CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
GAS CASE TESTIMONIES
VOLUME 3

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Q. Would the members of the Compensation/Benefits Panel ("Panel") please state your names and business addresses?

A. Hector J. Reyes, and my business address is 4 Irving Place, New York, New York 10003. Susan Carson, and my business address is 4 Irving Place, New York, New York 10003. Joseph McDonald, and my business address is 400 Atrium Drive, Somerset, New Jersey 08873. Virginia Fischetti, and my business address is Merritt 7 Corporate Park, Building 201, Norwalk, Connecticut 06851.

Q. Mr. Reyes, by whom are you employed and in what capacity?

A. I am employed by Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company") as Director of Benefits.

Q. How long have you been employed by Con Edison?

A. I have been employed by Con Edison for 42 years.

Q. Please briefly outline your educational and business experience.

A. I graduated from Fordham University with a Bachelor of Science degree in Accounting in 1976. In 1982, I earned a Master of Science degree in Taxation from Pace University. I joined Con Edison in 1976 as a Staff Accountant in Corporate Accounting. Between l979 and 1981, I was promoted to different supervisory positions in Corporate Accounting. In l983, I was promoted to66

6Assistant Manager, Accounting Research and Procedures. In l988, I was promoted to the position of Manager, Retirement, and Insurance Benefits, and in 1989, I was promoted to the position of Manager of Employee Benefits. In September 1999, I was promoted to the position of Director of Benefits and Compensation. In July 2011, my title was changed to Director of Benefits.

Q. Please generally describe your current responsibilities.

A. My responsibilities as Director of Benefits include the development, implementation, communication, and administration of the Company's employee benefits programs.

Q. Do you belong to any professional societies or organizations?

A. Yes. I am a member of the Board of Directors of the Northeast Business Group on Health ("NEBGH"). NEBGH is a not-for-profit coalition of over 150 health plan sponsors and health-related organizations the mission of which is to find practical solutions to the contemporary health care issues in the New York metropolitan area.

Q. Have you previously testified on behalf of the Company before the Commission?

A. Yes. I have testified and submitted testimony in previous Con Edison electric, gas, and steam rate cases.

I also filed testimony in the most recent Orange and Rockland Utilities, Inc. ("O&R") electric and gas rate cases.

Q. Ms. Carson, by whom are you employed and in what capacity?

A. I am employed by Con Edison as the Director of Compensation.

Q. Please describe your educational background.

A. I graduated from Fairleigh Dickinson University in l985 with a Bachelor of Science degree in Accounting. I received a Master of Science degree in Management from the New Jersey Institute of Technology in 1997. I am a Certified Public Accountant licensed in New Jersey.

Q. Please describe your work experience.

A. I have been employed by Con Edison for 12 years. I joined Con Edison in 2006 as the Director of Pension Management with responsibilities for the investment of all benefit plan assets. From 1997 to 2006, I was employed by Public Service Electric and Gas Company ("PSE&G") in a variety of functional areas at the Director level including pension management, investor relations, and accounting. Prior to my employment with PSE&G, I worked for several major corporations in a variety of accounting, long-range planning, and pension

management positions. In November 2016, I assumed the position of Director of Compensation.

Q. Please generally describe your current responsibilities.

A. My current responsibilities as Director of Compensation include administration of the compensation plans for non-officer management employees, officers of Con Edison, as well as members of the Company's Board of Directors ("Board").

Q. Have you previously submitted testimony in a rate case before the Commission?

A. Yes. I filed testimony in the most recent O&R electric and gas rate cases.

Q. Mr. McDonald, by whom are you employed and in what capacity?

A. I am a Senior Partner and Local Practice Leader for Retirement for Aon. I have worked with utilities such as PSE&G, New Jersey Natural Gas, Southern Company, Entergy, National Grid, and NiSource, in addition to Con Edison and O&R.

Q. What is Aon?

A. Aon provides risk management services, insurance and reinsurance brokerage, and human resource consulting services worldwide. More information on Aon is available at aon.com.

Q. Please summarize your educational and professional background.

A. I am a graduate of Washington College with a degree in Mathematics. At Aon, I am a market leader in the Retirement practice and a consultant to clients on benefits and retirement issues. I specialize in the design and financing of retirement programs, pension investments, and asset-liability management, and all aspects of retirement valuation and administration consulting. I have over 20 years of experience in consulting, having spent 12 years with Hewitt Associates prior to its acquisition by Aon.

Q. Do you belong to any professional societies or organizations?

A. I am a Fellow of the Society of Actuaries, an Enrolled Actuary of the Joint Board, and am also a Chartered Financial Analyst. I have spoken at numerous industry conferences sponsored by organizations such as Pensions & Investments, National Association of Corporate Treasurers, The Conference Board, Utility Pension Fund Study Group, Financial Executives International, and the MegaCap Treasurer’s Alliance, as well as a number of Aon-sponsored conferences and webcasts on retirement topics.

Q. Have you previously testified and submitted testimony on behalf of the Company before the Commission?

A. No.

Q. Ms. Fischetti, by whom are you employed and in what capacity?

A. I am a Partner and East Region Practice Leader for Executive Compensation for Aon. I have worked with energy companies such as Avangrid, PSE&G, NRG Energy Services, and Southern Company, in addition to Con Edison and O&R.

Q. Please summarize your educational and professional background.

A. I am a graduate of Amherst College with a Bachelor of Arts degree in Economics. I also have an MBA, Finance and International Business, from the New York University Stern School of Business. Prior to joining Hewitt Associates (now, Aon) in 1997, I worked as a benefit and compensation consultant for Watson Wyatt (now Willis Towers Watson) in New York. At Aon, my work includes the benchmarking of total compensation, the design and implementation of compensation strategies and philosophies, pay structures, short-, mid-, and long-term variable pay programs, and severance and change-in-control benefits.

Q. Are you affiliated with any professional societies or organizations?

A. Yes. I am a member of The Conference Board, a global, independent business membership and research association working in the public interest. In addition, I have spoken to audiences of the Society for Human Resource Management on the topic of compensation and published the cover article in the World of Work Journal (4th quarter, 2005).

Q. Have you previously testified and submitted testimony on behalf of the Company before the Commission?

A. Yes. I have testified and submitted testimony in previous Con Edison electric, gas, and steam rate cases and filed testimony in O&R's most recent electric and gas rate cases.

PURPOSE OF TESTIMONY

Q. What is the purpose of the Panel's testimony in these proceedings?

A. The purpose of our testimony is to demonstrate that the costs of the Company's benefits and compensation plans are reasonable business expenses that should be recovered in rates. The Panel's testimony demonstrates that the Company provides market-competitive benefits and compensation designed to attract and retain those

employees the Company requires to provide customers with safe and reliable service. The Company continues to proactively manage long-term liabilities such as those related to pensions and retiree health care.

This testimony examines the overall level of employee “Benefits” and “Compensation” and demonstrates that the Company’s level of benefits and compensation reflected in the revenue requirements of this filing in aggregate is market-competitive and meets the Commission’s standards for assessing the overall competitiveness and reasonableness of such expenditures. The costs of the Company’s benefits and compensation plans constitute reasonable business expenses that should be recoverable in rates for the reasons discussed below.

Q. What elements of the Benefits package are reflected in the revenue requirements of this filing?

A. Benefits include retirement, employee and retiree health, vacation, life insurance, and disability benefits.

Q. What elements of Compensation are reflected in the revenue requirements of this filing?

A. Compensation includes base salary, the variable component of management pay, and long-term equity grants. The revenue requirement in this filing reflects these costs excluding the cost of the variable pay component

and equity grants provided to the Company's officers, even though the cost of these two elements of officer compensation are reasonable and necessary business expenses.

Q. Has the Commission articulated criteria to determine whether the costs associated with a utility's benefits and compensation plans should be recoverable in rates?

A. Yes. In the Commission's rate order, issued February 21, 2014 in the Con Edison rate cases filed in 2013 (Cases 13-E-0030, 13-G-0031, and 13-S-0032)("2013 Con Edison Rate Cases"), the Commission indicated that a utility should demonstrate the overall competitiveness and reasonableness of its total benefits and compensation package by including a comparison with a peer group comprised of similarly situated companies, including both utilities and general industry. In its rate order issued June 26, 2014 in the United Water New York, Inc. rate case (Case 13-W-0295), the Commission reaffirmed that to obtain recovery of variable pay, a utility must demonstrate that the overall compensation, including the variable pay component, is reasonable relative to similarly situated companies.

Q. Has the Commission addressed any other criteria with respect to evaluating recovery of costs associated with a utility's benefits and compensation package?

A. Yes. In its rate order in the 2013 Con Edison Rate Cases, the Commission noted with approval Con Edison's willingness to conduct its comparative compensation/benefits study to achieve at least a 50 percent matching of positions in a blended peer group of utilities and New York metropolitan employers.

Q. What will the Panel address?

A. The Panel will address: (1) a review that the Company conducted, with the assistance of Aon, of Con Edison's total benefits and compensation package ("Review") in 2018 for non-officer management employees; (2) recent changes to the Company's compensation and benefits plans for non-officer management employees, including the adoption of a Sales Incentive Plan ("SIP"); (3) officer and Board of Directors ("Con Edison Board") compensation; (4) the Company's current Labor Contracts with Local 1-2 and Local 3, respectively; and (5) employee benefits costs.

Q. What was the purpose of the Review?

A. The purpose of the Review was to assess the market competitiveness of the Company's Total Benefits and

Compensation package for its management employees. The Company selected Aon to assist with the Review because Aon is an industry leader in this type of review and has the experience, survey data, and tools needed to analyze the competitiveness of various benefit and compensation plans. The Panel describes below the Review process, methodology, and results.

Q. In conducting the Review, did the Company re-evaluate its benefits and compensation package as compared to those offered by similarly situated companies?

A. Yes. Consistent with Commission policy and typical market practice, in assessing the overall competitiveness and reasonableness of the Company's benefits and compensation package, the Review compared the Company's package to those offered by a peer group of similarly situated companies.

Q. Were the peer companies limited to other utility companies?

A. No. As the Commission recommended, the Company evaluated Total Benefits and Compensation relative to a blended peer group including utility companies and non-utility New York metropolitan general industry companies ("the Blended Peer Group").

Q. What were the Review's overall findings with respect to the Blended Peer Group analysis?

A. As explained below, the Review found that the Company's benefit programs and compensation for its management employees, as well as the combined benefits and compensation package value, are within a +/- ten percent range that is considered "competitive" with respect to the Blended Peer Group. In fact, the Company's combined benefits and compensation package is below the median of the Blended Peer Group.

Q. Did the Company make any recent changes to its benefits and compensation plans prior to conducting the Review in 2018?

A. Yes. In 2015, the Company made a change in the variable pay targets for the variable component of compensation, referred to as Management Variable Pay ("MVP"). This change was made to further align the compensation of the Company's non-officer management employees with peer companies. The change ranged from one-half to four percent, depending on the band. The revised targets remain below the median of the blended peer companies and are set forth in the table below.

Band	**2014 MVP Target**	**2015 MVP Target**
4H	21%	25%
4L	17%	21%
3H/3L	12%	15%
2H	7.5%	9%
2L	6%	7%
1H	5%	6%
EP/AL/AH	4.5%	5%

Q. Did the Company make any other changes?

A. Yes. The Company made the following changes to its benefit plans:

1. The Company closed its defined benefit retirement plan to new management hires effective January 1, 2017. Instead, pension benefits for an employee hired after January 1, 2017 are provided through a Defined Contribution Pension (“DCP”) formula under the Thrift Savings Plan.

2. The Company added automated features in 2017 to the Thrift Savings Plan, including auto-enrollment and auto-escalation to assist employees in saving for their financial future.

3. The Company added a lower cost medical plan, Essential Health Plan in 2017, as a choice for employees.

4. For 2019, the Company eliminated a higher cost medical option, the co-insurance plan choice for management employees.

Q. Did the Review include supplemental retirement benefits provided to Company management employees under the Supplemental Retirement Income Plan (“SRIP”) and Defined Contribution Pension Plan (“DCPP”)?

A. Yes. The Review included all benefit and compensation programs provided to non-officer and officer management employees. The SRIP and DCPP provide management employees upon retirement with the portion of their earned retirement benefit that could not be paid under the tax-qualified plans due to federal tax law limitations imposed on such plans. The SRIP and DCPP formulas for active employees are the same as the formulas of the underlying retirement plans but make up for retirement benefits earned that will be able to be paid by the tax qualified retirement plans due to limits set by the by Internal Revenue Service on accruals of benefits under the Company’s tax-qualified retirement plans—both the defined benefit and defined contribution pension plans.

Q. Does the rate request in each of these proceedings include recovery for the cost of the SRIP and DCPP as part of the retirement expense?

A. Yes. And we note that the SRIP costs include funding costs related to SRIP retirement benefits earned and still payable to former employees.

Q. Are the SRIP and DCPP benefits consistent with the Blended Peer Group’s programs?

A. Yes. As part of the Review, the Company looked at the SRIP and DCPP programs provided for current employees for the 50 companies in the Blended Peer Group. Thirty-eight of the 50 Blended Peer Group companies reported that they provide SRIP-type benefits. Providing SRIP and DCPP benefits is consistent with the Blended Peer Group’s practices and serves to maintain the Company’s retirement benefit at a competitive level with the Blended Peer Group. Please see the table below for a summary of the supplemental pension benefit prevalence for the Blended Peer Group. Eighty-three percent of the peer companies that provided supplemental retirement plan design information to the Aon Total Compensation Measurement Database provide a SRIP benefit. It is also market practice to include their supplemental retirement benefits in the retirement (pension and defined

contribution) formulas that are applicable to the peer companies' current and former employees. The Company found that, as a general rule, once supplemental retirement benefits are earned, they are not modified.

Summary of Supplemental Retirement Benefits

50 Blended Peer Companies – General Industry and Utility

Maintain a Supplemental Type Retirement Benefit	General Industry	Utility	Total
Yes	18	20	38
No	4	4	8
Information not supplied to the survey	3	1	4
Total	25	25	50

Q. Do the rate requests in these proceedings include compensation for officers of the Company?

A. The rate requests reflect only some elements of compensation for officers. The Company's compensation program for the Company's officers includes base salary, annual variable pay awards, long-term equity grants, and benefits. Such compensation constitutes a reasonable and necessary business expense the Company must incur to attract and retain qualified leaders to direct and oversee the safe and reliable operations of the Company. Based on the Review conducted by Aon, Company officers' Total Benefits and Compensation is less than one percent

below the median. In order to limit the contested issues in these proceedings, the Company is electing not to seek recovery of the long-term equity grants and annual variable pay awards provided to the Company's officers. The Company may seek to recover all or part of these elements of compensation in future proceedings.

Q. Do the rate requests in these proceedings include compensation for members of the Board who are not employees of the Company?

A. Yes. As to members of the Board who are not employees of the Company, the Company is seeking to recover in rates Board compensation, which includes an annual retainer, meeting fees, and a long-term equity grant. Such compensation is a reasonable and necessary business expense the Company must incur to attract and retain qualified leaders to direct and oversee the safe and reliable operations of the Company.

Q. Do the Company's current electric and gas rates reflect Board compensation?

A. Only partially. Current rates reflect annual retainers and meeting fees only. In its last contemporaneous rate filing for electric, gas, and steam, the Company did not seek recovery of annual long-term equity grants, in order to limit the number of matters at issue. The Company

indicated in that filing that it may revisit recovery of this element of non-employee Board compensation in future rate proceedings. The Company is seeking rate recovery in this case of the cost of annual long-term equity grants to non-employee Board members for the reasons discussed below.

Q. Please briefly address the Company's Labor Contracts with Local 1-2 and Local 3.

A. These Labor Contracts constitute fair and equitable contracts that include benefits and compensation programs that will allow the Company to continue to attract and retain qualified employees and that will reflect the needs of all stakeholders – employees, customers, and regulators – and support the long-term sustainability of the Company.

Q. Does the Panel address employee benefit expenses?

A. Yes. This direct testimony explains the forecast of employee benefit expenses based on historic costs and escalation of existing programs for management employees and members of Local 1-2 and Local 3. Health costs shown in the exhibits are net of participant out-of-pocket payments, such as co-payments and deductibles that are paid to providers for medical services. This direct testimony also reflects the Company's wellness efforts,

plan design, and employee contribution changes that are expected to motivate more employees to select cost-efficient medical options and services that are expected to mitigate future overall plan cost increases. The Company's total employee benefit expenses before capitalization are estimated to increase 15.6 percent from the Historic Year (*i.e.*, October 1, 2017, through September 30, 2018) to the Rate Year (*i.e.*, January 1, 2020, through December 31, 2020) or 6.5 percent per year compounded monthly.

Q. What other cost mitigation actions has the Company taken with respect to health care?

A. The Company has introduced several plan features intended to promote wellness and reward employees for using lower-cost and efficient services and in-network providers. In addition, the Company enhanced wellness initiatives to encourage healthy behavior which are also expected to mitigate future health care cost increases.

Q. With respect to Post-Employment Benefits Other Than Pensions ("OPEB"), what cost mitigation actions has the Company taken?

A. The Company continues to take advantage of the Patient Protection and Affordable Care Act ("PPACA") tax savings 6made available to employers providing prescription drug

benefits to Medicare-eligible retirees. The plan known as an Employer Group Waiver Plan ("EGWP"), as described below, offers subsidies and reimbursements that reduce the cost of prescription benefits provided to Medicare-eligible retirees. The Company also made a change that is expected to reduce significantly health care plan enrollments of new retirees in the future. Effective January 1, 2013, employees who participate under the Cash Balance Pension ("CBP") formula or the Defined Contribution ("DCP") formula are responsible for paying for the full costs of retiree health coverage if they are eligible and elect such coverage when they retire. Depending on the health of a retiree participant, the full cost of the Company's retiree medical plan that supplements Medicare could cost 20% more than a market place Medicare supplement plan.

Q. What other cost mitigation actions has the Company taken with respect to pensions?

A. The Company closed the CBP to those management employees hired after January 1, 2017. Instead of accruing pension benefits under the Cash Balance Pension plan, new employees receive a non-contributory contribution each quarter to their Thrift Savings plan account based on a "points" formula, where points are the total of an

employee’s age and service. See the table below for the formula:

	Compensation Under the Social Security Wage Base (“SSWB”)	**Compensation Over the SSWB**
<35	4%	8%
35-49	5%	9%
50-64	6%	10%
65+	7%	11%

The Company expects that this change will reduce the longevity and investment risk associated with managing pension benefits in a Cash Balance Pension plan.

Q. Has the Retirement Plan been closed to new union hires?

A. Yes, union employees who become members of Local 3 on or after June 25, 2017 are covered under the DCP formula in the Thrift Savings Plan.

Q. Has the Retirement Plan been closed to new union employees who are hired and become members of Local 1-2?

A. No, however, union employees who are hired and become members of Local 1-2 on or after June 26, 2016 are provided a one-time opportunity to make an irrevocable

election to be covered under either the Retirement Plan Cash Balance Pension Formula or the Defined Contribution Pension Formula in the Thrift Savings Plan.

REVIEW METHODOLOGY

Q. Please provide an overview of the general approach of the Review.

A. The Review compared Con Edison's management employee benefits and compensation package values to external benchmark data for the following components:

- Employee benefits (including pre- and post-retirement benefits and supplemental retirement benefits);
- Base salary;
- Variable pay; and
- Long-term equity grants.

Q. Please describe the peer companies that were used in the Review to analyze the competitiveness and reasonableness of the Company's management benefit plan designs and annual benefit and compensation package values.

A. A peer group of 50 companies (*i.e.*, the Blended Peer Group) was used for comparison purposes, including 25 utility peers and 25 New York metropolitan general industries peers.

Q. Is the Panel sponsoring an exhibit in connection with the Blended Peer Group used in this analysis?

A. Yes. Please see EXHIBIT ___ (CBP – 01) entitled “Blended Peer Group and Geographic Differentials.”

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 01)

Q. Was the exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please describe the Blended Peer Group.

A. The 25 utility peer companies have similar operations to Con Edison and have employees with similar experience and skills in the utility industry as Con Edison. The 25 New York metropolitan general industry peers include general industry companies with headquarters located in the New York metropolitan area (*i.e.*, New York, New Jersey, Pennsylvania, and Connecticut), and that have a significant number of salaried and hourly employees in the New York metropolitan area. These companies have similar operations to Con Edison in its non-utility-specific areas such as finance, information technology, human resources, and legal. Together this group of 50 companies is representative of the labor market for management employees at Con Edison. The Blended Peer Group also reflects a sample that has available data for

both compensation and benefit benchmarking based on survey participation ("2018 Blended Peer Group").

