision G of SC 9 (Leaf 459.0.1). In its Order  
17 Directing Certain Utilities to Submit Tariff  
18 Amendments, issued September 19, 2011, in Case 11-E-  
19 0176, the Commission approved reduced delivery  
20 service rates, which exclude the SBC, Renewable  
21 Portfolio Standard and Energy Efficiency Portfolio  
22 Standards surcharges from the standard delivery

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1 rates for the RNY power sold by NYPA. Since the  
2 Company is proposing to transfer ETIP costs from the  
3 SBC to delivery rates, in the absence of an  
4 adjustment, RNY customers would be assessed ETIP  
5 costs for which they are currently exempt.  
6 Therefore, we propose to establish a bill credit, on  
7 a cents per kWh basis, to offset for RNY customers  
8 the ETIP cost recovery that is being transferred to  
9 base delivery rates.

10 Q. Is the Company proposing any tariff changes as a result  
11 of the implementation of Advanced Metering Infrastructure  
12 ("AMI") in its service territory?

13 A. Yes, the Company has made the following tariff changes as  
14 a result of the implementation of AMI in its service  
15 territory:

- 16 • In General Rule 2, Definitions and Abbreviations of  
17 Terms Used in this Rate Schedule, we:
  - 18 o added the phrase "Or a remote reading" to the  
19 definition for an actual reading on Leaf 12,  
20 since the Company can read AMI meters remotely;  
21 and

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- 1           o added the definition of "Interval Meter" on Leaf  
2           15 to include the legacy interval meters as well  
3           as AMI meters.
- 4           • Modified leaves throughout the tariff to change  
5           "interval meter" and "interval metering" to "Interval  
6           Meter" and "Interval Metering" since these are now  
7           defined terms.
  - 8           • Amended General Rule 6.5, Meters with Communications  
9           Capabilities (Leaf 61), to indicate that the Company  
10          will provide and maintain the communications service  
11          for customers served by Interval Meters installed  
12          under the Company's AMI program.
  - 13          • Revised General Rule 6.5, Meters with Communications  
14          Capabilities (Leaf 61), of the Electric Tariff to  
15          indicate that Standby Multi-party Offset customers no  
16          longer need to provide and maintain the communications  
17          service once they have received an AMI meter. A  
18          corresponding change was made in the Meters with  
19          Communications Capabilities section (Leaf 13) of the  
20          PASNY Tariff.
  - 21          • Specified customer installation requirements in  
22          General Rule 7.1, Customer Wiring and Equipment (Leaf

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1           64), to better enable AMI communications and to refer  
2           to the Company specifications for such installations  
3           as proposed by the Electric Infrastructure &  
4           Operations Panel.

5           • Amended General Rule 10.11, Reactive Power Demand  
6           Charge (Leaf 95), to change "telecommunications  
7           service by the telecommunications carrier" to  
8           "communications service" to include AMI meters for  
9           customers required to be billed the Reactive Power  
10          Demand Charge.

11          • Amended General Rule 15.2, Reconnection Charge (Leaf  
12          119), to waive the reconnection charge for remote  
13          capable AMI meters as proposed by the Customer  
14          Operations Panel.

15          • Added to General Rule 16.1, Charge for Replacing a  
16          Damaged Meter (Leaf 121), a new charge to replace a  
17          damaged AMI meter as proposed by the Electric  
18          Infrastructure & Operations Panel.

19          • Amended General Rule 20.2.1(B) (8) (e) to exempt AMI  
20          customers from the monthly communications service  
21          credit on Leaf 157.4 for Multi-party offset customers

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1           since the Company will be providing the communications  
2           service for customers with AMI meters.

3   Q.   Did the Company propose any tariff changes for its  
4       customers with distributed generation ("DG")?

5   A.   Yes, the Company has made the following tariff changes  
6       for its customers with DG:

- 7       • Revised General Rule 8.2 - Emergency Generating  
8       Facilities Used for Self-Supply (Leaf 78) to allow  
9       Customers with Electric Energy Storage systems to be  
10      connected to the grid as long as they do not export  
11      and are considered to be an emergency generating  
12      facility, as proposed by the Customer Energy Solutions  
13      Panel.
- 14      • Specified that a Customer may not deliver to the  
15      Company's distribution system while it is receiving  
16      electric energy delivered by the Company at the same  
17      service point in General Rule 8.3 - Generating  
18      Facilities Used Under Special Circumstances for Export  
19      (Leaf 79) as proposed by the Customer Energy Solutions  
20      Panel.
- 21      • The Monthly Communications Service Credit applicable to  
22      Standby Offset Customers under General Rule

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1 20.2.1(B) (8) (e) of the Electric Tariff (Leaf 157.4) and  
2 the General Provisions - Metering Service section of  
3 the PASNY Tariff (Leaf 14) have been updated to reflect  
4 the Company's avoidance of the communications cost  
5 related to metering.

6 • Replaced references to the SIR in General Rule 20.3.3,  
7 Customers With Targeted Exemptions, on Leaves 162.1  
8 and 162.2, to refer to General Rule 20.2 -  
9 Interconnection and Operation since interconnection  
10 requirements, including SIR requirements, are  
11 specified in General Rule 20.2.

12 • Specified communication failure requirements of Output  
13 Meters as required for Customers with Designated  
14 Technologies who use Efficient CHP in General Rule  
15 20.3, Customers Exempt from Standby Service Rates  
16 (Leaf 167.1), to mean two or more instances of  
17 Customer caused failed communications service in any  
18 calendar year. The Company has also clarified General  
19 Rule 20.5.4 to indicate that the Reliability  
20 Adjustment will only be used for the purposes of  
21 determining the Standby Reliability Credit (Leaf  
22 167.1). These changes are consistent with changes in

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1 similar provisions under Rider Q as approved by the  
2 Commission in its Order Approving Tariff Amendments  
3 With Modifications, issued and effective January 19,  
4 2018, in Case 16-E-0060.

5 • Clarified Rider J - BIR (Leaf 240) to indicate that  
6 the rate reduction applicable to energy delivery  
7 charges is applied only to the net kilowatt hours  
8 delivered by the Company to Grandfathered Net Metering  
9 and Phase One Net Metering Customers under Rider R.  
10 For Customers served under the Value Stack Tariff  
11 under Rider R, the rate reduction applicable to energy  
12 delivery charges will apply to the net hourly  
13 consumption.

14 • Specified metering requirements under Rider Q - Standby  
15 Rate Pilot (Leaf 240). This change is consistent with  
16 requirements applicable to other Customers, such as  
17 Customers served under Standby Service Rates, Rider R,  
18 and Rider T that require an interval meter for complex  
19 billing.

20 • Made various changes to Form G to conform to the  
21 provisions in the tariff as proposed by the Customer  
22 Energy Solutions Panel.

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1 Q. Is the Company proposing any housekeeping changes to the  
2 Electric Tariff and PASNY Tariff?

3 A. Yes, the Company proposes the following housekeeping  
4 changes:

- 5 • A heading was added on Leaf 104 in General Rule 12,  
6 Payments.
- 7 • Corrected "Nox" to "MWH" on Leaf 162 and deleted the  
8 extra comma on Leaf 162.2 in General Rule 20.3.2,  
9 Customers With Designated Technologies.
- 10 • Corrected a typographical error from "ESCP" to "ECSP"  
11 in Rider J - Business Incentive Rate on Leaves 194 and  
12 199.
- 13 • Eliminated SC 1 - Special Provision G (Leaf 395),  
14 which describes how low income credits were to be  
15 applied to low income customers' March 2017 bills.
- 16 • Corrected a typographical error from "Clasification"  
17 to "Classification" in SC 12 on Leaf 478.
- 18 • Eliminated Rider I and all references to Rider I since  
19 NYSERDA's Multi-Family Pilots for Time Sensitive  
20 Prices, Demand Response and Load Management Program  
21 has ended.