Q. Is this the only Blended Peer Group Con Edison has used to review compensation and benefits?

A. No. In preparation for the electric rate case filed in 2015 (Case 15-E-0050), Con Edison conducted a review in 2014 based on a blended peer group ("2014 Blended Peer Group"). And in preparation for the electric rate case filed in 2016, Con Edison conducted a review in 2015 based on a blended peer group ("2015 Blended Peer Group").

Q. Were those groups identical?

A. No. The companies in the 2015 Blended Peer Group and the 2014 Blended Peer Group are largely, but not completely, identical.

Q. Is the 2018 Blended Peer Group identical to the 2015 Peer Group?

A. No. Once again, the companies in the 2018 Blended Peer Group and the 2015 Blended Peer Group are largely, but not completely identical.

Q. Please explain.

A. The need to substitute new companies into a peer group occurs because not every company continues to participate in the information surveys that provide the data

necessary for a benefit-compensation comparison. When that occurs, we substitute, as we did here, new peer companies that are similarly situated to Con Edison to maintain a robust peer group. Companies do not participate in surveys for a variety of reasons including being acquired by another company, bankruptcy, moving their headquarters outside of the United States, and/or lack of internal resources to complete the survey submission.

Q. Does the change in the participants in the Blended Peer Groups impact the overall findings of the analysis?

A. No. We have a sufficiently large enough sample size such that the selected companies continue to maintain a balance between New York Metropolitan General Industry and utility companies. See EXHIBIT ___ (CBP – 01), "Blended Peer Group and Geographic Differentials," which sets forth the complete list of companies used for the 2018 Review.

Q. What is included in the employee benefits value analysis?

A. There are two components to the benefits value analysis. The first component is the employee benefits design analysis which compared the design features of the benefits programs at Con Edison (*e.g.*, health plan co-payments, deductibles, and co-insurance, net of employee

premium contributions) to the design features of the benefits programs at the members of the Blended Peer Group.

The second component is the benefit design value analysis. The benefit design value analysis includes a pay-weighted assessment of the program features that are based on salary (*e.g.*, pension benefit accrual formulas, thrift savings plan company match percentages, and the definition of covered pay).

Q. Please continue.

A. The annual benefit design value at Con Edison was measured against the annual benefit design value at the members of the Blended Peer Group to compare how compensation-based benefit programs affect the total value of the benefits packages. If, for example, an employee at Company A earns more pay than an employee at Company B in the same position, then the value of the Thrift Savings Plan Company match (*e.g.*, five percent of pay) to the employee at Company A will be higher. The employee benefit analysis performed in this manner allows for a more accurate comparison of the value of a benefits package than an analysis that is performed on a pay-neutral basis.

Q. Please describe the process used to assess the benefit designs of the benefits programs of the Company and its peer companies.

A. The benchmarking of employee benefits design was done using Aon's Benefit Index© ("Benefit Index"). The Benefit Index is a premier tool for comparing the relative worth of one company's benefits programs to those offered by a group of other companies. It has been used by companies since the 1970's to make such assessments.

Q. How were benefit design competitiveness assessments made?

A. Benefit Index results are reached using a very specific process. Actuarial techniques measure the total value a representative population of employees would derive from Con Edison's benefits program and the benefits programs of each of the members of the Blended Peer Group. All retirement income, death, disability, health, and paid time-off benefits offered to employees are included, such as vacation and paid holidays. This actuarial analysis reflects the benefits that each program would be expected to pay during a year or the present value of the benefits employees would be expected to earn during a year but receive in the future. The same employee population and assumptions are used when measuring the values for each

of the programs. This standardization verifies that the differences are attributable to plan designs, not pay levels. The impact of pay level difference is assessed in the benefit design value analysis of the Review. Finally, the benefit design features of Con Edison's benefits program were compared to the average for the peer companies' programs to arrive at a relative benefit design result reported by the Benefit Index.

Q. What is a Benefit Index benefit design result?

A. A Benefit Index benefit design result of 100.0 would be assigned if Con Edison's benefits exactly equaled the average of the benefits package value offered by the peer companies. Generally, differences in the overall benefit package value are not considered significant or material until they exceed ten percent (*i.e.*, less than 90.0 or greater than 110.0 as compared to Con Edison). A Benefit Index benefit design result within this range would be viewed as "competitive."

Q. Which benefits programs are included?

A. The benefits analyzed included the following programs to which an annualized value was attributed:

- **All Post-Retirement Benefits**: Post-retirement benefits reviewed included pension, Thrift Savings 401(k) Plan,

retiree health, hospital, medical, vision care, prescription drug, and life insurance.

- **All Pre-Retirement Benefits**: Pre-retirement benefits reviewed included hospital, medical, dental, hearing and vision, and sick, short- and long-term disability, and paid vacation and holidays.

Q. Is the Panel sponsoring an exhibit in connection with the Benefit Index results used in this analysis?

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP - 02)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information set forth in EXHIBIT ___ (CBP – 02).

A. This exhibit summarizes the details of the results of the Benefit Index analysis of the current Con Edison benefit plan designs, including a comparison to the Blended Peer Group.

In aggregate, the Con Edison benefit plan is within a +/- ten percent range (*i.e.*, between 90 and 110) that is considered “competitive” with respect to the Blended Peer Group with a Benefit Index design score of 104.8.

Q. Did the Panel also analyze the competitiveness and reasonableness of the Company's management compensation components?

A. Yes.

Q. How was the compensation competitiveness assessment made?

A. The compensation competitiveness assessment included a comparison of base salary, annual variable pay (at target), and long-term equity grants for Con Edison management positions and for the Blended Peer Group positions. The annualized value of each pay component is included in the analysis (*e.g.*, annual base salary).

Q. How did Aon combine the Benefit Index results with the compensation benchmarking to develop the Total Benefits and Compensation package value?

A. Aon followed a standard methodology consistent with industry practice and that Aon employed in the last Con Edison rate cases. First, Aon determined which positions at Con Edison matched positions among the Blended Peer Group, based on a comparison of functional responsibilities, job duties, and organizational levels for which data is available from the survey sources. Next, Aon compared the benefit and compensation data for each of these positions at Con Edison to the benefit and compensation data for the same positions among the

Blended Peer Group companies. Finally, Aon aggregated these results to evaluate Con Edison's overall competitive position relative to the Blended Peer Group median.

Q. Why did Aon compare Con Edison Total Benefits and Compensation to the median, but compared the Con Edison benefit designs to the average for the Benefit Index?

A. Median and average are both reasonable methods to make observations in a data analysis, and either may be used when performing a Total Benefits and Compensation analysis. However, the use of median is an industry practice in Total Benefits and Compensation studies because the median normalizes a data sample by placing equal emphasis on each observation, thereby mitigating the influence of extreme outlier values, if any. In benefit design review, program design elements exhibit much less variation than pay levels. Therefore, it is a standard industry practice to use market average or market typical design when analyzing program design features.

Q. If the analysis were based on the average instead of the median in the Total Benefits and Compensation study, would the result have been materially different?

A. No. The Blended Peer Group results are substantially similar using either market reference point. Using the median, Con Edison's Total Benefits and Compensation for non-officer management employees was 1.4 percent below the Blended Peer Group median (or 98.6 percent of the median). Using the average, Con Edison Total Benefits and Compensation for non-officer management employees was 2.7 percent below the Blended Peer Group average (or 97.3 percent of the average).

Q. Which companies were used to assess the competitiveness of Con Edison's Total Benefits and Compensation package value?

A. The Company used the Blended Peer Group in the Review for both the benefits design benchmarking and the Total Benefits and Compensation positional analysis.

Q. What data sources were used for the Review?

A. The Company used three data sources, all of which employed the same Blended Peer Group: (1) the 2018 Aon Benefit Index Database, (2) the 2018 Aon Total Compensation Measurement Database, and (3) the 2018 Willis Towers Watson Compensation Survey.

Q. Was the compensation survey data adjusted for geography?

A. Yes. It is a common industry practice to use national compensation data for analyzing non-officer management

level roles. However, given Con Edison's metropolitan New York location, a location with a significantly higher than national cost of labor, a geographic adjustment was applied to the national data (*i.e.*, those utility members of the Blended Peer Group located outside the New York metropolitan area) to account for this cost of labor difference relative to the Blended Peer Group data used in the Review.

Q. How many non-officer management positions and employees were included in the Review Total Benefits and Compensation positional review?

A. To provide a robust representation of the Company's non-officer management employee base Aon compared approximately 58 percent of the Con Edison non-officer management employees (*i.e.*, over 3,000 employees) across the Company's pay structure to the Blended Peer Group companies.

Q. Is 58 percent coverage sufficient to draw valid conclusions from the Review?

A. Yes. The positions in the analysis covered various functional areas including Central Operations, Electric Operations, Gas Operations, Finance, Accounting, Customer Operations, Human Resources, Engineering, Information Resources, and Legal, among others, and all of the non-

officer management salary bands at Con Edison: 1L/1H, 2L/2H, 3L/3H, and 4L/4H. The results of the analysis, therefore, are representative of Con Edison's pay positioning across the entire non-officer management employee population.

Q. Why were some Con Edison non-officer management positions excluded from the Review?

A. In performing the positional analysis, benchmark jobs were identified for over 99 percent of Con Edison's non-officer management employees. Of the over 99 percent "benchmark" jobs, there was sufficient Blended Peer Group data to provide analysis for 58 percent of Con Edison's non-officer management employees. For the remaining benchmark jobs, there was insufficient data reported by the members of the Blended Peer Group to the compensation survey sources to include the positions in the Review. In performing the positional analysis Aon adhered to the United States Department of Justice safe harbor guidelines, which indicate the need for a minimum of five data points with no more than 20 percent of the sample from any single peer company. If fewer data points were available for a benchmark position, Aon excluded that position from the Review.

Q. Is the Panel sponsoring an exhibit in connection with the positions included in the Review?

A. Yes. Please see the EXHIBIT ___ (CBP – 03) entitled "CENSUS."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 03)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information set forth in EXHIBIT ___ (CBP – 03).

A. This exhibit lists all non-officer management positions at Con Edison, and whether the position was included in the Review. Positions were excluded for one of the following reasons:

- "Insufficient Benchmark Data (less than five comparator matches)" indicates the Con Edison position is a benchmark position but there is insufficient Blended Peer Group data to include the position; or
- "Non-Benchmark Job" indicates the Con Edison position is not similar to any survey benchmark positions in terms of functional responsibilities, job duties, and/or organizational level.

Q. Is the Panel sponsoring an exhibit in connection with the competitive positioning of Total Benefits and Compensation of Con Edison non-officer management positions benchmarked as part of the Review?

A. Yes. Please see the EXHIBIT ___ (CBP – 04) entitled "TOTAL BENEFITS AND COMPENSATION RESULTS."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 04)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information in EXHIBIT ___ (CBP – 04).

A. This exhibit identifies the Con Edison employee positions included in the comprehensive review as compared to the Blended Peer Group. This exhibit includes the following information:

- Band;
- Con Edison title and department;
- Benchmark code, functional area, and title;
- Con Edison Total Benefits and Compensation;
- Market Total Benefits and Compensation at the 50th percentile (median) and average; and
- Variance for each Con Edison position to market using the median and the average.

Q. What did Aon's analysis indicate when comparing Con Edison to the Blended Peer Group?

A. In the aggregate, Aon found Con Edison' non-officer management Total Benefits and Compensation package value to be "market competitive." Con Edison's Total Benefits and Compensation was 1.4 percent below the Blended Peer Group median (or 98.6 percent of the median). Using the average, Con Edison's total Benefits and Compensation was 2.7 percent below the Blended Peer Group average (or 97.3 percent of the average). While below the market median and average, Con Edison's total Benefits and Compensation package is considered to be within a market competitive range of plus or minus ten percent in aggregate.

Q. Is the Panel sponsoring an exhibit in connection with the results of the Aon analysis?

A. Yes. Please see the EXHIBIT ___ (CBP – 05) entitled "SUMMARY OF RESULTS."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP - 05)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information set forth in EXHIBIT ___ (CBP - 05).

A. This exhibit identifies the aggregate results, relative to both the average and the median of the Review Aon performed using the Blended Peer Group by each component of Total Benefits and Compensation discussed above:

- Base Salary;
- Target Cash Compensation (sum of Base Salary and the variable component of management pay);
- Total Direct Compensation (sum of Target Cash Compensation and long-term equity grants);
- Total Benefit Value (estimated annual value of employee benefits); and
- Total Benefits and Compensation (sum of Total Direct Compensation and Total Benefit Value).

Q. Please summarize the Blended Peer Group analysis findings with respect to Base Salary.

A. The base salary benchmarking result of 100.3 percent indicates that the median salary of the positions included in the benchmarking are at the median of the Blended Peer Group.

Q. Has there been a change in the base salary benchmarking methodology since the 2015 benchmarking?

A. The methodology has remained the same, and the modest changes in the members of the Blended Peer Group did not

impact the overall results. The average base salary has increased from 95.7 percent of the median as reported in the 2015 study to 100.3 percent of the median as reported in the 2018 study.

Q. What factors have contributed to the Company's achieving a median level of base salary in the 2018 study?

A. Approximately 33 percent of the Company's employees in benchmarked positions for the 2015 study and 27 percent of the Company's employees in the 2018 study supervise union employees. Over the years, the Company has administered a compensation program (under various names) that is designed to provide a targeted compensation "buffer" between the wages of the union employees and the salary of their immediate supervisors. The program underwent a significant change in 2015, after a multi-year period of no increases in the target salaries for these supervisory positions.

Q. How did the median base salary benchmarking in the 2015 study differ between supervisory and non-supervisory roles?

A. The benchmark data used for the 2015 study did not capture the "catch-up" increase that the Company implemented later in 2015 for most of the supervisory employees. The base salaries of the supervisory

positions relative to the benchmarking median were considerably lower (92.5 percent) than those in non-supervisory roles (97.4 percent) and the overall population (95.7 percent).

Q. How have the base salary benchmarking results between the supervisory and non-supervisory roles changed since the 2015 study?

A. The overall increase in the base salary benchmarking between the 2015 Study and the 2018 Study (4.6 percent) is primarily driven by the 6.0 percent increase for the supervisory roles over this time period, as compared to a 3.6 percent increase for the non-supervisory roles. The table below summarizes the results for both the 2015 and 2018 studies.

	2015 Study	**2018 Study**	**Change**
Non-Supervisory Roles	97.4%	101.0%	3.6%
Supervisory Roles	92.5%	98.5%	6.0%
Overall	95.7%	100.3%	4.6%

Q. Are there other benchmarking results that are influenced by the base salary results?

A. Yes, base salary drives the value of salary-related benefits, such as pension and 401(k) match. It is estimated that 5.4 percent of the increase in the Total Benefits Value from 2015 to 2018 is the result of increased base salaries.

Q. Please provide a summary of the Blended Peer Group analysis findings with respect to annual variable pay.

A. The Con Edison variable component of management pay lags the market. As a percentage of total cash compensation Con Edison's variable pay represents 7.7 percent. The median for the Blended Peer Group is 10.4 percent and the average is 10.8 percent.

Q. Is the Panel sponsoring an exhibit in connection with the findings regarding the variable pay component of management pay?

A. Yes. Please see the EXHIBIT ___ (CBP – 06), entitled "ANNUAL VARIABLE PERFORMANCE-BASED PAY COMPARISONS."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP - 06)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information set forth in EXHIBIT ___ (CBP - 06).

A. This exhibit identifies the annual variable pay component of management pay opportunity for non-officer management employees in each Con Edison Band, as compared with the market range or target variable pay among the Blended Peer Group companies at equivalent Band levels.

Q. Please provide a summary of the Blended Peer Group Total Benefits and Compensation analysis.

A. In aggregate, as discussed above, the Con Edison Total Benefits and Compensation value for non-officer management employees is 1.4 percent below the Blended Peer Group median and 2.7 percent below the Blended Peer Group average.

Q. Based on the findings of the Review, what changes has the Company made?

A. The Company made changes to health plan deductibles, co-payments, and employee payroll contributions made during the Historic Year and expected to be made for the Rate Year. In addition, the Company eliminated one of the higher-cost health plan choices for management employees effective January 1, 2019.

Q. Please summarize your findings.

A. In summary, the results of the Review demonstrate that the cost of the total benefits program and compensation, including the variable component of non-officer

management base compensation and supplemental retirement benefits, are appropriately incurred business expenses so that the Company can provide safe and reliable utility service to its customers. Accordingly, the Company has included the costs of these programs in the electric and gas revenue requirements.

NON-OFFICER COMPENSATION

Q. Please describe the Company's overall compensation philosophy.

A. The philosophy of the Company is to provide compensation that is competitive with the median levels of compensation provided by a peer group of similarly situated companies. This approach to setting compensation levels permits the Company to be reasonably competitive in the labor market and to be able to attract, and fairly compensate, employees important to the success of the Company. In targeting the median levels for compensation measured against a market competitive norm, the Company has taken a conservative, low-cost approach, which benefits its customers.

Q. Does the base compensation for Con Edison's non-officer management employees include both base salary and a variable pay component?

A. Yes.

Q. Is Con Edison unusual in its inclusion of a variable pay component as part of base compensation?

A. No. Tying a portion of employees' base compensation to performance is commonplace both in American business generally and for public utilities as well.

Q. Please continue.

A. The variable pay component of base compensation in the Company's MVP program is earned only if the Company reaches pre-set financial and operating performance goals. These goals are directly linked to specific measurable standards consistent with the Company's goal of providing safe and reliable service to customers. These performance goals encompass employee and public safety, operational excellence, environmental and sustainability objectives; operating and capital budgets; timely completion of high priority capital and operating projects and programs; and adjusted net income. The specific performance goals are tracked on a calendar year basis and must be achieved each year.

Q. Has the Commission addressed its standards for recovery of the variable component of management pay?

A. Yes, the Commission has addressed this topic in numerous rate cases, including several recent O&R rate case related orders. For example, in its *Order Denying Petitions for Rehearing and/or Clarification*, issued on November 21, 2011, in Case 10-E-0362 (p. 6), the Commission stated:

> The second point we wanted to emphasize is that it is not necessary to maintain an artificial distinction between compensation in the form of traditional pay and benefits and compensation that is incentive based. As we have stated

previously, we recognize that variable compensation and incentive plans are common management tools aimed at encouraging performance improvements that can lead to more competitive operations. Consequently, if a utility can demonstrate that total compensation including incentive compensation for a class of employees is reasonable, with a comparable total compensation study of similarly situated companies being the preferred methodology, our concern about the relationship of incentive plan objectives to ratepayer interests is substantially diminished. As long as the plan does not promote employee behavior that would be contrary to ratepayer interests or Commission policies, the fact that it may contain financial, budgetary or other goals that benefit shareholders as well as ratepayers will not, by itself, be grounds for disallowing funding in rates, even if the relative benefits are unquantified.

Q. Please describe the MVP program’s component of base compensation as it applies to the Company’s non-officer management population.

A. The MVP component of base compensation is earned only if and to the extent the Company achieves pre-set performance goals that are directly linked to specific measurable standards consistent with the Company’s goal of providing safe and reliable service to its customers on a cost-effective basis. These performance goals are established by the Company’s senior management and are tracked on a calendar year basis

Q. Have there been any changes in these performance goals since 2016?

A. Yes. In 2017 the Company revised the structure and components of the performance goals by grouping 20 indicators into four key areas, *i.e.*, Employee and Public Safety, Operational Excellence, Customer Experience, and Environmental and Sustainability. Previously, 41 measures were consolidated into 14 performance goals, many of them within an “index” structure. By combining several measures into an index, it was not necessary to achieve the target for every component (7 of 8, for example) to receive full credit for the performance goal.

Q. Why did the Company make this change?

A. The Company’s senior management was concerned that the achievement of the 14 measures was not challenging enough and that key customer measures such as First Contact Resolution, Meeting Customer Appointments, and Restoration Times were not included. The Company added specific measures related to the safety of the gas system, along with both cyber and physical security measures intended to provide customers, employees, and the general public with additional security. Many of the items formerly contained within the Safety and Environmental Index became stand-alone measures in 2017, increasing the impact of their results on the overall variable compensation. The Company eliminated two

indices, *i.e.*, the Employee Development Index and the Storm Index. The Employee Development Index measured specific, internal activities related to the Company's workforce. While important, these measures do not have a direct impact on customers and for that reason the Company eliminated them. The Company eliminated the Storm Index components because they primarily measured completion of various processes, with minimal focus on results.