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- 1           • Corrected a typographical error, from Rider U to Rider  
2           T, under Charge for Demand Management Programs on Leaf  
3           26 of the PASNY tariff.
- 4           • Regarding the MAC under General Rule 26.1.1, the Panel  
5           is proposing to remove the following obsolete  
6           components:
- 7           o Components 6 and 7 related to recovery of TCCs  
8           purchased through the New York Independent System  
9           Operator ("NYISO") auctions prior to May 1, 2008;
- 10          o Component 10 related to any incremental costs the  
11          Company incurred resulting from the divestiture of  
12          its electric generating facilities;
- 13          o Component 11 related to adjustments applicable to  
14          periods prior to May 1, 2000;
- 15          o Component 20 related to the restoration and operation  
16          of Hudson Avenue Unit 10/100;
- 17          o Component 21 related to lost revenues associated with  
18          service rendered prior to April 1, 2008, for both  
19          targeted and system-wide demand management programs;
- 20          o Component 23 related to the Switching and Retention  
21          Incentive Payments approved in Case 04-E-0572; and

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1           o Component 36 related to the credit for the  
2           Constellation Settlement refund.  
3           MAC Components 20, 21, 23 and 36 have been designated  
4           as "Reserved for Future Use." MAC Components 6, 7, 10  
5           and 11 will be re-used for new MAC items as discussed  
6           below.

7   Q.    Is the Company adding any new components to the MAC?

8   A.    Yes. The Company is proposing to add four components to  
9           the MAC as described below.

- 10       • Component 6 has been replaced with a new component to  
11       recover charges or credits related to FERC approved or  
12       ordered NYISO or PJM rebills or recalculations of  
13       charges paid by NYISO or PJM customers. This  
14       provision would allow the Company to recover or pass  
15       back any amounts that are outside of the NYISO's or  
16       PJM's normal reconciliation and settlement deadlines.
- 17       • Based on a proposal by the Customer Energy Solutions  
18       Panel, Component 7 has been replaced with a new  
19       component to recover electric customers' share of  
20       costs related to commission-based pay for certain  
21       energy efficiency and demand management employees,  
22       less amounts allocated for collection under the PASNY

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1           Tariff. A corresponding change was made in the PASNY  
2           Tariff to add a new section entitled "Charges Related  
3           to Commission-based Variable Pay for Certain Energy  
4           Efficiency and Demand Management Employees" to the  
5           Other Charges and Adjustments section.

6           • Based on a proposal by the Municipal Infrastructure  
7           Support Panel and Accounting Panel, Component 10 has  
8           been replaced with a new component to recover carrying  
9           charges associated with interference costs causing an  
10          exceedance of the net electric plant target, less  
11          amounts allocated for collection under the PASNY  
12          Tariff. A corresponding change was made in the PASNY  
13          Tariff to add a new section entitled "Reconciliation  
14          of Interference Costs" to the Other Charges and  
15          Adjustments section.

16          • Based on a proposal by the Electric Infrastructure &  
17          Operations Panel and Accounting Panel, Component 11  
18          has been replaced with a new component to recover the  
19          revenue requirement associated with upgrades to the  
20          Company's transmission, substation and/or distribution  
21          systems necessary to maintain reliability due to a  
22          generator retirement, less amounts allocated for

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1 collection under the PASNY Tariff. A corresponding  
2 change was made in the PASNY Tariff to add a new  
3 section entitled "Costs Associated With Generator  
4 Retirements" to the Other Charges and Adjustments  
5 section.

6 Q. Are there tariff changes that are supported by other  
7 panels in addition to the tariff changes discussed above?

8 A. Yes, the following tariff changes are supported by other  
9 panels in addition to the tariff changes discussed above:

- 10 • As described in the testimony of the Accounting Panel,  
11 the Company has:
- 12 o Updated the corporate overheads and storage and  
13 handling fee in General Rule 17.3 of the Electric  
14 Tariff (Leaf 126), which lists the elements of costs  
15 charged for special services performed by the  
16 Company.
  - 17 o The Panel updated the residential and commercial  
18 Uncollectible Bill ("UB") factors related to the UB  
19 expense associated with MSC and Adjustment Factors-  
20 MSC charges based on a UB factor of 0.0046 or (\$0.46  
21 per \$100) proposed by the Accounting Panel. General  
22 Rule 25.3(d) of the Electric Tariff (Leaf 336) has

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1           been updated to reflect UB factors of 0.0072 for  
2           residential customers and 0.0028 for all other  
3           customers.