Q. Is the Panel sponsoring an exhibit to describe the changes in the performance goals?

A. Yes. Please see the EXHIBIT ___ (CBP - 07) entitled "2016 Goals mapped to 2017 and 2018 Structure."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP - 07)

Q. Was this exhibit prepared by you or under your supervision?

A. Yes.

Q. Has the Commission provided any guidance to the Company on making changes to the structure of the performance goals?

A. As noted in the 2016 Joint Proposal (p. 43, fn. 53) adopted by the Commission in the Company's last electric and gas rate cases:

The Company maintains flexibility to modify the Management Variable Pay Plan, including the portions related to the Safety and Reliability and Customer Service Index. For purposes of this reconciliation mechanism, if the Company modifies the Safety, Reliability and/or Customer Service Index portions of the Management Variable Pay Plan, the Company will calculate the downward reconciliation under both the new and the old structure. The Company will defer for future credit to customers the amount by which the actual expense by service is or would have been less than the amount shown on Appendices 8 and 9 for those services.

Q. Have you measured the impact of the change in the Safety, Reliability and Customer Service Index portions of the performance goals against the Company's actual 2017 and 2018 results?

A. Yes. Based on the requirements set forth in the 2016 Joint Proposal, the Company has tracked the performance of the 2016 Key Indicators using the targets and results for 2017 and 2018 to determine if the new structure for the performance goals has resulted in an unfavorable financial impact to customers.

Q. Is the Panel sponsoring an exhibit that calculates the Company's performance under the 2016 performance goals using 2017 and 2018 data?

A. Yes. Please see EXHIBIT ___ (CBP - 08) entitled "2016 Performance Goals with 2017 and 2018 Data."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP - 08)

Comparing the MVP results under the 2016 performance goals with the updated performance goals supports the Company's contention that the updated structure is more challenging. The updated structure better aligns customer needs, safety, operational excellence, and the financial impacts on employees for results that fall short of the performance goals.

Q. Can you summarize the financial impact on the MVP results for 2017 and 2018 as a result of changing the performance goal structure?

A. For both 2017 and 2018, the change in the performance goal structure has resulted in a lower MVP result for the employees. The "Back-cast" of the 2017 and 2018 results using the 2016 performance goal structure are provided in EXHIBIT ___ (CBP - 09) entitled "Back-cast of 2017 and 2018 CECONY MVP Award Fund."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP - 09)

Q. Was this exhibit prepared by your or under your direct supervision?

A. Yes.

Q. Is the Company requesting a discontinuation of the ongoing measurement of annual performance goals against the 2016 structure?

A. Yes. Based on the actual results for 2017 and 2018, the revised performance goal structure has not resulted in any additional financial impact to customers. On the contrary, the increased rigor and focus of the current structure has resulted in lower awards in 2017 and 2018 to the employees.

Q. Are there any management employees that do not participate in the MVP program?

A. Yes. As discussed by the Customer Energy Solutions Panel, certain employees in the Energy Efficiency Department participate in a Commission-based program in lieu of the MVP program. These employees were excluded from the Company's calculation of MVP for the Rate Year.

Q. What is the eligibility requirement for all other management employees?

A. All other CECONY management employees who demonstrate satisfactory performance are eligible for an MVP award.

Q. Please describe how the MVP component of the Company's non-officer management compensation works.

A. The "Target Fund" for the variable pay component is determined by multiplying the base salary of all eligible employees as of December 31 by their respective target percentage. The target percentage for each band level is shown below.

Band	MVP Target
4H	25%
4L	21%
3H/3L	15%
2H	9%
2L	7%
1H	6%
EP/AL/AH	5%

Q. Can the Target Fund be adjusted?

A. Yes, the Target Fund can be increased or decreased based on the actual performance results compared with the pre-set performance goals for that year.

Q. Please continue.

A. The Target Fund available for distribution is established based on four weighted components: performance goals (50 percent), operating budget (15 percent), capital budget (15 percent), and net income (20 percent). A sliding scale of 0 percent to 120 percent is applied to each component based on actual outcomes. The actual amount to be distributed each year is determined by multiplying the Target Fund by the actual performance results for four performance criteria components. Variable pay amounts

awarded will vary among employees based on the target percentage for his or her position, the results of additional performance indicators specifically assigned to his or her organization, and an assessment of their individual performance. An Eligible Employee with unsatisfactory performance will not qualify for variable pay. For each eligible employee, 60 percent of the award will be based on achieving specific organization performance criteria, and the remaining 40 percent is based on individual performance.

Q. How was the amount of variable pay included in the revenue requirement calculated?

A. The amount of variable pay included is set by the Target Fund level. This amount expressed as a percentage of total cash compensation represents 7.7 percent. As indicated above, the median for the Blended Peer Group is 10.4 percent and the average is 10.8 percent.

Q. What happens if the amount of the variable component of management pay allowed in rates is not achieved?

A. If the goals are not fully achieved, and the Target Fund amount of variable pay recoverable from customers is not paid out, consistent with the Company’s current electric and gas rate plans, the Company proposes to credit customers with the difference.

Q. Does the Company have a plan document that describes its variable pay plan?

A. Yes.

Q. Is the Panel sponsoring an exhibit describing the Company's variable pay plan?

A. Yes. Please see the EXHIBIT ___ (CBP - 10) entitled "Management Variable Pay Program."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 10)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please describe the performance indicator goals.

A. The performance indicator goals for 2018 address Employee and Public Safety, Environment, and Sustainability measures including energy efficiency programs, Operational Excellence including gas, electric, and steam reliability measures, and Customer Experience measures including restoration times, customer appointments, and first-call resolution measures. The Company's variable component of management pay reflects the Company's focus on delivering to its customers safe and reliable utility service in a cost-effective manner. These performance goals send the proper signals so that employees focus on providing the highest levels of customer service while

also remaining focused on seeking cost savings and efficiencies. When Company employees are within or under budgets that are reflective of productivity and/or cost savings initiatives, customers receive the tangible benefit of lower costs for the provision of service in the long term.

Q. Is the Panel sponsoring an exhibit listing the Company's performance indicators?

A. Yes. Please see the EXHIBIT ___ (CBP - 11) entitled "2018 Performance Goals."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 11)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. How do customers benefit from the attainment of these performance goals?

A. These goals are established to enhance particular areas of customer service, safety, and reliability, as well as environmental stewardship and completion of system enhancements and capital projects.

To the extent that such goals are achieved, customers benefit directly. The Company's concern for customer satisfaction and providing a high level of service and overall safety are demonstrated in linking

the variable component of management compensation to particular goals. For example, our customer focus is measured by the Customer Project Completion dates, first-call resolution, and customer appointments measures. The Estimated Time for Restoration demonstrates our commitment to service reliability.

Q. How do customers benefit from the attainment of the Capital and Operating Budgets and Net Income goals?

A. Customers benefit both directly and indirectly when the Operating Budget and Net Income goals are achieved. Customers derive benefits from the Company’s achieving the net income levels that attest to the Company’s financial strength and stability. Con Edison competes for capital in a capital-intensive industry. A company that attains rigorous financial and operating budget goals will ultimately benefit its customers. Chief among these benefits, particularly given the capital-intensive nature of the utility business, is the ability to maintain access to financial markets at a reasonable cost.

Q. Do you have any other general comments on the Company’s performance indicator goals?

A. A sound plan for the variable component of management pay is necessarily a combination of targets that encourage

employees to meet customer-related goals in a cost-effective manner. These factors are inherently interdependent and important to the Company's customers. Operational performance undertaken subject to budgetary considerations inevitably results in lower costs to customers. Conversely, a single-minded focus on meeting budgets, without a focus also on prudent business management, can result in unsatisfactory customer service.

Q. How does the Company measure its operating and capital budget performance?

A. Our performance related to the operating and capital budget targets is measured in terms of total spend compared with how well certain identified key projects and programs are managed in terms of schedule and cost. The Company uses "modifiers" that are designed to measure both unit costs and units completed. The modifiers for capital projects measure both cost and meeting milestones. A manager is assigned to each project and program and is responsible for monitoring and tracking expenditures versus budget and completing the work on schedule. These modifiers also demonstrate the Company's internal controls and cost tracking detail that are used to manage our overall capital and operating budgets.

Q. How many projects and programs were identified to be measured for the Capital Budget?

A. The Company identified 25 projects and programs. These projects and programs include major capital projects and ongoing capital programs that comprise a significant portion of the capital budget.

Q. Is the Panel sponsoring an exhibit in connection with capital projects and programs?

A. Yes. Please see EXHIBIT ___ (CBP - 12) entitled “2018 CAPITAL BUDGET MODIFIERS.”

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 12)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. How many programs were identified to be measured for the Operating Budget?

A. The Company identified 12 programs to be measured for the Operating Budget.

Q. Is the Panel sponsoring an exhibit in connection with operating budget programs?

A. Yes. Please see the EXHIBIT ___ (CBP - 13) entitled “OPERATING BUDGET MODIFIERS.”

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 13)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Turning to another aspect of compensation, please describe equity grants for non-officer management employees.

A. Equity grants are awarded to management employees contributing to the future success and growth of the Company. The Management Development and Compensation Committee of the Company's Board of Directors ("MDC Committee"), the administrator of the equity grant program, authorizes granting equity awards in the form of performance based restricted stock ("PBRS") to non-officer management employees in bands 3 and 4, and time-based restricted stock ("TBRS") to management employees in bands 1 and 2. The equity grants provide the right to receive one share of Con Edison common stock (or a cash payment equal to the fair market value of one share of Con Edison common stock) for each stock unit granted, subject to the satisfaction of certain pre-established long-term performance objectives.

Q. How are equity grants determined for non-officer management employees?

A. Non-officer management employees are eligible to receive PBRS and TBRS equity grants. However, it has been the Company's practice to limit equity grants to approximately 20 to 25 percent of the total number of non-officer management employees based on recommendations from their Senior Officer and an assessment of each recommended employee's past performance and potential to contribute to the Company's future success.

Q. Why should the Company be permitted to recover the cost of equity grants?

A. Equity grants are part of an overall total compensation package for non-officer management employees that is below the median compensation levels compared with the Blended Peer Group. The form of compensation, in this case equity grants as opposed to cash, should not influence the recoverability of compensation cost. The Company provides equity grants to non-officer management employees to promote employee behavior to drive the future success of the Company and to retain quality employees critical to achieve this success. Payouts are made only after the consistent demonstration of achieving performance indicators over a period of time, as measured by the three-year average of the MVP Program. Equity grants are a component of the overall compensation and

benefits package for non-officer management employees and are a necessary and reasonable business expense incurred by the Company in order to attract the talented employees necessary to provide safe and reliable service.

Q. How much is reflected in the revenue requirement for equity grants?

A. As reflected in the Other Compensation element of expense shown in Accounting Panel Exhibit AP-3, the revenue requirements reflect the following amounts for equity grants: $5.1 million for electric and $1.0 million for gas.

COMPENSATION PROGRAM FOR OFFICERS

Q. Please describe the Company’s officer compensation package.

A. The Company’s compensation package for its officers includes market-competitive benefits and compensation designed to attract and retain qualified officers to manage its operations and provide safe and reliable service to customers.

Q. Please describe the elements of the Company’s officer compensation program.

A. The elements of the Company’s compensation program are the same for officers as they are for non-officer management employees — base salary, a variable pay

component, and long-term equity grants that are competitive with the median levels of officer compensation provided by a peer group of comparable companies.

Q. Please describe how the Company established compensation levels for officers.

A. The MDC Committee establishes, reviews, and administers the Company's officer compensation program. The MDC Committee has retained Mercer as an independent compensation consultant to provide it with information, analyses, and recommendations regarding officer compensation. The MDC Committee uses an industry peer group of publicly-traded utility companies of comparable size and scope to the Company for purposes of providing benchmark information on officer compensation levels. This compensation peer group is also used to measure relative total shareholder returns for vesting one half of the equity grants. The companies included in the compensation peer group are described above. Similar to the Review, Mercer expanded its analysis to include survey data (the Mercer Database and the Willis Towers Watson survey) for officer "position matching" to benchmark responsibility and level of the officer positions at Con Edison.

Q. Were Company officers included in the Review conducted by Aon?

A. Yes, while officers' compensation is established and approved by the MDC Committee as described above, the Company instructed Aon to include officers as part of the external benchmarking of Total Benefits and Compensation as part of the Review.

Q. Are Aon's benchmark findings consistent with the information prepared by Mercer for the MDC Committee?

A. Yes. Mercer's analysis focuses on officers' base salary, variable pay, and long-term equity grants commonly referred to as "Total Direct Compensation." In addition, Mercer's benchmarking is specific to the utility industry. Aon was able to compare the Company's officers' Total Direct Compensation with the Total Direct Compensation of the Blended Peer Group. The Aon findings indicate the Company officers' Total Direct Compensation to be in line with the median of the Blended Peer Group.

Q. Was the same Blended Peer Group used to conduct the Review of officers' benefits and compensation the same Blended Peer Group that Aon used for the non-officer Review?

A. Yes.

Q. How many officer management positions were included in the Review of Total Benefits and Compensation?

A. Thirty-four of the Company's forty-four officers were included in the Review or approximately 77 percent of the Con Edison officer management employees.

Q. Is 77 percent coverage sufficient to draw valid conclusions from the Review?

A. Yes. The officers included in the analysis included the President and Chief Executive Officer, President, Chief Financial Officer, General Counsel, and senior officers (Senior Vice Presidents) and officers (Vice Presidents) covering several functional areas: Electric Operations, Gas Operations, Finance, Accounting, Customer Operations, Human Resources, Engineering, Information Resources, and Legal. The results of the analysis, therefore, are representative of Con Edison's pay positioning across the entire officer management employee population.

Q. Why were some Con Edison officer management positions excluded from the Review?

A. There was not sufficient data reported by the Blended Peer Group companies to the compensation survey sources to include several officer positions in the Review.

Q. Is the Panel sponsoring an exhibit in connection with the positions included in the Review?

A. Yes. Please see EXHIBIT ___ (CBP – 14) entitled “OFFICER CENSUS.”

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 14)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information set forth in EXHIBIT ___ (CBP – 14).

A. This exhibit lists all officer management positions at Con Edison, and whether the position was included in the Review. Positions were excluded for one of the following reasons:

- “Insufficient Benchmark Data (less than five comparator matches)” indicates the Con Edison position is a benchmark position but there was insufficient Blended Peer Group data to include the position; or
- “Non-Benchmark Job” indicates the Con Edison position is not similar to any survey benchmark positions in terms of functional responsibilities, job duties, and/or organizational level.

Q. Is the Panel sponsoring an exhibit in connection with the competitive positioning of Total Benefits and

Compensation of Con Edison officer positions benchmarked as part of the Review?

A. Yes. Please see EXHIBIT ___ (CBP – 15) entitled “TOTAL BENEFITS AND COMPENSATION RESULTS - OFFICERS.”

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 15)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information set forth in EXHIBIT ___ (CBP – 15).

A. This exhibit identifies the Con Edison officer positions included in the Review as compared to the Blended Peer Group. This exhibit includes the following information:

- Con Edison title;
- Benchmark title;
- Con Edison Total Benefits and Compensation;
- Market Total Benefits and Compensation at the 50th percentile (median) and average; and
- Variance for each Con Edison position to market using the median and the average.

Q. What did Aon’s analysis indicate when comparing Con Edison to the Blended Peer Group?

A. In the aggregate, Aon found Con Edison's officer management Total Benefits and Compensation package value to be "market competitive." Con Edison's officer management Total Benefits and Compensation was less than one percent below the Blended Peer Group median (or 99.7 percent of the median). Using the average, Con Edison Total Benefits and Compensation was 12.4 percent below the Blended Peer Group average (or 87.6 percent of the average). The result is low relative to the median but considered to be within a market competitive range of plus or minus ten percent in aggregate. When compared to the average, the result is below a market competitive range of plus or minus ten percent in aggregate because several of the comparison companies had significantly higher short-term and long-term incentives than the median, thereby skewing the average.

Q. Is the Panel sponsoring an exhibit in connection with the results of the Aon analysis?

A. Yes. Please see EXHIBIT ___ (CBP – 16) entitled "SUMMARY OF RESULTS - OFFICERS."

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 16)

Q. Was this exhibit prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the information set forth in EXHIBIT ___ (CBP – 16).

A. This exhibit identifies the aggregate results, relative to both the average and the median of the Review Aon performed using the Blended Peer Group by each component of Total Benefits and Compensation discussed above:

- Base Salary;
- Target Cash Compensation (sum of Base Salary and the variable component of officer pay);
- Total Direct Compensation (sum of Target Cash Compensation and long-term equity grants);
- Total Benefit Value (estimated annual value of employee benefits including non-qualified benefits earned under supplemental retirement plans); and
- Total Benefits and Compensation (sum of total Direct Compensation and Total Benefit Value).

The Review demonstrates that all overall benefits and compensation are competitive with the median levels of officer compensation provided by the Blended Peer Group of companies, that is, less than one percent below median as determined by the Review. Therefore, officer benefits and compensation costs, including variable pay

and long-term equity grants, represent a reasonable business expense that should be fully recoverable.

Q. Is the Company seeking to recover all elements of officer benefits and compensation, *i.e.*, base salary, the variable pay component, and long-term equity grants, in this rate filing?

A. No. As noted above, the Company has elected not to seek recovery of the variable pay component and long-term equity grants provided to the Company's officers, even though the cost of these two elements of officer compensation are reasonable and necessary business expenses the Company must incur to attract and retain officers to manage its operations and provide safe and reliable service to customers. The Company reserves the right to seek recovery of these costs in future rate filings.

DIRECTORS' COMPENSATION

Q. Please explain the compensation package for members of the Company's Board.

A. Compensation for members of the Board, who are not employees of the Company, includes annual board and committee chair retainers and annual long-term equity grants.

Q. Please describe how the Company establishes compensation levels for Board members.

A. The Corporate Governance and Nominating Committee (the "Committee") of the Board establishes and approves the Board's compensation program. The Committee has also retained Mercer to provide information, analyses, and recommendations regarding director compensation. The Committee directs Mercer to (1) assist the Committee by providing competitive market information on the design of the director compensation program; (2) advise the Committee on the design and administration of the director compensation program, and (3) inform the Committee on director compensation trends among the Company's compensation peer group and broader industry.

Q. Please describe the current level of annual retainers and equity grants.

A. Each non-employee member of the Board receives an annual retainer of $115,000, and the Lead Director (*i.e.*, the liaison between the Company's Chief Executive Officer and the independent, non-executive directors) receives an additional annual retainer of $35,000. The Chair of the Management Development and Compensation Committee receives an additional annual retainer of $15,000. The Chairs of the Environment, Health, and Safety; Finance;

and Operations Oversight Committees each receive an additional annual retainer of $5,000. The Chair of the Corporate Governance and Nominating Committee receives an additional annual retainer of $15,000. The Audit Committee Chair receives an additional annual retainer of $30,000 and each Audit Committee member receives an additional annual retainer of $15,000. Each director is also allocated an annual equity grant of $150,000 of deferred stock units following their election at the annual stockholders meeting. The annual long-term equity grants are automatically deferred until the director's termination of service from the Board. Mercer conducts an assessment of non-employee Board of Director compensation every two years with the Committee to align Directors' compensation with market levels.

Q. Is the Company currently recovering all three elements in its rates?

A. No. In its 2016 rate filing, the Company elected not to seek recovery of the annual long-term equity grants provided to non-employee Board members in order to limit the number of matters at issue in that case. In not seeking recovery, however, the Company specifically reserved the right to seek recovery in future rate filings.

Q. Is the Company proposing in this filing to recover long-term equity grants provided to non-employee Board members in the Rate Year?

A. Yes.

Q. Please explain why.

A. Mercer found that the Company's total Directors' compensation is aligned with the median levels of both the Company compensation peer group and a general industry (*i.e.*, $10-$15 billion total market capitalization) group. Accordingly, the Commission should find that the Company's elements of Directors' compensation, including long-term equity grants, (1) are a reasonable cost of attracting and retaining qualified non-employee directors, (2) are commonly included in board of directors' compensation plans, (3) represent a market-based compensation package, and (4) are therefore a legitimate cost of doing business that should be recovered in rates.

EMPLOYEE WELFARE EXPENSES

Q. Did the Panel prepare the exhibits entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., ADMINISTRATIVE AND GENERAL EXPENSES–EMPLOYEE WELFARE EXPENSES"?

A. Yes.

Q. Were these exhibits prepared by you or under your direct supervision?

A. Yes.

See EXHIBIT ___ (CBP–17)(Electric) entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., ADMINISTRATIVE AND GENERAL EXPENSES–EMPLOYEE WELFARE EXPENSES" (Electric) and EXHIBIT ___ (CBP–18(Gas) entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., ADMINISTRATIVE AND GENERAL EXPENSES–EMPLOYEE WELFARE EXPENSES" (Gas).

MARK FOR IDENTIFICATION AS EXHIBIT ___ (CBP – 17) (Electric) and EXHIBIT __ (CBP-18)(Gas)

Q. Please describe these exhibits.

A. Page 1 of each exhibit is a summary of the Company's forecast of employee benefit expenses for the Rate Year, based on costs incurred in the Historic Year. Lines 1 through 20 show costs for the Company's employee benefit programs, and lines 22 through 25 show health care costs net of employee payroll contributions for health care benefits. Total employee welfare expenses are shown on line 27. Total employee benefit expenses, net of

capitalized amount, is a summary of projected health care costs and employee deductions for the Rate Year.

Q. Please describe the methods used for escalating employee benefit costs.

A. Three different methods are used to escalate Historic Year costs to the Rate Year costs. First, a labor escalation factor of 7.00 percent is used to escalate employee benefit costs that are a function of salaries and wages. For example, the Thrift Savings 401(k) Plan provides a Company match to management employees for a portion of their plan contributions; this is escalated using the labor escalation factor. Second, a non-labor escalation factor of 5.29 percent is used to escalate employee benefit costs that are unrelated to salaries and wages, such as plan management costs (*i.e.*, benefits and actuarial consulting services). The Accounting Panel discusses the basis for and development of these labor and non-labor escalation factors. Third, health care costs were projected based on premium costs for 2018, and expected premium increases for 2019 and 2020, determined in consultation with the Company’s various health care vendors (*i.e.*, Cigna for hospital/medical costs, CVS Health for prescription drug costs, MetLife for dental costs, the various Health Management Organizations

("HMOs") for our HMO offerings, and Aetna for the Managed Choice option) to estimate the 2020 health care costs. For the Company's managed care plans with HMOs and Managed Choice, the Company developed the 2020 projections by applying the 2018 premium rates provided by each of the HMO/Managed Choice carriers and escalated to 2020 based on estimates developed with each HMO/Managed Choice vendor.

Q. Does the employee benefit expenses projection include any program changes?

A. Yes. The projection includes the impact of plan design changes implemented for 2019 such as the elimination of the co-insurance health plan choice for management employees, as well as increases in the amount of employee payroll contributions.

HEALTH INSURANCE COSTS

Q. Is the Panel sponsoring an exhibit in connection with employee benefit expenses?

A. Yes. Exhibit ___ (CBP - 17)(Electric) and Exhibit ___ (CBP - 18)(Gas) show the employee benefit expense.

MARK FOR IDENTIFIATION AS EXHIBIT ___ (CBP – 18)

Q. Were these exhibits prepared by you or under your direct supervision?

A. Yes.

Q. Please explain the increase for health insurance shown on line 26, page 1, of these exhibits.

A. Line 26 shows the cost increase as $26.1 million (electric) and $5.4 million (gas) for health insurance after employee payroll contributions or a 6.2 percent per year increase from the Historic Year to the Rate Year. This increase is based on an annualized health care inflation trend of 6.3 percent provided by our various health care vendors described above. To develop the rate year amount, we used the estimated premium costs and the enrollment count for each of our health care plans. Historic Year costs for benefits administration are escalated using the non-labor escalation factor.

Q. Is the Company proposing to escalate health care expenses by the GDP deflator?

A. No. Con Edison recommends using the plan-specific escalators developed by the health care plan providers, rather than the GDP deflator. For example, Cigna has analyzed our hospital, medical, and vision care experience and participant demographics against its book of business and projects that expenses will increase by 7.0 percent per year. The HMOs are projecting an increase of 8.0 percent per year. For prescription drug costs, the Company worked with CVS Health and developed

an estimated increase of 6.0 percent per year based on claims experience, and MetLife estimates that dental costs will increase by 3.0 percent per year.

Q. Please explain why the GDP deflator should not be used for the escalation of health care costs.

A. In reviewing and analyzing historic claims experience and the projected increase in the Company's health care costs, based on information provided by the Company's health care plan providers, it is apparent that the increase is being driven by forces fundamentally different from those that drive the GDP deflator.

Q. Please explain.

A. Increases in the GDP deflator are being driven largely by inflation-related increases in the unit costs of various products. In contrast, increases in health care costs are driven by increased utilization of medical procedures and high-cost specialty prescription drugs, as well as the availability and projected utilization of new high-cost medical procedures, treatments, and devices.

General inflation does not capture these factors, which are the primary drivers of the Company's overall health care costs. A general inflation factor, such as the Consumer Price Index ("CPI"), based on the cost of goods, services, and labor that affect all sectors of the

economy, measures the average price change over time for a constant-quality, constant-quantity market basket of goods and services but fails to include the changes in the size and age structure of the population that affect the number of people using health care services. A general inflation factor may capture medical price inflation, *i.e.*, increases in the cost of providing a unit of care above and beyond inflation in the general economy, but not the increase attributed to the type of care, technology used, and services per unit of care delivered. For example, a hospitalization in 2018 might involve more tests, more procedures, more supplies, and use of different technology for the same condition than in 2008 or the use of new treatments for previously untreatable terminal conditions. Unlike the costs of new technologies for many products in the economy captured by the GDP deflator, whose initial prices are often set to compete with current technologies and then decrease over time, new medical technologies (such as MRIs replacing X-rays) raise the cost of medical services beyond the general inflation rate. The development of new medical technologies and services are not designed to compete with existing technologies. Rather, they are designed and introduced into the market to enhance the ability of

medical professionals to save the lives of patients and provide patients with an improved quality of life. For example, time is of the essence when treating stroke patients. Mobile stroke units are specially outfitted ambulances with trained medical personnel using telemedicine to perform blood tests, CT scans, and TPA tests (TPA is used to breakdown blood clots) before the patient arrives at the hospital.)

Q. Are there other items that a general inflation factor fails to include?

A. Yes. Adding to the cost of health care are many expensive diagnostic studies doctors order to protect themselves from potential litigation. In an article, Diagnostic Imaging reported that ordering multiple exams leave a trail that due diligence has been practiced in giving the patient the best possible care. This type of “defensive medicine” continues to be a steady contributor to increased utilization. Another factor adding to the cost of health care is the cost of securing medical information. PricewaterhouseCoopers (“PwC”) estimates that cybersecurity measures to prevent or mitigate increasingly sophisticated and aggressive large-scale breaches also adds to the cost of health care. The continued adoption of patient electronic health records has expanded the cybersecurity

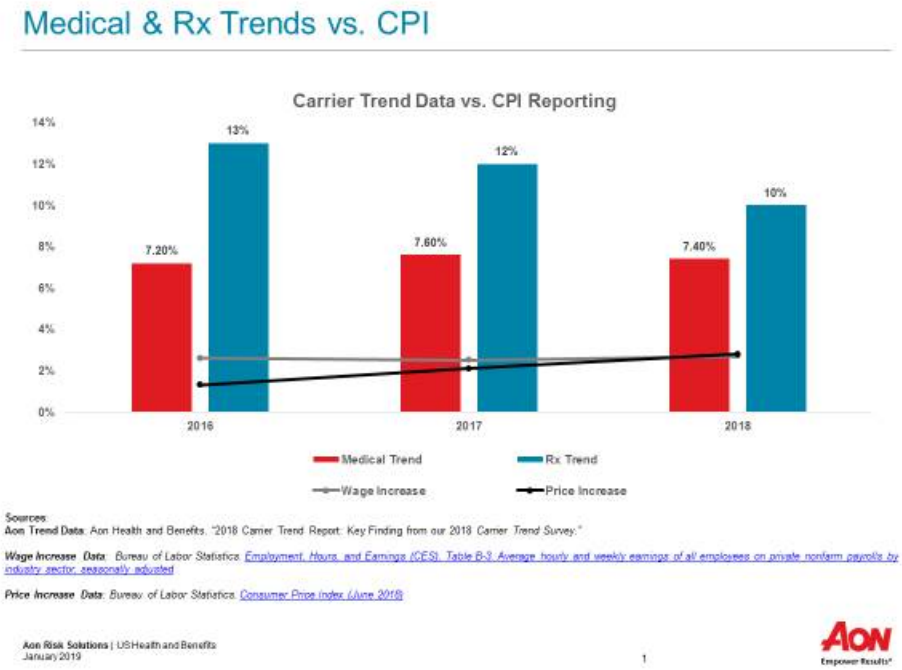
attack surface and increased exposure to new and evolving threats. According to findings from 367 healthcare provider respondents to The Global State of Information Security® Survey 2018, 14 percent of providers reported a ransomware attack last year and providers detected 11 percent more security incidents in 2017 than the year before. Health care organizations are greater targets for theft than organizations in other sectors because the personal health and research information these facilities hold are high-value commodities to cyber criminals.

Q. Please continue.

A. In addition, health care costs are directly impacted by the age of the Company's work force. Cigna estimates that the Company's health care costs will continue to increase significantly as the age of the covered population grows even though the Company has made significant plan changes to mitigate future costs increase. Increases attributed to these unique circumstances that drive up health care costs above general inflation are not captured in a general inflation factor. A recent report by PwC "Medical Cost Trend: Behind the Numbers 2019" notes that national health spending has grown significantly as a percent of GDP since the 1960s. This increase is due not only to expensive new services and prescription drugs but also due to new technologies and procedures. An aging baby boomer

population will result in higher costs due to having more health needs. PwC's Health Research Institute ("HRI") projects a 6 percent medical cost trend in 2019, consistent with the 5.5-7 percent range of the previous five years. The net growth rate in 2019, after accounting for benefit design changes such as higher co-pays and narrow provider networks, is expected to be 5.5 percent. For this research, HRI interviewed industry executives, health policy experts, and health plan actuaries whose companies cover more than 75 million employer-sponsored members. HRI also analyzed results from PwC's 2018 Health and Well-Being Touchstone Survey of more than 900 employers from 37 industries, an HRI national consumer survey of 1,500 U.S. adults, and an HRI national clinician survey of 1,000 physicians, physician assistants, and nurse practitioners. This projection is based on HRI's analysis of medical and drug costs in the employer insurance market which covers more than 150 million individuals.

In a 2018 health care carrier trend survey conducted by Aon consultants, medical cost and prescription drug costs, as shown in the chart below, increases were separately compared to CPI. As the chart shows, both medical and prescription drug cost increases have been significantly higher than CPI.



Q. Please continue.

A. Other factors contributing to cost increases above inflation can be attributed to the growth in use of specialty drugs. Pharmacy Benefit Management Institute reports in *2018 Trends in Specialty Drug Benefits* that the specialty trend under the pharmacy benefit for commercially insured plans increased 13.3 percent over 2015 and that spending for specialty drugs covered under the medical benefit has increased 55 percent since 2011. Specialty drug trend is impacted by a number of factors including an active pipeline of specialty drugs, rising

drug price inflation, limited availability of biosimilars, and more expensive shipping, handling, and administration of specialty drugs. The Company's prescription drug plan has seen similar increases in the use and cost of specialty drugs. Given this fundamental dichotomy, the use of the GDP deflator alone fails to recognize the primary reason these costs are escalating and is therefore not the proper methodology to measure the increase in health care costs. Use of the GDP deflator will serve to improperly understate the Company's health care costs for the Rate Year. A reasonable approach to estimating the trend of future health care costs would take into account the wellness, age, and past experience of the Company's employee and dependent population as well as the impact of legislation such as the Patient Protection and Affordable Care Act ("PPACA"). Estimating future costs in this manner is consistent with the industry practice of those actuaries who determine the premium rates for policies purchased from the Company.

Therefore, to develop a more accurate estimate of the increase in health care costs, the Commission, instead of using GDP, should adjust Historic Year expenses by an inflation factor that not only includes

general inflation but also incorporates other factors such as changes in utilization of services and procedures and employee demographics, the volume and mix of health care services, and the impact of legislation.

Q. What kind of inflation factor should be used that would be a better predictor of health care expenses?

A. When predicting future health care costs, the inflation factor supplied by the various health insurance carriers will result in a better estimate. The inflation factor supplied by insurance carriers not only includes the effects of general inflation on the health care market but also incorporates how the other factors described above impact future medical inflation. An article published by the American Society of Actuaries observed that it is the actuary’s role to build a model that predicts an individual’s cost to the insurer. The goal is to determine future healthcare costs by using prior costs, demographics, and diagnoses. The statistical analysis calculates the cost of future risks such as the financial effects that events such as birth, marriage, sickness, accidental injury, and death have on the cost of insurance and the financial obligations of benefit plans and other financial security systems. All these are insurable events, and one of the actuary's main

functions is to calculate the cost of financing these events whether by insurance or other means. The article provides as an illustration and highlights the actuary's role in designing pension plans and developing their funding requirements. If soundly funded, pension plans will pay the benefits that are promised.

From a measurement point of view, the Company's future health care costs are measurable and predictable with a high level of accuracy. The Company's health care program covers a statistically valid employee and dependent population, which can be used to estimate the cost of future claims.

Q. Are there other factors that impact the future cost of providing health care?

A. Yes. Legislative and regulatory changes have impacted, and will continue to impact, the cost of providing health care.

Q. Does the Company's projection for health care costs include changes to the health plans as a result of the PPACA?

A. Yes. The financial impact of the PPACA to the Company's health care costs assumes that there will be no changes to this legislation during the Rate Year. The Company has already absorbed additional costs in connection with

this legislation, such as extending health care coverage to all dependent children up to age 26 and providing participants with preventive services that must be fully paid for by the Company. Prior to the change in law, coverage for a dependent child ended when a child reached age 19, unless the child was a full-time student in which case coverage would end at age 25. The additional costs of extending health care to dependent children to age 26 beyond the previous plan limits have grown to more than $1 million per year. In the area of preventive care, also due to the PPACA, the Company is absorbing the premium costs for providing additional preventive health services at no cost to employees or dependents, which previously required some level of cost sharing by employees. Each year, health care plans are required to limit a participant’s annual out-of-pocket costs and include office visits and emergency room co-payments toward their annual out-of-pocket limit. This change increases plan costs as office visits and emergency room co-payments are no longer considered or credited to participants’ out-of-pocket limits. As a result, employees now reach their out-of-pocket maximums more quickly and the plan is required to pay all eligible expenses above the annual out-of-pocket maximum, which

serves to increase the costs paid by the Company by almost $1 million per year. PPACA taxes and other fees that did not exist prior to 2013 have added an additional $1 million annually to the cost of health care plans.

Q. Are there any other provisions of the PPACA that add costs to the Company’s health care plans?

A. Yes. The PPACA imposes an excise tax on health care providers and employers who offer health care plans that cost more than predetermined threshold levels set by the PPACA. The excise tax is commonly referred to as the “Cadillac Tax.” The tax will be imposed on insurance companies and employers, if self-insured, offering health care plans that exceed cost thresholds established by the federal government. For each participant enrolled in such a health plan, the imposed excise tax is equal to 40 percent of the gross premium dollars above the threshold. The PPACA established thresholds that were scheduled for implementation in 2018 but that have been postponed to 2022. These thresholds are subject to increases based on future CPI changes.

Q. What is the expected financial impact to the Company?

A. Based upon current plan offerings and projected costs, the expected 2022 financial impact on health care costs

for the active employees is an increase of $16.4 million ($13.6 million for electric and $2.8 million for gas).

Q. What is the Company's strategy regarding the pending tax?

A. The Company will continue to look for ways to manage health care costs and promote efficient use of health care benefits to mitigate future increases. The Company is also monitoring legislative activities as some provisions of health care reform have already been delayed and could potentially change. In addition, as all large employers will be affected by this tax, the Company will continue benchmarking the approaches and strategies of New York Metropolitan companies and utility peers to develop and consider ways to mitigate the impact of the tax while not adversely affecting the market competitive position of our compensation and benefit program.

Q. Has the Company experienced actual health care cost increases above general inflation?

A. Yes. The Company has experienced actual health care cost premium increases averaging 6.8 percent annually over five calendar years (2013-2017). The Company estimates actual health care cost premiums will increase by 6.4 percent per year from the Historic Year to the Rate Year. Although the changes have helped to mitigate health care

cost increases, the lower rate of increase is still far greater than GDP increases of less than 2.0 percent over the same period and expected to increase in the near future. The following chart compares the Company's health care cost increase with GDP inflation rate from 2013 to 2017:

YEAR	GDP INCREASES	COMPANY HEALTH PLAN INCREASES
2015	1.0%	6.0%
2016	1.0%	6.9%
2017	1.9%	5.9%

Q. What is the impact on health care expenses of using the GDP deflator for projecting health care expenses instead of using a health care projection rate which factors in the different health care cost drivers?

A. Using the GDP deflator to project health care costs instead of a projected rate that factors in the cost

drivers described above results in a significant understatement of health care expenses that should be recovered as a reasonable business expense. For example, a comparison of the last three years actual growth in health care expenses to an increase solely based on GDP in each of those years results in an understatement of actual annual health care costs of approximately $62.5 million.. The imposition of the GDP factor for the escalation of health care costs instead of the expected health care trend factor included in this filing would result in an understatement of health care costs in the rate year of over 25 million.

OTHER MEASURES TAKEN TO MITIGATE COST INCREASES

Q. What actions has the Company taken to mitigate health and welfare costs?

A. The Company has taken numerous steps to contain and mitigate these costs. The Company is placing an increasing emphasis on promoting healthy behavior to mitigate health care cost increases. Management employees and union employees are eligible to participate in several wellness initiatives. All health providers collect health information from employees to assess the general health of the Company’s employee population and recommend future wellness programs and incentives to

encourage employees to participate in health improvement activities. Employees and their enrolled spouses are offered a monetary incentive to complete a health assessment. This is an online tool used to obtain baseline or updated health information as well as to provide employees and their spouses with insight into their health status, and suggestions to address potential health issues.

Management employees receive an incentive of $5.00 per pay period for completing their own health assessment and another $5.00 per pay period credit if their enrolled spouse completes the health assessment. Under the respective Labor Contracts Local 1-2 members receive an incentive of $3.00 per pay period for completing the health assessment and can receive an additional $2.00 per pay period if their spouse completes a separate health assessment. Local 3 members receive an incentive of $2.00 per pay period for completing the health assessment and another $2.00 per pay period if their enrolled spouse completes the health assessment. In addition, management employees receive an incentive of $5.00 per pay period if they take a basic medical screening that includes blood pressure, cholesterol, blood sugar, and body mass index, all of which are essential for identifying potential

health issues. Management employees will receive another $5.00 per pay period incentive if their enrolled spouse takes a medical screening. The Labor Contract with Local 1-2 also provides for an incentive of $2.00 per pay period if the employee participates in a basic medical screening. The Labor Contract with Local 3 provides for an incentive of $2.00 per pay period if the employee participates in a basic medical screening and another $2.00 per pay period if the employee's enrolled spouse takes a basic medical screening. In 2017 the Company expanded its wellness initiatives to include reimbursements of up to $200 each for management employees and enrolled spouses; up to $50 each for Local 3 employees and enrolled spouses and up to $50 for Local 1-2 employees for wellness-related activities, such as weight reduction programs and gym memberships.

Q. Please continue.

A. The Company's 2018 wellness initiative continues to include a surcharge for tobacco usage for management employees, which has a direct correlation to increased health risks leading to higher medical costs. Employees who voluntarily identify themselves as tobacco users or who do not complete the tobacco usage question during open enrollment are required to make an additional $240

payroll contribution toward their health care coverage each year. An employee who is a tobacco user can avoid the additional health care contribution by enrolling in a tobacco cessation program.

Q. Do the Company's health care carriers offer any other programs to employees to assist them in adopting a healthy lifestyle?

A. Yes. The Cigna Care Network, Telehealth, Convenience Care Clinics were added to the health plans. These changes are designed to align health care benefits with market practices, moderate health care cost increases, and to help employees become more conscious of health care costs. Cigna offers a Health Advisor Program that is designed to facilitate healthy behavior and promote the achievement of health-related goals for at-risk individuals. Cigna also offers Well Aware Disease Management Programs to address various health conditions including heart disease, asthma, diabetes, and lower back pain. These programs are developed in accordance with recognized subject matter experts, the American Heart Association, the American Academy of Allergy, Asthma and Immunology, the American Diabetes Association, and others.

Q. Does Cigna offer programs to all employees and dependents to assist with their lifestyle choices that should help in controlling health care costs?

A. Yes. Cigna has identified employees for weight loss, stress management, and other wellness activities and offers programs called Healthy Steps to Weight Loss and Stress Management Program. Both programs are designed to encourage lifestyle choices that will benefit the health of employees and dependents. These programs are available to all employees and their dependents. The cost of these programs is included in the Cigna administrative fees.