4           o Updated the UB factor related to the UB expense  
5           associated with MAC and Adjustment Factors-MAC  
6           charges in General Rule 26.1.2(b) of the Electric  
7           Tariff (Leaf 344) to reflect the system UB factor of  
8           0.0046 provided to us by the Accounting Panel.

9           • As proposed by the Customer Energy Solutions Panel and  
10          the Accounting Panel, the MAC under General Rule  
11          26.1.1 (Leaf 343.1), component 46, and PASNY Leaf 26.1  
12          related to the Company's Earning Adjustment Mechanisms  
13          ("EAMs"), will be extended to recover any positive  
14          incentives earned under EAMs, and recover/credit any  
15          other incentives and revenue adjustments associated  
16          with Company incentive mechanisms, as authorized by  
17          the Commission. Due to this change, paragraph (H) (6)  
18          of the Additional Delivery Charges and Adjustments  
19          section of the PASNY tariff has been renamed  
20          "Contribution to Earning Adjustment Mechanisms  
21          ("EAMs") and Other Revenue Adjustments."

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DIRECT TESTIMONY - ELECTRIC RATE PANEL

- 1           • As described in the testimony of the Electric  
2           Infrastructure and Operations Panel, the Company has:  
3           o Added a new provision to General Rule 4.6 - High  
4           Tension Service (Leaf 31) specifying requirements  
5           for high tension customers in the event of a primary  
6           feeder failure.  
7           o Clarified Company practices related to temporary  
8           services under General Rule 5.2.7, Temporary Service  
9           (Leaf 37).  
10          o Updated its re-inspection charge in General Rule  
11          16.3, Charges for Re-inspection (Leaf 121), and  
12          charges for certain special services provided at  
13          stipulated rates (i.e., hi-pot, Megger, and  
14          dielectric fluid tests) in General Rule 17.1,  
15          Special Services at Stipulated Rates (Leaf 122).  
16          • With respect to the low-income program, which is also  
17          discussed by the Customer Operations Panel:  
18          o General Rule 15.2, Reconnection Charge, of the  
19          Electric Tariff (Leaf 119) has been revised to  
20          continue the waiver of the reconnection charge for  
21          customers enrolled in the low-income program, up to  
22          an annual target amount of \$527,821.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DIRECT TESTIMONY - ELECTRIC RATE PANEL

- 1           o The RDM sections in the Electric Tariff (Leaf 352)  
2                   and the PASNY Tariff (Leaf 22) have been revised to  
3                   reset the annual level of low income program costs  
4                   included in rates to \$53.31 million for each rate  
5                   year that the low-income program is in effect, and  
6                   to indicate that the low-income program will  
7                   continue beyond December 31, 2020, contingent on the  
8                   continuation of full cost recovery through the RDM  
9                   Adjustment or an equivalent mechanism.
- 10          • In General Rule 5.2.2, Adjustment Factor - MSC II  
11                   (Leaf 333), the Company proposes that the  
12                   cost/benefits of hedging will include all costs  
13                   associated with the procurement of energy and capacity  
14                   hedges and supplies for Customers including auction  
15                   platform licensing fees, maintenance fees,  
16                   customization fees and related costs, as discussed by  
17                   Company Witness Ivan Kimball in the Electric Supply  
18                   Testimony.
- 19          • As described in the testimony of the Customer Energy  
20                   Solutions Panel, the Company has:  
21                   o Amended General Rule 17.5, Request for Aggregated  
22                   Company Records, (Leaf 128) to indicate that

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DIRECT TESTIMONY - ELECTRIC RATE PANEL

1            Building-level Data will be provided in accordance  
2            with the relevant aggregation privacy standard.

3            o Eliminated Rider O and all references to Rider O.

4    Q.    Does this conclude your testimony?

5    A.    Yes.