Q. What other actions has the Company taken to manage health care costs?

A. The Company works with Cigna to find ways to encourage employees and their dependents to take a greater role in managing their health care expenditures. For example, if an employee or dependent needs durable medical equipment and prosthetic devices, pre-notification to the insurance carrier is required in order to be covered under the plan. Treatment plans are required by the claims administrator for physical and occupational therapy, speech therapy, and services performed for diagnosis or treatment of dislocations, subluxations, or misalignment

of the vertebrae before such programs may begin. The Company has introduced a co—payment for emergency room visits to discourage employees from using the emergency room for routine medical treatments.

Q. Does CVS Health, the administrator of the Company's prescription drug plans, offer any program to assist employees to better manage their prescription drug costs?

A. Yes. For those employees or dependents with chronic and genetic disorders there is a separate Specialty Pharmacy Program, administered by CVS Health, which manages the dispensing and use of high-cost specialty drugs. The Specialty Pharmacy not only provides the patient with medications, but also provides proactive pharmacy care management services to manage the patient's condition effectively; provides early intervention; reviews dosing and medical schedules; trouble-shoots injection-related issues; discusses side effects with the patient; and supplies educational information. The Specialty Pharmacy Program also coordinates care with the doctor and health plan. In addition, CVS Health offers a Specialty Guideline Management Program. This program builds upon the Specialty Pharmacy Program by offering a more vigorous review of each specialty referral. The criteria for the program are developed using evidence-based

medical standards that are continually updated based on the most recent medically accepted guidelines. The program works with communications between CVS Health and the patient's physician. If the physician decides to change therapy, CVS Health telephones the patient to assist with better management of the new medication. For example, for patients who take Enbrel (TNF inhibitors), as a safety precaution, CVS Health assesses whether the patient has been tested for being a carrier of tuberculosis (with a skin test) because those medications contain a warning for patients with TB. CVS Health will also periodically assess the patient's exposure to medication to verify its continued effectiveness and to determine whether there is a need to change to a different drug.

Q. Are there any other programs available through CVS Health?

A. Yes. The Company works with CVS Health to help educate employees and their dependents to be better health care consumers. Employees are encouraged to use generic drugs where possible in order to mitigate plan costs as well as to lower their own out-of-pocket costs by being a better consumer at the point of purchase.

Q. Does the Company offer employees any programs to encourage healthier behavior?

A. Yes. Nutrition education services are available to employees. Healthy food choices help employees better manage their weight and chronic health conditions such as diabetes and heart disease. In addition, Work Home Wellness counseling is available to all employees to help them manage stress and other mental and nervous conditions. For the last several years, the Company has been providing employees with free flu shots. In 2017, the number of employees who received a flu shot was 2,444. In 2018, the number of employees who received a flu shot was 2,403.

Q. What other programs does the Company offer to employees to promote wellness?

A. During 2017, the Company implemented various wellness initiatives. From January 17 to March 13, an eight-week “8 Ways to Wellness” challenge and from April 4 to May 29 an eight week “Invest in You” challenge was offered. Both challenges were open to all employees of Con Edison. 1,941 employees participated in “8 Ways to Wellness” challenge and completed tasks each week such as increasing physical activity, getting a quality night sleep or improving work/life balance. 1,917 employees

participated in the “Invest in You” challenge. Employees were challenged to participate in physical activity and to find ways to improve their finances.

During 2018, the Company designed other challenges. From January 23 to March 20 an eight week “Eat Clean” challenge and from April 17 to April 29 a six-week “Digital Detox” challenge were offered. Both challenges were open to all employees of Con Edison. 2,300 employees participated in the Eat Clean challenge and were encouraged to avoid refined grains, added sugar and fried foods. 1,525 employees participated in the Digital Detox and were asked to swap screen time for physical activity and refrain from tech use while socializing as well as reducing use of smartphones and other devises prior to bedtime.

Q. Does the Company offer any other programs?

A. Yes. In June 2017, the Company implemented a program designed to help employees identify and manage sleep apnea. This was developed not only as a wellness program but a safety program as well. Between June 2017 and August 2018, 68 percent of employees who were screened were diagnosed with mild to severe sleep apnea are under treatment for their condition.

Q. Are there any other steps that the Company is taking to mitigate health care costs?

A. Yes. The Company conducts periodic audits of the health and welfare plan vendors to confirm the correct processing of claims, in accordance with the plan specifications for each of the health care options. Currently an audit of the 2016 and 2017 claims for the Cigna hospital and medical plans is in progress and will be completed in 2019. Audits were also completed for the CVS Health claims for 2013, 2014 and 2015. Audits of the 2016 and 2017 CVS Health claims are in progress and will be completed in 2019. The MetLife dental plan was audited for 2014 and 2015. Audits of the 2016 and 2017 claims are in progress and will be completed in 2019. Upon completion of the audit, if there are any overpayments to health care providers, the Company will recover those overpayments. In addition, the Company continues to review annually its cost-sharing arrangement with the employees to maintain a reasonable and competitive cost-sharing level with employees.

Q. Does the Company self-insure its health care benefits programs?

A. Yes, the Company self-insures its primary health care plans and fully insures its HMO plans. With the

assistance of Aon, Cigna, CVS Health, and MetLife, the Company calculates an amount of money to set aside each week to compensate the various insurance providers for processing and paying employees' health care claims. For the self-insured programs, the Company contracts with Cigna, CVS Health, and MetLife to process claims and provide other administrative services.

Q. Is self-insuring the most cost-efficient way for the Company to administer its health care benefits programs?

A. Yes. So long as the aggregate claim costs are predictable and measurable, self-insurance is less costly than purchasing insurance that provides similar coverage from a commercial insurance company. The Company is in the position to self-insure its health care benefit programs because claims costs in the aggregate are generally predictable and measurable and we have a large enough employee and dependent population to be able to estimate the amount that needs to be set aside to pay for future claims. In return for assuming the risk of setting aside sufficient funds to pay the actual claims costs, the Company achieves cost savings through the elimination of the carrying costs that commercial insurers pass on to their insurance consumers, such as premium taxes, risk charges, as well as the additional

administrative costs associated with fiduciary responsibility. For example, based on a price quote obtained from Cigna for the current hospital and medical plan, the fully insured cost for 2017 would have been $21.0 million higher than self-insuring. For 2016, the fully insured costs would also have been $21.2 million higher than self-insuring. For 2015, fully insuring the hospital and medical plan would have cost $16.0 million more than self-insuring.

Q. What changes did the Company make to its Thrift Savings 401(k) Plan for 2018?

A. Other than changing the employer matching contribution as required under the Collective Bargaining Contracts for union employees who are members of Local 1-2 or Local 3, the Company has not made, and is not planning to make, any further changes to the Thrift Savings 401(k) Plan.

Q. Are any changes being made to the Group Life Insurance program for the Rate Year?

A. No. The Company-paid group life insurance benefit is one times annual base salary for management employees and a flat $50,000 for union employees who are members of either Local 1-2 or Local 3.

Q. What is the projected group life insurance benefit cost for the Rate Year?

A. The projected group life insurance benefit cost is approximately $3.9 million in total ($3.2 million for electric and $0.7 million for gas). The Company made this projection by multiplying the base salary for management employees by the premium rates. It then applied an annual salary increase of three percent to the total cost. The Company developed the projection for union employees by taking the $50,000 benefit times the number of employees. The Company then applied the premium rates to the estimated coverage.

Q. Please explain the normalization for the group life insurance.

A. The actual group life insurance costs for the Historic Year include normalization for a net deficit payment of $675,000 ($560,000 electric and $115,000 gas) from MetLife because claims costs exceeded premiums collected during the historic year. At the end of each calendar year, MetLife prepares a reconciliation of group life insurance premiums paid as compared to actual claims experience, plus administrative expenses. Depending on the number of claims paid, a dividend may be due to the Company, or the Company may be assessed additional charges to cover the amount by which claim costs exceeded the premium paid. In the last four of five years, the

Company was assessed an additional charge. The normalization reflects the fact that the claim costs exceeded the premium paid to MetLife.

POST EMPLOYMENT BENEFITS OTHER THAN PENSIONS

Q. Please describe the Company's OPEB programs.

A. The Company's OPEB programs are comprised of the Retiree Health Program, which includes major medical, hospitalization, vision, and pharmaceutical benefits. The Company also offers a limited retiree term life insurance program.

Q. What is the status of the Company's OPEB plans?

A. Starting with the Retiree Health Program, CECONY offers employees who retire with at least 75 points (calculated by adding age and years of service, with each year equaling one point, to equal 75 points), and their eligible dependents, a voluntary contributory Retiree Health Program. The Retiree Health Program offers enrolled retirees different coverage options including several HMOs, a prescription drug plan, and comprehensive hospital, medical, and vision care plans with a network of participating providers. Once a retiree or covered dependent becomes eligible for Medicare, the Retiree Health Program coordinates his or her health care expenses with Medicare. For Medicare-eligible retirees,

Medicare is the primary payer of hospital and medical claims, and the Retiree Health Program is the secondary payer. Under the prescription drug plan, once a retiree and covered dependent become eligible for Medicare Part D, retirees may continue their coverage under the Retiree Health Program or enroll in the Medicare program for their prescription drug coverage. The Company also provides certain retired management employees both retiree term life insurance benefits of $25,000 at no cost to the retiree, as well as a contributory supplemental group term life insurance benefit. Upon retirement, retired union employee may also purchase supplemental group term life insurance benefits. Currently, retiring union employees may purchase up to $30,000 of coverage in units of $10,000. The cost of the contributory portion of the supplemental retiree life insurance program is partially subsidized by the Company.

Q. What steps has the Company taken to manage or mitigate OPEB costs related to the retiree life insurance program?

A. Premium rate increases have been implemented for 2016, 2017 and 2018. Another increase will be implemented for 2019. The Company has increased the retiree life insurance rates to reduce the Company subsidy.

Subsequent increases will depend on future claims experience.

Q. What steps has the Company taken to manage or mitigate OPEB costs related to the Retiree Health Program?

A. For the Retiree Health Program discussed above, the Company implemented a cost-sharing formula in 2008. Under the cost-sharing formula, the Company's contribution toward program costs is limited to its contribution in the preceding year plus inflation as measured by the change in the CPI. Contributions for retirees increase if Retiree Health Program costs increase above CPI. Effective January 1, 2013, the Company's subsidy under the cost-sharing formula was eliminated for management employees retiring under the CBP formula. Employees under the Cash Balance pension formula who meet the eligibility requirements and enroll in the Retiree Health Program will be responsible for paying the full cost of Retiree Health coverage offered through the Company.

Q. What other steps has the Company taken to manage or mitigate OPEB costs related to the Retiree Health Program?

A. Under health care reform, the Company implemented an Employer Group Waiver Plan ("EGWP") for Medicare-eligible

retirees effective January 1, 2013, which has reduced OPEB costs attributed to the prescription drug plan offered to Medicare eligible retirees.

Q. What is an EGWP?

A. An EGWP is a Medicare Part D plan regulated by the Centers for Medicare and Medicaid Services that supplements retiree prescription drug benefits offered to retirees who are Medicare-eligible. Under the EGWP, CVS Health, the pharmacy benefits manager, contracts directly with the government prescription drug program. CVS Health will handle all administration and federal interactions and collect the RDS subsidy for our retiree drug plan.

Q. Why does the EGWP have a financial advantage for the Company?

A. With an EGWP the Company receives the benefit of lower costs attributed to the Coverage Gap Discount Program and other direct subsidies provided under the PPACA.

Q. What savings has the Company realized as a result of the EGWP?

A. The EGWP arrangement reduced plan obligations by approximately $555 million and annual expense by $84 million.

Q. Were there any initiatives with respect to OPEB that the Company considered and rejected?

A. No.

PENSION REFORM

Q. Please describe the Company's pension program.

A. Originally, the Con Edison Retirement Plan was a defined benefit pension plan that provided vested employees with pension benefits under different formulas, depending on their date of hire. Over time, however, the Con Edison Retirement Plan has changed. Management employees hired on or before January 1, 2001; union employees who are members of Local 3 hired on or before January 1, 2010; and union employees who are members of Local 1-2 hired on or before July 1, 2012, are covered under a traditional Final Average Pay ("FAP") pension formula based on an employee's FAP Employees may qualify for an unreduced early retirement benefit at age 55 if they have at least 30 years of service. Employees with less than 30 years of service may retire at age 55 with at least 75 points with a slight reduction to their pension of 7.5 percent. Pension benefits for employees retiring before age 55 are actuarially reduced.

Q. What steps has the Company taken to manage or mitigate pension costs?

A. The Company amended the Retirement Plan to reduce future liabilities and annual costs by closing the Retirement Plan to new hires and changing to a DCP formula in the Thrift Savings Plan for newly hired management and Local 3 employees. Local 1-2 employees are given a choice between CBP and DCP. Management employees hired on or after January 1, 2001 and before January 1, 2017; union employees who are members of Local 3 hired on or after January 1, 2010 and before July 1, 2013; and union employees who are members of Local 1-2 hired on or after July 1, 2012 and before July 1, 2016, are covered under a CBP formula instead of the FAP formula. Employees covered by the Cash Balance formula will earn a pension benefit over a 30-year career that is less costly to the Company than the benefit earned under a traditional FAP pension formula because of a lower benefit accrual rate, as well as the elimination of a cost of living adjustment, subsidies for early retirement, and a subsidized 50 percent Joint and Survivor (“J&S”) annuity provided to married employees.

Q. What pension change did the Company negotiate in the most recent Labor Contract with Local 1-2 members?

A. New hires who are members of Local 1-2 now have 60 days to elect between CBP and DCP. Local 1-2 members hired on

or after July 1, 2012 and before July 1, 2016 have until June 20, 2020 to elect to change from CBP to DCP. As of December 31, 2018, 2.5% of the Local 1-2 population eligible to change from CBP to DCP have done so.

Q. What pension change did the Company negotiate in the most recent Labor Contract with Local 3 members?

A. New hires who are members of Local 3 earn pension benefits under a DCP formula in the Thrift Savings Plan.

Q. Have similar changes been made for Management?

A. Yes. Effective January 1, 2017, newly hired management employees will earn benefits under the DCP and not the CBP formula. In addition, management employees CBP formula have an opportunity until June 30, 2021 to change from CBP to DCP. Members of Local 1-2 are given the option at hire to either participate in the CBP formula or the DCP.

Q. Please describe the DCP formula.

A. The DCP formula is a “tax-qualified defined contribution retirement plan.” For an employee choosing to be covered under the DCP formula, the Company will contribute each calendar quarter a “compensation credit” to that employee’s Thrift Savings Plan account. The compensation credit amount is based on the employee’s compensation

during the quarter, age, and years of service, as shown in the following table:

	Compensation Under the Social Security Wage Base (“SSWB”)	**Compensation Over the SSWB**
<35	4%	8%
35-49	5%	9%
50-64	6%	10%
65+	7%	11%

Under the plan, employees direct the investment of the funds in their DCP account in an array of investment options and assume the possible investment risk and rewards associated with long-term investing. The pension contributions for employees who do not make an investment election, will be invested in the plan’s default investment fund — currently the Vanguard Target Date Fund - that assumes the employee will retire at age 65. An employee choosing the DCP formula becomes vested in the Company contribution after having completed three full years of vesting service. Employees are not permitted to receive their DCP account balance while they are employed

at the Company. Upon leaving the Company, employees can elect to receive their vested DCP account balance as either a lump sum or in installment payments made for a fixed period of time. Guaranteed lifetime annuity payments are not available. We expect that the pension cost of an employee choosing the DCP formula will be slightly less than employees choosing the CBP formula. Also, this change positions the Company to mitigate the risks associated with funding pension benefits for those employees choosing the DCP formula. In addition, the change to DCP is expected to reduce the long-term liabilities of the Retirement Plan.

Q. What other actions has the Company taken to manage or mitigate its pension costs?

A. As part of the Company’s long-term benefits strategy review, the Company added a lump-sum payment option to the Retirement Plan effective June 1, 2017 for management employees covered under the Final Average Pay pension formula. This addition will help to mitigate the Company’s Retirement Plan risks and liability over a long-term horizon. Instead of taking a lifetime monthly pension payment, retiring employees can take a single lump payment of their accrued benefit.

Q. What savings does the Company expect to realize by changing from the CBP formula to the DCP formula?

A. The Company expects that implementing a DCP choice formula will initially result in some savings as new employees are hired. Larger savings are expected in the future as the population of employees who elects the DCP formula grows. For example, the Company projects that from 2019 to 2029, the reduction in pension liabilities will be approximately $80 million resulting in cost savings that grow from $1 million to $5 million per year over this same period, depending on the number of Local 1-2 employees hired and retained during this ten-year period.

Q. What savings does the Company expect to realize by changing the early retirement age and charging for the 50 percent J&S benefit for management employees under the FAP Pension formula who are under age 50 as of January 1, 2013?

A. As a result of these two changes, the benefits for those under age 50 at January 1, 2013 are less valuable for employees as the early retirement and 50 percent J&S benefits are no longer as highly subsidized as was the case prior to the changes. The Company projects a modest

reduction in pension liabilities and modest cost savings for the period of 2019 to 2029 for these two changes.

Q. Does that conclude your testimony?

A. Yes, it does.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

EH&S Panel

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PANEL INTRODUCTION

Q. Would members of the Environment, Health and Safety Panel please state their names and business addresses?

A. Andrea Schmitz, 4 Irving Place, New York, NY 10003 and Cristina Lombardi, 31-01 20th Avenue, Astoria New York 11105.

Q. By whom are you employed and in what capacity?

A. (Schmitz) I am employed by Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company") where I hold the position of Vice President, Environment, Health and Safety ("EH&S").

(Lombardi) I am employed by Con Edison where I hold the position of Director, Remediation Department, EH&S.

Q. Please briefly outline your educational and business experience.

A. (Schmitz) I joined Con Edison in 1996 and worked as a section manager and director in various units in EH&S until 2007 when I became the Deputy Ombudsman. In 2009, I was assistant to the Chief Executive Officer and in 2011, General Manager, Electric Construction in Brooklyn and Queens. Before joining the Company, I worked for the U.S. Environmental Protection Agency in Washington, D.C.

I hold a Bachelor of Arts in Political Science from University of California San Diego and a Master's Degree in Public Administration from Columbia University. (Lombardi) I joined Con Edison in 2003 and have held positions of increasing responsibility in a variety of operating and support positions including: Chief Construction Inspection, Construction Management; Field Operations Planner, Construction Management; Senior Auditor, Auditing; and Project Manager, East River Generating Station. In August 2017, I assumed the duties of my current position, Director EH&S Remediation, responsible for the Company's Site Investigation and Remediation Programs. This includes the management of a diverse set of remediation programs, including Manufactured Gas Plants ("MGP"), Superfund, Underground Storage Tanks, Appendix B (Historic Fuel and Dielectric Oil Spills), and real estate sites.

I have completed the Power Technologies Inc., electric distribution course and Comprehensive Project Management class. I hold a Bachelor of Engineering degree in Environmental Engineering and a Master of Science degree in Construction Management, both from Stevens Institute of Technology.

Q. Do you belong to any professional organizations?

A. (Lombardi) Yes. Since assuming my current role, I have joined the Electric Power Research Institute ("EPRI").

Q. Have any members of the Panel previously submitted testimony to the New York State Public Service Commission ("Commission")?

A. (Schmitz) Yes.

(Lombardi) No.

SUMMARY OF TESTIMONY

Q. Please summarize your testimony.

A. Our testimony focuses on the following EH&S-related activities and their projected costs:

- Remediation Program activities that are mandated by law, agreements, regulations, consent orders, permit requirements, and environmental due diligence. In particular, we describe Con Edison's program for the investigation and remediation of former manufactured gas plant and manufactured gas storage holder sites ("MGP Sites"). We also discuss Superfund sites for which Con Edison is responsible, as well as the requirements of the Appendix B section of the November 1994 Consent Order between Con Edison and

the New York State Department of Environmental Conservation ("DEC"), as modified by the December 2006 Consolidated Consent Order ("Appendix B"). In addition, we address the Resource Conservation and Recovery Act ("RCRA") corrective action requirements of the hazardous waste management facility operating permit that was initially issued by the DEC in May 1994 and subsequently renewed in March 2001 and July 2008 for the Company's PCB/Hazardous Waste Storage Facility at its Astoria Site. We discuss underground storage tank ("UST") sites, which the Company must address under Federal and New York State regulations. We also discuss other sites with known or potential contamination that Con Edison is addressing. In total, Con Edison expects to spend approximately $33,718,000 for these site environmental investigation and remediation activities ("SIR Program") during the Rate Year (January 1, 2020 through December 31, 2020) and $27,262,000 during the Linking Period (October 1, 2018 through December 31, 2019). We explain the steps the Company takes to control and mitigate its SIR

Program costs, and we detail the process for site investigation and remediation, including the development of work plans, Company and contractor staffing for the Company's SIR Program, and the Company's internal controls. We also address the Company's compliance with the Commission's rate case filing requirements.

- Two capital programs to improve the safety of the Company's employees.

SIR PROGRAM

Q. Please provide an overview of Con Edison's SIR Program.

A. Con Edison has a comprehensive ongoing program for managing its SIR sites and verifying that required remedial response measures (investigations followed by any necessary remedial action) are properly performed for sites that have been contaminated by past releases of hazardous wastes and hazardous substances, including petroleum products, from Con Edison's and its predecessor companies' facilities and/or operations. This program encompasses the following types of sites, each of which is discussed more fully below: (1) MGP Sites; (2) Superfund Sites; (3) oil and dielectric fluid spill sites subject to the investigation and cleanup requirements of

Appendix B; (4) the areas of the Astoria Site subject to the RCRA corrective action requirements imposed under the DEC's hazardous waste management facility operating permit for the Company's PCB/Hazardous Waste Storage Facility at that site; (5) UST Sites; and (6) other sites with known or potential contamination that Con Edison is addressing and that do not fall under the aforementioned five programs.

Q. Please describe the Company's SIR programs and projects.

A. The Company's SIR programs and projects are described in the sections of our testimony concerning MGP Sites, Superfund Sites, Appendix B Sites, the Astoria PCB/Hazardous Waste Storage Facility, UST Sites, and Other Sites.

Q. Are the costs and schedules presented in your testimony and exhibits for the Company's SIR programs subject to change?

A. Yes. They are projections based upon the best information available to the Company at the time they were made regarding the extent of the investigation and remediation likely to be required for the Company's SIR sites. As is the case for any projection, the SIR-related costs and schedules presented in our testimony

and exhibits are subject to change due to various types of contingencies, including: variation between anticipated and actual remedial investigation results; the discovery of different or more extensive contamination during pre-design investigations or remedy implementation; delays in applicable regulatory review/approval processes; changes to anticipated remedies due to regulatory agency, community, or affected landowner concerns and changes in projected future land use; delays in obtaining required local agency permits for remedy implementation; access and cooperation issues with affected property owners for the implementation of investigation or remediation activities; and unanticipated field conditions and/or force majeure events. The Company internally reviews and evaluates its projected schedules for its SIR programs at least annually and more frequently for active projects. The Company's SIR cost projections are reviewed internally and updated as necessary, but at least quarterly.

MGP SITES

Q. Before describing Con Edison's investigation and remediation efforts for its MGP Sites, please provide a

brief background on Con Edison's and its predecessor companies' former MGPs.

A. MGPs provided energy in the form of combustible gases of varying composition to municipal street lighting systems and to homes and businesses in cities and towns across the more densely populated regions of the United States. In the case of the areas served by Con Edison and its predecessor companies, MGPs operated from the late 1820s through the early 1960s. The earliest of these plants produced illuminating gases from whale oil and/or rosin. The plants constructed during and after the 1830s converted coal (oven gas) or a combination of coke or coal, oil and water in the form of steam (carbureted water gas) into a gas product that could be used for lighting, cooking, and heating. There were more than 250 MGPs in New York State and an estimated 3,000 to 5,000 in the United States prior to these plants becoming obsolete due to the construction of natural gas pipelines and large electric generating stations. Holder stations were used for the storage of manufactured gas that had been produced at MGPs. They consisted of large storage tanks (holders) of varying composition and design.

Q. What are the present environmental concerns related to MGP Sites?

A. Manufactured gas production was a complex process that entailed the handling and storage of significant quantities of feedstock materials, by-products, and residuals that contain organic and inorganic chemical constituents that are now considered to be hazardous substances under federal and New York State laws and regulations and that, when released to soil, groundwater, or waterways, may pose a threat to human health or the environment. The materials of primary concern at MGP Sites include carbureting oils, scrubber oils, coal tar, coal tar-related emulsions and sludges, and gas purification wastes. At manufactured gas storage holder sites, these materials include oils (which were used in hydraulic systems as lubricants or to maintain airtight seals between holder tank bases, bellows and shells) and coal tar (which at times condensed out of stored manufactured gas or was used to maintain airtight seals between holder tank bases, bellows, and shells).

Q. Describe the DEC’s level of activity regarding MGP Sites?

A. The DEC continues to require New York State’s investor-owned utilities to investigate and, when necessary to

protect human health and the environment, undertake remedial response actions for the sites of their former manufactured gas plants. Most New York State utilities have entered into administrative consent orders ("ACOs"), or cleanup agreements with the DEC under which the utilities have agreed to address their MGP Sites. In some cases (such as Con Edison), these ACOs or cleanup agreements cover multiple sites. Under the DEC's MGP program, investigations and/or remedial action work have been undertaken or are planned at more than 200 former MGP sites across the State. DEC's MGP program is grounded in a federal initiative to ensure that former MGP sites are addressed throughout the country. The New York State Department of Health ("DOH"), which works with the DEC in evaluating the results of MGP site investigations and determining the need for remedial response actions for them, views the primary goal of these investigations as assessing potential human exposure to MGP-related contaminants.

Q. Turning to Con Edison's MGP Site investigation and remediation program, can you please provide the background for the program?

A. Yes. Con Edison and its predecessor companies formerly produced gas and maintained storage holders for manufactured gas at 51 MGP Sites located throughout Manhattan, the Bronx, Westchester County, and western Queens, New York. Many of these sites are now owned by parties other than Con Edison and have been redeveloped by their new owners for other uses, including schools, residential and commercial developments, public parks, and hospitals. The DEC requires the Company to investigate and, if necessary, develop and implement DEC and DOH approved remedial action plans for all of its and its predecessor companies' confirmed MGP Sites, which presently include 34 manufactured gas plant sites and 17 storage holder sites. Of these 51 sites, only 16 are still owned in whole or in part by the Company. In addition, most of the sites have been subdivided into separate properties, with different owners. As a result, the 51 sites currently comprise more than 150 different properties.

Q. Has a listing been prepared of the former MGP Sites that DEC is requiring Con Edison to investigate and, if deemed necessary by DEC and/or the DOH, to implement remedial action plans?

A. Yes. The table entitled “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. MGP SITE LISTING” provides a listing of those sites, the current or contemplated use of the sites, and the required investigation and remediation activities that have been completed for these sites as of December 31, 2018.

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

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (EHS-1)

Q. Please describe the Company’s agreements with the DEC for the cleanup of the Company’s former MGP Sites.

A. On August 15, 2002, Con Edison entered into a cleanup agreement with the DEC under the DEC’s Voluntary Cleanup Program to conduct investigations and, if necessary, DEC/DOH-approved remediation at 45 of the 51 MGP Sites listed in Exhibit ___ (EHS-1) (the “2002 Agreement”). Of the remaining six sites listed in that exhibit, two sites were added to the 2002 Agreement after the Company had entered into the 2002 Agreement – East 14th Street Gas Works (Stuyvesant Town) Site in January 2003 and Hastings-on-Hudson Gas Works Site in September 2007. The remaining four sites are covered by either individual

cleanup agreements with the DEC (the Tarrytown and White Plains Gas Works Sites), a DEC consent order (Farrington Street Holder Station Sites), or the RCRA corrective action requirements of the previously discussed DEC hazardous waste management facility operating permit (the Astoria Site).

Due to the large number of sites covered by the 2002 Agreement, the DEC and the Company agreed on a prioritization strategy under which MGP Sites that were the location of schools or residential properties would be investigated first. Other priority sites besides schools and residential properties can and have surfaced primarily as a result of proposed redevelopment projects by present property owners (such as portions of the former W.18th Street MGP Site) or subsurface construction activities, such as the 2nd Avenue Subway project and the Metropolitan Hospital tank replacement project at the former 99th Street MGP Site.

In 2017, the DEC notified the Company that, as an administrative matter, all cleanup agreements under the VCP statewide, including the 2002 Agreement, would be terminated in 2018 and transitioned into an alternative DEC oversight program. As a result, Con Edison entered

into an Order on Consent and Administrative Settlement effective July 23, 2018 with the DEC ("2018 Agreement"). As with the 2002 Agreement, the 2018 Agreement covers the investigation and, if necessary, DEC/DOH approved remediation of the Company's MGP Sites. Those sites for which Con Edison successfully completed a remedy and received a No Further Action ("NFA") determination from the DEC under the 2002 Agreement are not included in the 2018 Agreement and are unaffected by the new agreement. Similarly, MGP Sites, or portions of sites, that had been taken into the New York State Brownfield Cleanup Program by individual property owners or were otherwise covered by a program other than the 2002 Agreement, are not included in the 2018 Agreement. For those sites with ongoing investigation and remediation work, all prior DEC approvals of work plans or work completed under the 2002 Agreement remain valid. The table in Exhibit __ (EHS-1) identifies the current DEC oversight program for each MGP Site or portion of a site.

Q. What is the current status of Con Edison's MGP Program?

A. Because of the significant progress Con Edison has made investigating and, when necessary, remediating its MGP Sites, of the 47 MGP Sites covered under the 2002

Agreement, only 13 MGP sites, portions of 6 MGP sites, and 3 offsite areas (associated with the East 21st Street Site, Pelham Site, and Hunts Point Site) remain to be completed under the 2018 Agreement. Under other regulatory programs described earlier in this testimony, 2 additional MGP sites remain in the Company's Remediation Program (Farrington Street Holder Station under its own Consent Order and Astoria MGP under the RCRA program). In addition, 2 MGP Sites were transferred out of the 2002 Agreement and into the BCP to be addressed by the property owners (Hunts Point MGP (onsite only) and Ludlow MGP).

The status of each of Con Edison's MGP Sites as of October 31, 2018 is also summarized in an exhibit entitled, "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. PROJECTION OF MGP SITE ACTIVITIES".

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

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (EHS-2)

Q. What does this exhibit show?

A. As discussed above in this testimony and indicated in Exhibit __ (EHS-2), Con Edison has made significant

progress in investigating and, when found to be necessary, remediating its 51 MGP Sites. To date, based on investigations performed and, as necessary, remediation, the DEC has issued site-wide NFA determinations for 26 MGP Sites (one of which was completed under the BCP by the property owner), NFA determinations for 2 onsite areas, and NFA determinations for portions of 5 sites. Long-term operation, maintenance and monitoring of remedies by the Company will be ongoing at 16 of the sites or portions of the sites (encompassing 72 properties) that have received NFA determinations.

The investigation and, if necessary, remediation of the remaining 15 MGP Sites, 3 offsite areas, and portions of 6 sites in the Company's Remediation Program (collectively encompassing 68 properties) will take several years to complete. Through the end of October 2018, at a minimum, site characterization study ("SCS") or remedial investigation ("RI") work plans, covering all or portions of the remaining MGP Sites have been submitted to the DEC. Remediation work at sites where such action is deemed necessary by the DEC and DOH based on the results of the investigation work performed, will

take longer to complete. At some sites, the remediation may not be completed until after the buildings and structures present on the sites are demolished.

The status of the required SIR activities for the 68 properties is as follows: site characterization studies or remedial investigations are ongoing at 28 properties and remediation is currently required at 22 properties, including pre-design investigations and design activities. Establishment of institutional controls (deed restrictions or environmental easements and site management plans) are currently necessary for 18 properties.

Q. What specific MGP Site investigation and remediation activities does the Company expect to conduct during the Rate Year?

A. During the Rate Year, the Company plans to: (1) conduct supplemental investigations at several sites where additional information is required to characterize and delineate MGP-related or gas holder station-related contamination, (2) proceed into the remediation phase for those sites where investigations have found that remedial action is warranted and sufficient information exists to determine the appropriate remedy, and (3)complete site

characterization studies at several sites where such investigations have not yet been completed. Additionally, we expect to conduct remedial action planning activities for several other sites. Exhibit EHS-2 identifies the current projection of activities at each of these MGP sites.

Q. Do you expect the Company to continue to conduct similar MGP Site investigation and remediation activities during the Linking Period, Rate Year and two subsequent years?

A. Yes, but it is expected that the number of sites being investigated will decrease during that period and the number of sites for which remedial planning/design activities or remediation work is performed will increase.

Q. What role does the DEC play in decisions relating to the scheduling of investigation and remediation activities for Con Edison’s MGP Sites?

A. In order to coordinate work flow and resources with the DEC, under the 2002 Agreement, the Company was required to submit by November 15th of each calendar year for the DEC approval a proposed schedule for the development and filing of draft investigation and remediation work plans during the following calendar year. Under the 2018

Agreement, the Company has submitted and plans to continue submitting a proposed schedule to the DEC at least annually. The Company also submits to the DEC three-year site-specific projections of its planned activities for each of its MGP Sites, including the MGP Sites formerly covered by the 2002 Agreement and now covered by the 2018 Agreement. The projected schedule for the first year is presented on a quarterly basis and the projected schedule for the second and third years is presented for the entire year. These projections are also presented by work task type, such as: site characterization, remedial investigation, remedial planning, and remedial action implementation. The purpose of these projections is two-fold. First, they serve as a critical planning tool for the Company so that it can proceed with its required SIR activities in an orderly manner and makes appropriate provision for the services and resources it needs to meet its obligations under the 2018 Agreement. Second, it provides the DEC with a workflow estimate that allows the DEC to best manage its resources.

Q. Has Con Edison submitted its proposed schedule of 2019 work plan submissions and its projected schedule of MGP site activities to the DEC for the period 2020 - 2021?

A. Yes. This submittal was made to the DEC on October 31, 2018. A copy is provided as EXHIBIT __ (EHS-2)

Q. Has the Company prepared a table comparing the projected calendar year 2018 MGP site activities specified in its November 2017 submittal to the DEC under the MGP Agreement to the MGP Site activities actually performed in 2018?

A. Yes. A copy of this table is provided as an exhibit entitled, “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. 2018 MGP SITE ACTIVITIES AND VARIATION FROM PROJECTIONS”.

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

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (EHS-3)

Q. What does this exhibit show?

A. Exhibit ___ (EHS-3) shows for each active MGP Site covered in the projected schedule the Company submitted to the DEC for calendar year 2018 the investigation/remediation activities projected in the schedule, whether there was any variation or anticipated

variation as of September 30, 2018 from the projected schedule (yes or no), and, if there was a variation, the reason(s) for the variation.

Q. What were the primary reasons for the variations between the projected activities and the activities actually completed during calendar year 2018?

A. Differences were due to the need to obtain access to the affected properties and delays in the DEC review/approval process for the work plans or reports filed with the DEC.

Q. Has the Company discussed the schedule variations identified in Exhibit ___ (EHS-3) with DEC?

A. Yes. Based upon discussions with the DEC, it is our understanding that the DEC is satisfied with the progress Con Edison has made implementing the SIR activities required for its MGP Sites under the 2002 Agreement and now under the 2018 Agreement. Of course, the DEC may comment on or recommend changes to our projected activities table, in which case Con Edison would evaluate the DEC’s comments and recommendations and make any appropriate changes.

Q. What are the costs included in the Linking Period and Rate Year for MGP Sites?

A. The estimated costs for the Linking Period are approximately $15.9 million and for the Rate Year are approximately $15.4 million.

Q. Has the Company prepared a table identifying the projected MGP Program expenditures and activities during the Linking Period and the Rate Year?

A. Yes. A table is provided as an exhibit entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. SIR PROGRAM COST PROJECTIONS FOR THE LINKING PERIOD AND RATE YEAR (2020)."

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

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (EHS-4)

Q. What does this exhibit show?

A. Exhibit ___ (EHS-4) provides a summary of quarterly cost projections for the Linking Period and Rate Year for each Con Edison remediation program and site and a brief description of the projected activities for each site with projected expenditures during each of these time periods, including projected expenditures and activities for the MGP Sites.

SUPERFUND SITES

Q. What types of sites are covered by Con Edison's Superfund Site investigation and remediation program?

A. Con Edison's Superfund Program covers the following categories of sites:

Third party-owned sites to which Con Edison shipped hazardous substances for treatment, storage, or disposal and for which Con Edison has been designated a potentially responsible party ("PRP") for the investigation and remediation of site contamination by the United States Environmental Protection Agency ("EPA"), DEC, or another government environmental agency pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") or comparable state statutes, including statutes that impose liability for the costs of investigating and cleaning up oil spills;

Sites formerly owned by Con Edison and for which the current site owners assert claims against Con Edison for investigation and remediation costs pursuant to CERCLA or comparable state statutes; and

Sites (whether or not owned by Con Edison) at which Con Edison is required to conduct cleanup work because of releases of oil, dielectric fluid, PCBs, or other hazardous substances from its or its predecessor companies' equipment, facilities, or operations.

Q. What are the costs included in the Linking Period and Rate Year for Superfund Sites?

A. The expected costs for the Linking Period are approximately $3 million and for the Rate Year are approximately $1.2 million.

Q. Has the Company prepared a table identifying the projected Superfund Program expenditures and activities during the Linking Period and the Rate Year?

A. Yes. The table provided in Exhibit __ (EHS-4) shows for each active Superfund site covered in the projected schedule the Company portion of anticipated expenditures for the stated activities.

Q. Please discuss the Company's anticipated investigation and remediation activities during the Rate Year for its Superfund Sites with anticipated costs over $50,000.

A. The following activities are anticipated during the Linking Period or Rate Year at the Company's Superfund Sites with projected costs over $50,000:

1. Maspeth Substation Site: Con Edison sold this site in 1996. Subsequently, oil containing high levels of PCBs was found floating on the groundwater table beneath the site's former outdoor transformer yard area. Con Edison began remediating PCB-contaminated soil in 2005 under a VCA with the DEC, including removal of PCB-contaminated soil and groundwater monitoring. In January 2012, the DEC issued a limited liability release to the Company, requiring continued groundwater monitoring and, if necessary, oil recovery, in wells located outside the former substation property. During 2018, the DEC directed Con Edison to undertake an additional investigation and remediation related to residual non-aqueous phase liquid more recently detected in off-site wells. In response, Con Edison conducted a supplemental investigation off-site to identify any potential remaining preferential pathways for contaminant migration. Based on the results of the investigation and DEC feedback, Con Edison will

perform a localized excavation of impacted soils in the off-site area. Con Edison will also conduct qroundwater monitoring and reporting to confirm the effectiveness of the remedy. We estimate that approximately $200,000 will be spent during the Linking Period for this work. Approximately $8,000 will be spent during the Rate Year for groundwater monitoring and reporting. Upon receipt of an NFA determination from the DEC, the monitoring wells will be decommissioned.

2. Gowanus Canal – On March 2, 2010, the EPA added the Gowanus Canal in Brooklyn (the “Canal”) to its National Priorities List (“NPL”) of Superfund sites. Before the site was listed, in August 2009, Con Edison received an EPA Notice of Potential Liability and Request for Information regarding its and its predecessors’ operations at three facilities that are located adjacent to or near the 1.8 mile Canal: the Third Avenue Yard, the Gowanus Substation and the Gowanus Gas Turbines Site (which was sold in 1999). In addition to Con Edison, EPA has sent notices of potential liability and requests for information to 38 other parties and has sent

requests for information to 71 additional other parties. Since receiving EPA's notice of potential liability, Con Edison has notified its insurers and has put the buyer of the gas turbines on notice that it intends to seek indemnification for covered environmental claims under the terms of the Company's agreement of sale.

In September 2013, the EPA issued a Record of Decision ("ROD") that documented the agency's final decision on the scope and type of remediation required. EPA selected a remedy for the site that includes dredging and disposal of some contaminated sediments and stabilization and capping of contamination that will not be removed. EPA estimated the cost of the selected remedy to be about $506.1 million (and indicated the actual cost could be significantly higher).

In 2014, the EPA issued orders to Con Edison and the other PRPs to be jointly and severally responsible for the performance of the remedial design, which is currently estimated to cost approximately $96.6 million. EPA stated that it expected National Grid to perform the remedial

design under the order and for the other PRPs to help fund the work.

Con Edison is currently participating with 20 other PRPs in an allocation process to determine each PRP's share of the liability for the remedial design costs. During the pendency of this allocation process, Con Edison, together with other PRPs, has provided interim funding for the remedial design subject to reallocation in the allocation proceeding. We currently anticipate that the allocator will make his final determination of each participating PRP's share of remedial design costs in March 2019. In addition, it is possible that EPA may require the PRPs to initiate certain remedial action work in the upper reach of the Canal starting as early as 2019, for which costs are uncertain at this time. Therefore, Con Edison projects that it will incur costs during the Linking Period and the Rate Year for outside consultant and legal support for the allocation process and for its interim share of the remedial design work expenditures. During the Linking Period and Rate Year the Company estimates that it will incur approximately $1.6

million and $840,000, respectively.

3. Newtown Creek - Newtown Creek is a 3.8 mile long water body on the border between Queens and Brooklyn, and was designated an EPA Superfund site in September 2010 to address extensive pollution stemming from a long history of adjacent industrial operations (many involving petrochemical businesses). The Newtown Creek PRP Group, consisting of Phelps Dodge, Texaco, BP, National Grid, and ExxonMobil, has been conducting the Remedial Investigation and Feasibility Study of the site under an Administrative Order on Consent with the EPA.

In May 2012, Con Edison received a request for information from the EPA under Section 104(e) of the federal Superfund statute requesting information concerning Company facilities and activities within 1000 feet of Newtown Creek and its tributaries that may have resulted in spills or releases of hazardous substances into the Creek. The information request identified two Con Edison facilities of interest: the "11th Street Conduit Facility" (a utility tunnel that traverses the Creek), and the Brooklyn head

house of the tunnel. The Company submitted its response to EPA's information request on October 5, 2012. The EPA served similar information requests on dozens of other parties at that time.

In June 2017, Con Edison, along with 7 other named parties, received a Notice of Potential Liability pursuant to CERCLA from the EPA alleging releases of hazardous substances from the 11th Street Conduit Facility and Brooklyn head house, and from other electrical distribution infrastructure located within the Newtown Creek sewershed. Following receipt of the EPA notice letter, the Newtown Creek PRP Group contacted Con Edison and other named parties regarding possible participation in the Remedial Investigation and Feasibility Study.

During the Linking Period and Rate Year the Company expects that it will incur costs of approximately $200,000 during each time period to evaluate factual and legal issues in response to the EPA notice letter and to continue evaluating the Company's potential responsibility for contamination at the site.

4. Third Avenue Yard: In 1925 a Con Edison predecessor

Company purchased a 6.77 acre lot in Brooklyn, NY. The lot has been used since then as a utility service center and work out yard for electric operations. Beginning in 1996, Con Edison investigated and remediated various portions of the property under the DEC's UST, spills, and remediation programs. In October 2016, at DEC's suggestion, Con Edison submitted an application to enter the Third Avenue Yard into the New York State Brownfield Cleanup Program ("BCP") so that Con Edison could investigate and, if necessary, address any remaining contamination at the property through a single DEC program that would provide environmental closure for the entire property. In March 2017, the DEC executed a Brownfield Cleanup Agreement ("BCA") with Con Edison for the entire Third Avenue Yard property.

As an initial action under the BCA, Con Edison submitted a site-wide Remedial Investigation Work Plan (RIWP), which was approved by the DEC in November 2017. In summer 2018, field investigation activities were completed in the off-site areas and readily accessible on-site areas. To accommodate

the remainder of the on-site field investigation activities in the Company fleet and employee parking area, the Company has leased a local off-site property for the purpose of temporary vehicle parking. It is anticipated that the remaining remedial investigation activities and preparation of the remedial investigation report will be completed during the Linking Period. It is estimated that that $650,000 will be spent during the Linking Period and $20,000 will be spent during the Rate Year for BCA-related work at the Third Avenue Yard.

APPENDIX B SITES

Q. Please explain the requirements that the 1994 DEC Consent Order, as amended by the 2006 Consolidated Consent Order, imposes upon Con Edison for “Appendix B” sites.

A. Appendix B of the 1994 DEC Consent Order, as amended by the 2006 Consolidated Consent Order (“Appendix B”) addresses spills and leaks of “petroleum products” from the Company’s fuel oil storage tanks, No. 6 fuel oil pipeline system, high-pressure pipe-type electric feeders, and other types of oil-filled equipment. For sites at which such spills and leaks occurred, Con

Edison is required to complete an investigation and remediation process pursuant to procedures and specifics set out in Appendix B. For each of those sites, the first step in the process is for Con Edison to identify the specific response measures that it implemented at the site when it first became aware of the release. If the DEC is satisfied that those completed measures are sufficient to support a determination on its part that no further action is required under the New York Environmental Conservation Law and Navigation Law, the DEC will close out the spill. For sites for which the DEC is unwilling to make such a finding, Con Edison must either conduct additional cleanup work, additional investigation work, or both. The 2006 Consolidated Consent Order streamlined the administrative aspects of the Appendix B program to conform to the DEC's current guidance and eliminated reference to sites that had already been closed out. It did not reduce the number of sites that remained to be addressed and did not materially affect priorities and projected costs.

Q. How many sites are covered by Appendix B?

A. Appendix B covered a total of 86 historical oil spill sites. At many of the sites, more than one spill

occurred. Some of the sites are Con Edison facilities, although most sites are street locations where there were leaks from the Company's fuel oil pipelines or dielectric fluid-filled equipment or feeders.

Q. What is the current status of the sites covered by Appendix B?

A. As of September 30, 2018, 56 sites have been determined by the DEC to require no further action. Additionally, seven sites have been transferred with divested properties, with the new owners of the affected properties assuming responsibility for the required investigation/cleanup work. As a result, there are 23 open Appendix B sites, which are being addressed in accordance with a DEC-approved Appendix B site prioritization schedule, as reflected in the 2006 Consolidated Consent Order. Investigation and remediation of the Astoria Site, which is one of the remaining open 23 Appendix B sites, is being performed under the Astoria RCRA corrective action requirements of the DEC hazardous waste management facility operating permit for Con Edison's PCB Waste Storage Facility at the Astoria Site.

Q. Please identify the open Appendix B sites that Con Edison must address under the 2006 Consolidated Consent Order.

A. The open Appendix B sites are listed in Exhibit __ (EHS-5), entitled, “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. LISTING OF OPEN APPENDIX B SITES,” which also specifies the location, DEC-approved priority, and status of each site as of September 30, 2018.

Q. Was that exhibit prepared under your direction or supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (EHS-5)

Q. Please discuss the Company’s anticipated investigation and remediation activities during the Rate Year for its Appendix B sites.

A. As indicated in Exhibit __ (EHS-5), investigation work plans have been submitted for all of the 23 remaining open sites. The open sites are either actively undergoing investigation and/or remediation or will have investigation or remediation work started as soon as the DEC approves the Company’s proposed work plans for those activities. The Company presently projects that many of these investigations will be partially or completely performed during the Linking Period and Rate Year.

However, the ultimate timing of these and other Appendix B projects depends on the findings of the ongoing and planned investigations, and the status of DEC review and approval of work plans and reports.

Q. Do you expect the Company to continue to conduct similar Appendix B Site investigation and remediation activities during the Linking Period and Rate Year?

A. Yes. Most open Appendix B sites are in the investigation phase or are expected to be in the investigation phase during the Linking Period and Rate Year.

Q. What are the expected Linking Period and Rate Year costs for the Appendix B sites?

A. The expected costs for the Linking Period and Rate Year are approximately $2.4 million and $1 million, respectively (excluding the Astoria Site, which is described in the next section).

Q. Has the Company prepared a table identifying the projected Appendix B expenditures and activities during the Linking Period and the Rate Year?

A. Yes. The table provided in Exhibit __ (EHS-4) shows for each active Appendix B site covered in the projected schedule the planned activities and projected associated costs during the Linking Period and Rate Year.

ASTORIA SITE

Q. Please describe the nature of the investigation and remediation program for the Astoria site.

A. On May 1, 1994, the DEC issued Con Edison a hazardous waste management facility operating permit for its PCB/Hazardous Waste Storage Facility at the Astoria site. DEC subsequently issued renewal permits on March 2, 2001 and July 7, 2008. One of the conditions of this permit is to investigate and, if necessary, remediate, several Solid Waste Management Units ("SWMUs") and Areas of Concern ("AOCs") at the Astoria Site, including those with potential MGP residuals. This investigation also encompasses Appendix B spills at the Astoria Site, which is one of the remaining open sites identified in the December 2006 Consolidated Consent Order between Con Edison and the DEC. The Company has investigated spills and several SWMUs and AOCs at the Astoria Site (*e.g.*, former MGP operating areas, North Storage Yard, Pipe Yard, Southwest Storm Sewer, Central Waste Treatment Facility, East Yard, Eastern Parcel, Former Pond Area, and the Purge Oil Pumphouse) and has performed interim corrective measures ("ICMs") to: (1) recover oil from groundwater; (2) replace a brick sewer that had provided

a pathway for oil to enter the East River; (3) remove contaminated soil or place clean soil cover in various areas of the Athletic Fields; (4) remove coal-tar contaminated soil from certain areas of the Pipe Yard, (5) remove wastewater and sludge from two former manufactured gas holder tanks that were converted into neutralization, chemical precipitation, and sedimentation facilities for the treatment of boiler chemical cleaning and other wastewater that contained suspended solids and heavy metals; (6) install, operate and maintain a storm sewer treatment system from April 2010 until January 2014, (7) remove contaminated soil in the North Storage Yard and unpaved areas around the Transformer Shop; and (8) encapsulate contaminated soil in a gravel embankment to prevent it from migrating into a storm sewer system.

Q. Please discuss the Company’s anticipated investigation and remediation activities during the Linking Period and Rate Year at its Astoria Site.

A. During the Linking Period and Rate Year, the Company expects to do the following work at the Astoria Site:

Begin remediation in the East Yard to address PCB contaminated soil. This remediation project is

expected to begin in 2019 and to continue during 2020.

Perform a feasibility study and a pre-design investigation of the Purge Oil Pumphouse Area to address petroleum-contaminated soil;

Perform a pre-design investigation of the Pipe Yard and Blue Dog Lake AOCs;

Continue to implement oil recovery ICMs at various SWMUs and AOCs; and

Continue to perform operations, maintenance and monitoring of remediated areas.

Although MGP-related activities are not currently anticipated during the Linking Period or Rate Year, they may occur depending on the findings of an additional MGP investigation that is expected to be completed during the Linking Period and as required by the DEC.

Q. What are the expected Rate Year SIR costs for the Astoria Site?

A. The expected SIR costs for the Linking Period are approximately $4.5 million and Rate Year are approximately $15.5 million.

Q. Did you prepare a table of the projected Astoria site activities and estimated expenses during the Linking Period and Rate Year?

A. Yes. The planned activities and associated costs during the Linking Period and Rate Year are listed in Exhibit __ (EHS-4).

UST SITES

Q. Please summarize the regulatory requirements applicable to the Company's Underground Storage Tank ("UST") Program.

A. Con Edison's underground storage tanks are regulated under both EPA and DEC regulations. EPA's regulations at 40 CFR 280 ("Technical Standards and Corrective Action Requirements For Owners and Operators of Underground Storage Tanks (UST)") require UST owners and operators to investigate known or suspected releases from their UST systems and, if necessary, to remediate the contamination caused by those releases under the direction of the implementing state agency (the DEC in New York). New York State regulations require UST owners and operators to report known or suspected releases from their UST systems and to address such releases to the DEC's satisfaction. Both EPA and the DEC have issued guidance

documents describing these requirements. Although the Company is not under a formal agreement (*e.g.*, an ACO with the DEC) to investigate/remediate these sites, it is obligated to do so under these federal and New York State regulatory requirements.

Q. How many UST sites has the Company investigated and/or remediated?

A. Since the Company's UST program began in the late 1990s, the Company has investigated and/or remediated a total of 44 UST sites.

Q. Of these 44 sites, how many has the Company completed?

A. As of September 30, 2018, the Company has completed and DEC has issued NFA determinations for 39 sites.

Q. How many UST sites are currently being addressed under the Company's UST Program?

A. The Company is investigating or remediating three UST sites under the UST Program. It is projected that work at most of these UST Program sites will involve only groundwater monitoring, oil recovery, and/or reporting during the Linking Period and the Rate Year. Two other UST sites (Third Avenue Yard and Rye Service Center) are being addressed in conjunction with work under other SIR programs.

Q. Have you prepared a table identifying projected activities and associated costs during the Linking Period and Rate Year?

A. Yes. The planned activities and projected associated costs during the Linking Period and Rate Year are listed in Exhibit __ (EHS-4).

Q. How much does the Company project it will spend on UST Sites during the Linking Period and Rate Year?

A. The Company anticipates that it will spend $127,000 during the Linking Period and $128,000 during the Rate Year.

Q. Do you expect the Company to continue to conduct similar UST Site investigation and remediation activities over the next five years?

A. Yes, we expect the overall level of UST Program activity to average less than $0.1 million annually after the Rate Year, although costs for a particular year may be significantly higher if the DEC requires significant soil remediation at a UST site.

OTHER SITES

Q. Are there sites in the Company’s SIR program that are not included in the programs described above?

A. Yes.

Q. Please identify those sites with projected cash flow during the Linking Period and the Rate Year.

A. These other sites include seven former substations, four of which have projected costs during the Linking Period and the Rate Year. In addition, Dielectric Fluid Spill Sites that are not included in the Appendix B program, and one former generating station, Richmond Terrace, have projected costs during the Linking Period and the Rate Year.

Q. Please describe the Dielectric Fluid Spill Sites.

A. Dielectric fluid is pumped through the Company's pipe-type transmission feeder cables for cooling. Most of these fluids consist of synthetic oils containing alkylbenzene and alkylbenzene/polybutene mixtures, although some contain some amount of mineral oil. As discussed previously, historical Con Edison dielectric fluid spills are being addressed under the Appendix B program. However, some more recent spills, which the Company cleaned up by excavation and disposal of impacted media (soil, sediment, etc.) to the extent feasible, but require long-term groundwater monitoring and/or fluid recovery, are being addressed under the SIR program.

During the Rate Year, the Company will address residual contamination from these spills.

Q. Have you prepared a table describing the projected activities and associated expenses for these additional sites during the Linking Period and Rate Year?

A. Yes. The projected costs and activities during the Linking Period and Rate Year are listed in Exhibit __ (EHS-4).

Q. How much does the Company project it will spend on these additional sites during the Linking Period and Rate Year?

A. The Company anticipates that it will spend approximately $1.3 million during the Linking Period and approximately $0.5 million during the Rate Year.

SIR PROGRAM PROJECTED EXPENDITURES

Q. How much does the Company expect to spend during the Linking Period and the Rate Year for its SIR Program?

A. For the Linking Period, the period from October 1, 2018 through December 31, 2019, the total expenditure for these programs is projected to be approximately $27.3 million. For the Rate Year, the period from January 1, 2020 through December 31, 2020, an expenditure of

approximately $33.7 million is projected for the Company's SIR Program.

Q. Has the Company estimated projected SIR costs for any time periods after the Rate Year?

A. Yes. As discussed by the Company's Accounting Panel, while the Company is not proposing a multi-year rate plan, in addition to providing projections for the Rate Year, the Panel also provides projected expenditures for the two years following the Rate Year in this proceeding. We project SIR costs to be approximately $41.4 million from January 1, 2021 through December 31, 2021 and approximately $31.2 million from January 1, 2022 through December 31, 2022. All projected costs (for the Linking Period, Rate Year, and two subsequent years) are rounded to the nearest $100,000.

Q. Has an exhibit entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. SITE INVESTIGATION AND REMEDIATION EXPENDITURES ($ X 1000) FOR THE LINKING PERIOD (October 1, 2018 through December 31, 2019) RATE YEAR (January 1 through December 31, 2020) and SUBSEQUENT TWELVE MONTH PERIODS BEGINNING JANUARY 1 OF 2021 THROUGH DECEMBER 31 OF 2022 BASED ON November 30, 2018 COST PROJECTIONS)" been prepared under your direction or supervision?

A. Yes, it has been.

MARK FOR IDENTIFICATION AS EXHIBIT __ (EHS-6)

Q. Has the Company summarized the SIR Program cost projections for the Linking Period and Rate Year?

A. Yes. Exhibit __ (EHS-4) includes a summary of quarterly cost projections for the Linking Period and Rate Year for each Con Edison remediation program and site and a brief description of the projected activities for each site with projected expenditures during each of these time periods.

Q. How did you determine the projected expenditures?

A. The projections are based on forecasted spending levels for investigation or remediation-related activities that are expected to be required as part of these programs during the Linking Period and the Rate Year. They are based on best estimates by the Company’s project managers in conjunction with support teams such as Central Engineering Estimating and the Company’s environmental and engineering consultants. These cost projections are updated on at least a quarterly basis to reflect newly acquired information and changes in the status of the sites. As previously discussed, projected schedules are

reviewed and evaluated at least annually and more frequently for active projects.

Q. What factors could cause revisions in projected schedules and costs?

A. The projected schedules and estimated costs presented in our testimony are subject to change based upon design and construction-related contingencies, which may include regulatory review, approval schedules, permitting processes, and access/cooperation issues with property owners, results of site investigations, unanticipated field conditions and/or force majeure events. Delays in a project may result in acceleration or substitution of other projects.

Q. Has an exhibit providing more detailed information on the basis of the Company’s forecasted SIR Program expenditures been prepared under your direction or supervision for sites listed in Exhibit ___ (EHS-7) with projected expenditures of at least $1 million during either the Linking Period or the Rate Year?

A. Yes, that exhibit is entitled “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. SIR COST PROJECTION ADDITIONAL INFORMATION (UPDATED AS OF NOVEMBER 30, 2018)”

MARK FOR IDENTIFICATION AS EXHIBIT ___ (EHS-7

Q. Are there any existing or anticipated insurance proceeds available to off-set SIR expenses?

A. Possibly. In December 2014, the Company received a first interim payment of 15% of its $6,840,000 claim ($1,026,000) in the Home Insurance Company liquidation proceeding pending in New Hampshire Superior Court for losses associated with the Company's MGP Sites. The Company received a second interim payment of $683,995 in August 2016. Future recoveries, if any, will be determined during the course of the liquidation proceeding by the Insurance Commissioner for the State of New Hampshire, acting as liquidator.

Q. Do you expect to receive any other insurance proceeds that could off-set SIR expenses?

A. Except as described above, no other insurance proceeds are currently anticipated.

Q. Are there any existing or anticipated third party contributions available to off-set SIR expenses?

A. Yes, pursuant to a confidential settlement agreement with UGI Utilities, Inc. ("UGI"), UGI is required to pay a portion of the Company's future costs for two of the three Yonkers MGP Sites. In 2017, the Company received $56,215 pursuant to the agreement and, in 2018, the

Company received an additional $4,953. The Company will request additional payments from UGI as costs are incurred at the two Yonkers MGP Sites.

Q. Is there any SIR-related litigation that could affect SIR expenses?

A. Yes. In October 2015, the owner of property located on the grounds of the former Pelham Works MGP site commenced an action in New York State Court claiming among other things that, because the DEC later required a corrective action, substantial completion of the remedial action plan required by the DEC for the property had not been achieved by the substantial completion date specified in the contract between the property owner and Con Edison. As a result, the property owner claims that Con Edison owes liquidated damages in the amount of approximately $2 million and unspecified interest, costs and other relief. It is the Company’s position that among other things substantial completion of the remedial action plan had been achieved by the date specified in the contract between the parties. The Company’s time to answer or otherwise respond to the complaint has been adjourned while the parties engage in settlement discussions.

In December 2016, in connection with the Metal Bank Superfund Site, the PRP group (of which Con Edison is a member) initiated litigation against AMEC Foster Wheeler Environmental & Infrastructure Inc. (“AMEC”), the remedial design engineer responsible for the design and oversight of the construction of the sheet pile wall that was intended to prevent the migration of contaminants into the Delaware River. The work was completed in January 2010. During subsequent routine monitoring, the PRP group’s environmental consultant and an EPA project manager noticed unexpected movement of the wall and stresses on features of the wall. It was determined by a consultant to the PRP group that due to design defects, the wall did not perform properly during low flow conditions in the river. Under EPA oversight, the PRP group proceeded with repairs to the wall, which were completed during the summer of 2016. The PRP group is seeking damages in excess of $2 million in the litigation. In March 2017, AMEC filed a third party complaint against another environmental engineer involved in the remedial design. Discovery is currently ongoing along with court ordered mediation. Con Edison’s anticipated share of any eventual recovery is 0.97%.

SIR PROGRAM COST SAVING EFFORTS AND PRACTICES

Q. What is the purpose of this section of your testimony?

A. This section describes the Company's efforts and practices to operate a cost-effective SIR program.

Q. What steps has Con Edison taken to control its site investigation and remediation costs and liabilities?

A. Con Edison has taken several actions and continuously evaluates potential new ways to control its SIR costs and liabilities while also working safely and efficiently to complete the remediation work in cooperation with DEC. These actions include:

- Development of Cost Effective Remedies - When permissible under applicable laws and regulations, Con Edison pursues remediation objectives with regulatory agencies based on the present and contemplated future use of sites, so that the remedies selected by the agencies are not more stringent than necessary for such uses. For example, if the present and contemplated future use of a site is for industrial or commercial purposes, the Company attempts to negotiate remediation requirements that are consistent with such uses, rather than the more stringent remediation

requirements that would apply at sites with residential uses. When desirable, cost effective, and permissible under applicable laws and regulations, Con Edison attempts to negotiate remediation work plans with regulatory agencies and third party property owners that rely in whole, or in part, on post-remediation engineering or institutional controls in order to avoid more costly remediation to "unrestricted use" standards. In addition, when investigation results show that remediation may not be necessary to protect human health or the environment, the Company advocates its position to the regulatory agencies that remediation requirements should not be imposed unnecessarily. Below are some examples of the Company developing cost effective remedies in coordination with the DEC or property owners:

- East 115th Street MGP Site: The DEC-approved remedy for this former MGP Site included the installation of a barrier wall to prevent the potential migration of Non-Aqueous Phase Liquid ("NAPL") contamination to the adjacent East River. However, due to the constraints of the location (the site is an active public school

property adjacent to the FDR Drive in East Harlem, New York), the installation of a conventional barrier wall became unfeasible and raised the risk that the DEC might require a more costly excavation remedy. The Company conducted further analysis of the site and contamination in order to identify alternative options for construction of a barrier wall. The study included evaluation of the lateral and vertical extent of NAPL impacts and the relationship of these impacts to the site geology, zones of potential NAPL migration, potential locations for NAPL recovery systems, and migration barriers. The study, along with the PDI (discussed separately in this testimony), resulted in a recommendation to install a permeable migration barrier and recovery system constructed of large (18 to 24 inch) diameter recovery wells, which would be located to create a continuous barrier to NAPL migration. Unlike the conventional barrier wall, this permeable migration barrier was feasible within the limited available space. The DEC found this innovative approach acceptable

without requiring a change to the DEC-approved Decision Document and the Company avoided the expense of a costly excavation remedy. The Company successfully installed the permeable migration barrier wall and NAPL recovery wells, and on November 2, 2018, the DEC issued an NFA determination for this site.

- East 99th Street MGP Site: As part of the redevelopment of the former Doctor's Parking Lot to a long-term care facility, the Company worked with the developer and reached agreement on the use of a specific type of driven piling system which generated no spoils. This eliminated a waste stream that would have required disposal. This piling system also avoided a potential conduit for future vapor migration. As a result, the need for a sub-slab depressurization system for the newly constructed facility was also avoided. The developer installed the pile system with no incremental costs to Con Edison.
- Pre-Remedial Design Investigation and Treatability Studies - When appropriate, the Company performs pre-remedial design investigations ("PDIs")to fill data

gaps in order to develop cost-effective remediation work plans and specifications for regulatory agency approval and for competitive bidding. For example, a PDI performed at the East 11^{5th} Street MGP Site along with groundwater modelling determined that the DEC's approved remediation concept, which included an impermeable barrier wall, would likely force groundwater deeper and pull MGP contaminants into the underlying bedrock. This PDI, along with the constructability review (discussed separately in this testimony) resulted in a modified design of a permeable wall with groundwater recovery wells that was approved by the DEC. During 2018, a PDI was also conducted at the Pemart Avenue MGP site to assess the potential impacts of groundwater on the remedial excavations. In addition, this PDI will be used to better define the extent (vertical and horizontal) of the remedial excavation and assist in determining the proximity of the excavation to existing buildings. By accounting for field conditions in advance, and better targeting the areas for excavation, this information will result in a more cost-effective remedial construction. In addition, where appropriate, treatability or pilot

studies are performed to demonstrate the applicability of proposed remedies before they are designed and implemented.

- Seeking Permit Flexibility - As applicable, the Company seeks appropriate variances from permit requirements to achieve project efficiencies. For example, in connection with the Flushing Creek Dredging project, typical permit requirements would have required the suspension of remedial construction activities and demobilization at the beginning of the fish spawning season until the end of the season when activities could have resumed. The Company obtained a variance from the DEC and United States Army Corps of Engineers to allow for installation of a silt curtain in advance of the fish spawning season. This allowed the work to continue uninterrupted without impacting the fish. With this variance, the Company avoided the added costs and delays associated with demobilization and remobilization around the spawning period.
- Forensic Analysis and Background Level Determinations - When appropriate, Con Edison performs forensic

analysis of soil, sediment and product (e.g., oil, gasoline, coal tar) in an attempt to differentiate contamination associated with Company operations or spills from contamination that may have been caused by others. The forensic analysis may involve fingerprinting the type of material present (*e.g.*, MGP waste, various forms of petroleum) or different formulations of PCB mixtures. When appropriate, the Company also performs sampling outside the suspected area of concern to determine site-specific background levels of contaminants for DEC consideration in its determination of the required scope of remediation. We have used this approach successfully, for example, at the Flushing Creek Site, to demonstrate that impacted media were not impacted by Con Edison's operations. If Con Edison had not performed the forensic analysis for the Flushing Creek site, the Company believes that the DEC would have required the Company to remediate a far larger area and volume of the sediment in the Creek. Con Edison estimates that the cost of such additional remediation of the larger sediment area and volume would have exceeded $10 million.

- Evaluating Alternative Work Methods - For remedial construction projects, Con Edison evaluates alternative cost-efficient means and methods to meet DEC requirements. At the Flushing Creek site, completed in 2018, the DEC-approved remedy included the dredging and removal of sediments containing elevated concentrations of PCBs and placement of a clean cover. The work area for this site posed many logistical challenges due to very constrained access for traditional excavating equipment and watercraft, such as barges and barge-mounted excavators. Therefore, a more cost-effective dredging method using an amphibious excavator was selected with DEC approval. This alternative equipment was able to readily maneuver within the dredge area, and the duration of the work was substantially reduced.
- Combining Remediation with Site Redevelopment/ Construction - Whenever possible, Con Edison seeks to achieve cost savings by coordinating remediation work that requires soil excavation with the excavation work being performed by site developers as part of construction projects. By implementing required remediation work in conjunction with property owners' construction projects, Con Edison minimizes its

expenditures by sharing, as appropriate, with property owners the costs of activities common to both the remediation work and the construction work, such as sheeting and shoring, excavation dewatering, excavation labor, soil transportation and disposal, and back-filling. The following are several examples:

- In 2015, Con Edison entered into an agreement with the New York City Health and Hospitals Corporation ("NYCHHC") whereby Con Edison and NYCHHC shared in the incremental costs of remediating and disposing of MGP-contaminated soils and groundwater in connection with a tank closure and installation project at NYCHHC's Metropolitan Hospital in Manhattan, which is located on the site of Con Edison's former East 99th Street MGP Site.
- At Appendix B, Site 70, site investigation field work was coordinated with a New York City contractor that was installing a substantial water main in the same roadway as the spill site. The City contractor agreed to allow Con Edison's EH&S

Remediation team and its drilling subcontractor to work within their existing traffic control area, and under their existing NYCDOT roadway opening permit. Because the City contractor already had removed the paving and excavated soil to an appropriate depth, the Con Edison contractor had direct access to subsurface soil to complete the required sampling. By coordinating in this manner, Con Edison avoided costs for traffic control, road opening permits, geophysical surveys, hand digging to verify subsurface utilities and the need to deploy a mechanized drill rig.

- A recent example occurred in connection with two parcels associated with the West 18th Street MGP Site. The Company conducted its site investigation work under the 2002 Agreement and confirmed that MGP contamination was found within underground gas holders beneath an existing paved parking lot. Once a developer purchased the parcels and entered them into the BCP, Con

Edison coordinated with the developer to combine its development work with the removal of MGP contamination within the remnant gas holders. This resulted in reduced remediation costs by combining the remediation with excavation work being performed as part of the development project.

The Company also coordinates remediation work with construction work at Company sites, where possible, to minimize overall costs. At the Rye Service Center, the Company has combined the MGP remediation and UST closure activities with a capital project to upgrade the fuel station on the property, resulting in efficiencies in both cost and schedule. Both projects require excavation within the same area of the property. Therefore, the Company is performing the excavation component of the MGP and UST remedies first to remove contaminated soil. The capital project can then proceed in the clean excavation area to install new USTs and associated filling station, including backfilling and site restoration. By coordinating in this manner, we performed the

remediation without the costs for site restoration activities. To achieve similar savings at Astoria, the Company plans to combine the Astoria East Yard remediation field work with a planned capital project to re-pave the Astoria East Yard. This approach will both decrease remediation costs while reducing operational impacts at the Astoria site.

- Reuse of Excavated Materials – Whenever feasible and acceptable to the DEC and DOH, the Company reuses excavated soil and stone as backfill at remediation sites. Historically, such reuse resulted in cost savings at several remediation sites. Although material reuse has not been appropriate for more recent projects, the Company continues to consider it and its potential cost savings for Company remediation projects.
- Cost-Effective Investigations - When appropriate and acceptable to the DEC, Con Edison incorporates “step-out” procedures in its site characterization study (“SCS”) and remedial investigation (“RI”) work plans. These procedures allow Con Edison’s project manager and DEC’s project manager to expand the scope of an investigation while field work is being performed.

Broadening the scope of investigation while field work is in progress helps minimize the need to prepare work plans for and conduct subsequent rounds of investigation.

- Competitive Procurement - The Company competitively bids all remediation projects, retains qualified contractors, performs third-party bid check estimates and follows its comprehensive procedures, including remediation contractor management protocols, so that project work is performed properly and cost effectively.
- Third Party Engineering Reviews – In an effort to optimize bid documents for complex projects (i.e., those projects that may be using new technology, are multi-engineering disciplined, or require special considerations due to the property use or layout), Con Edison has employed third-party engineering consultants to review draft remediation plans and specifications. We did this most recently for the East 115th Street MGP Site – Barrier Wall Design. In this case, the third-party consultant provided comments that were incorporated into the final plans and specifications for bid purposes.

- Bundling Similar Work into One Contract - By bundling similar remediation work into one contract, the Company realizes both cost savings and schedule efficiencies. For example, monitoring wells which can be decommissioned after receipt of an NFA or after the DEC has determined that such wells are no longer needed at such sites, are being bundled across multiple sites and competitively bid under a single contract.
- Maintaining Experienced Staff - Con Edison continues to staff the EH&S Remediation Department with experienced and dedicated employees. All members are engineers or scientists and hold bachelor's or master's degrees. The team collectively reflects over 175 years of experience in the field of remediation, with experience in the utility, chemical, laboratory, manufacturing, petroleum, transportation, mining, and construction sectors. These seasoned engineers and scientists, many recognized as subject matter experts, serve as project managers and work closely with qualified consultants and contractors to develop and implement work plans and specifications, consistent with applicable government agency requirements. The

Company also has a specialized Construction Department that manages remedial construction contractors. Construction staff is specially trained to perform constructability reviews of remedial design plans and specifications, to manage these types of contracts and contractors, and to oversee the contractor's field work. In some situations, internal constructability reviews are augmented by engineering consultants (other than the ones preparing the design). Use of experienced in-house staff provides Con Edison with the capability to pro-actively plan for anticipated project challenges and to effectively handle and timely respond to unexpected conditions or issues.

- Participation in External Organizations - Con Edison actively participates in national and state industry forums and research organizations, such as the MGP Consortium, the Utility Solid Waste Act Group ("USWAG") Remediation & Response Committee, the Environmental Energy Alliance of New York ("EEANY"), and the Electric Power Research Institute ("EPRI"), so that it obtains the benefit of other utilities' experience and knowledge and its in-house staff keeps abreast of evolving regulatory requirements and

technical developments in the remediation industry . Con Edison supports activities of these organizations that have direct impact on pending and future remediation projects. In one particular case, Con Edison supported a study that helped answer questions about the use of in-situ stabilization (ISS) in sediments, which could provide a substantial cost-saving remedial alternative for addressing contaminated sediments as compared to the more traditional remedy of sediment dredging. In another, the Company was the prime participant in an EPRI study to develop risk-based Total Petroleum Hydrocarbon (“TPH”) SCOs for dielectric fluids typically used in pipe-type electrical transmission feeders, because the DEC did not have any SCOs for TPH. During this study, EPRI and Con Edison worked closely with the DEC to develop the work scope and discuss the study results. Con Edison submitted the EPRI Report to the DEC, which approved EPRI’s recommended SCOs for these fluids. These SCOs are now used in the Appendix B Program described earlier in our testimony. Con Edison’s costs for participating in these two EPRI studies were funded by the Company’s research and development

department. In addition, some of these organizations (*e.g.*, USWAG, EEANY) comment on regulatory proposals in an attempt to obtain more reasonable, more flexible, and less costly requirements. Examples include EEANY's comments on the DEC's proposed Part 375 regulations, including soil cleanup objectives, EEANY's discussions with the DEC on the bioavailability of MGP waste constituents in sediments, EEANY's development of a statewide indoor air database at MGP sites to support a demonstration that indoor air should not be a concern at MGP sites, and USWAG's submittal of information to the EPA to support continuation of the hazardous waste exemption for MGP waste that fails the Toxicity Characteristic Leaching Procedure ("TCLP") for benzene. This hazardous waste exemption allows MGP waste that fails the TCLP for benzene and does not exhibit any other hazardous waste characteristics to be disposed of as non-hazardous waste at thermal treatment facilities instead of being disposed of as hazardous waste at much more expensive hazardous waste incinerators. USWAG and other industry groups have been instrumental in convincing the EPA to allow certain UST wastes that

fail the TCLP for only benzene to be managed as non-hazardous waste. As a result, the DEC has adopted the EPA exemptions for MGP and UST remediation waste in its regulations or guidance. The EPA exemptions and DEC guidance have resulted in significant savings in MGP and UST site remediation costs. Furthermore, USWAG and other industry groups were successful in convincing the EPA to defer land disposal restriction treatment standards for PCBs for hazardous waste soil in most cases. The DEC has adopted EPA's deferral, which has allowed some hazardous waste soil with PCBs to be landfilled instead of incinerated, resulting in significant cost savings.

- Insurance Cost Recovery - Con Edison puts its excess liability insurance carriers on notice of demands by the EPA and DEC that the Company pay for or implement site investigation and remediation work. It also pursues indemnification of the costs of such work with its excess liability insurance carriers. The Company has received insurance reimbursement payments totaling more than $17 million from its excess liability carriers since 1998. When necessary and appropriate, the Company pursues litigation against insurance

carriers that deny or reserve coverage for such costs. To date, the Company's litigation efforts against its excess liability insurance carriers (and those of other potentially responsible parties for sites) for the Company's Superfund sites have resulted in settlement proceeds of approximately $6.5 million. For MGP Sites, the Company's insurance litigation (which included an appeal by Con Edison to the New York Court of Appeals for the Tarrytown MGP site litigation) has resulted in settlement proceeds of more than $45.2 million.

- Claims for Indemnification – Con Edison attempts, where possible, to transfer environmental liability for future remediation costs in agreements with third-parties in connection with the sale of real property or other assets and seeks indemnities for such future liabilities. For example, in November 2014, Con Edison tendered a claim for costs that Con Edison had expended in connection with a feeder-related dielectric spill (known as Appendix B, Site No. 38) to the party which had purchased the feeder in 1999. After discussions with the purchaser about the costs Con Edison had expended and the sale agreement's

allocation of liabilities related to the feeder, the purchaser agreed to reimburse Con Edison fully for the past cleanup costs and assume full responsibility for any future cleanup costs.

- Identification of Other Potentially Responsible Parties ("PRPs") - Con Edison attempts to identify other PRPs and, when appropriate, attempts to recover investigation or remediation costs from such entities. For example, Con Edison instituted CERCLA response cost contribution litigation against the successor in interest to UGI, the Philadelphia-based utility holding company that during the late 1800's held controlling interests in the local companies that operated most of the MGPs in Westchester County including three MGPs in Yonkers. The judicial determinations in that proceeding allowed the Company to obtain a settlement with UGI (requiring UGI to pay a portion of the Company's future costs for two of the three Yonkers MGPs), and have enabled the Company to seek recovery of SIR costs from other PRPs in appropriate cases. In addition, the Company attempts to identify other potential contributors of hazardous substances for EPA's use in identifying other PRPs at

Superfund sites with anticipated very large remediation costs. For example, the Company worked with EPA to help identify several potential contributors of hazardous substances to the Gowanus Canal Superfund Site.

- Participation in PRP Groups - Con Edison generally participates in Superfund site PRP Groups to (a) encourage them to negotiate consent decrees and orders with the government that equitably allocate liability among all financially viable PRPs; (b) seek efficiencies by sharing certain common expenses with other PRP Group members, such as for environmental consultants; and (c) when warranted, institute CERCLA cost contribution actions against recalcitrant PRPs. Most recently, the Metal Bank Superfund Site PRP group successfully challenged a claim for natural resource damages asserted by both the State and Federal natural resource trustees ("Trustees"), resulting in a settlement of $950,000 for the Trustees' original claim that was valued at $8.35 million. In addition, at both the Gowanus Canal and Newtown Creek Superfund Sites, the Company has been working with groups of PRPs to share the costs of environmental consultants

to evaluate common technical issues and potential allocation of responsibility.

- TSDF Audits - To minimize the risk that it will become a PRP at newly listed Superfund sites, Con Edison has established a list of acceptable waste treatment, storage and disposal facilities ("TSDFs") and periodically reevaluates that list. Any new TSDF must be approved by the Vice President of EH&S before it is used. The Vice President grants such approvals only after the proposed new facilities are determined to be necessary (*e.g.*, to meet increased capacity needs for disposal of a particular waste type or to provide significant cost savings) and meet acceptance criteria (*e.g.*, robust waste acceptance procedures, solid record of compliance with regulatory requirements, adequate spill/release prevention systems in use, low potential for groundwater/soil contamination). All proposed new TSDFs are first evaluated by a steering committee with representatives of EH&S and other Company operations, which makes recommendations to the Vice President of EH&S.
- Due Diligence in Property Transfers - To minimize the potential that property transfers might result in

significant SIR costs, we extensively evaluate properties for prospective sale and purchase to identify potential environmental risks using environmental site assessment procedures. For example, the Company was considering purchasing a property for a new substation. EH&S staff's review of available records determined that, due to perchloroethylene releases from a dry cleaner, the property was a listed State Superfund Site. As a result of this evaluation, the Company decided not to purchase the property and thereby avoided potential liability and expensive remediation costs. As described in the "Other Sites" section of this testimony, Con Edison actively assesses the conditions of its properties, and when necessary, remediates properties before a prospective sale to minimize potential ongoing environmental liabilities.

SIR PROGRAM PROCESS AND INTERNAL CONTROLS

Q. What is the purpose of this section of your testimony concerning the Company's SIR Program process?

A. This section describes each step in the Company's SIR Program process, from the start of investigation to the implementation of remedies approved by the appropriate

regulatory agencies, and explains the Company's management practices and bidding processes as part of our efforts to operate a cost-effective SIR Program.

Investigation Process

Q. Please describe the process that Con Edison follows for the investigation of its SIR Program sites.

A. The SIR Process is divided into four basic phases which start with project initiation and conclude with final site closure issued by the governing regulatory agency. We begin the process with a paper study to determine if there are recognized environmental conditions that are likely to exist and require further investigation. In most situations, due to the historic operations of the sites, this study is typically conducted as the first part of the investigation. The process is governed by Con Edison's 2018 Agreement (and, previously, the 2002 Agreement) and the ACOs and Brownfield Cleanup Agreements ("BCAs") that Con Edison has entered into with the DEC for sites not covered by the 2018 Agreement (collectively, the "MGP Agreements"). Depending on the conditions encountered at a site, the process may include multiple rounds of investigation. Each step of the process is subject to the review and approval of the DEC

and DOH and must be conducted consistent with applicable regulations, guidance and policies. To facilitate the development of its site investigations, Con Edison conducts detailed historical reviews of its and its predecessor companies' operations at each of its MGP Sites. The results of these reviews enabled the Company and its consultants to pinpoint the locations of the gas production/purification equipment, feedstock/residual processing and storage facilities, and other areas of potential concern at each MGP Site, so that the Company's investigation sampling efforts focused on them. In addition, Con Edison has prepared a DEC-approved Citizen Participation Plan ("CPP") for its MGP Program that was updated under the 2018 Agreement. This plan describes the procedures that Con Edison will follow to communicate to interested citizens and elected officials the investigation and remediation activities that the Company is required to undertake for its MGP Sites under its MGP Agreements. We modify the CPP to be site-specific when required by the DEC.

The Company also performs investigation and remediation projects for other types of SIR Sites. For federal Superfund sites, the procedures, policies,

regulations, and guidance documents that the Company must follow are specified in the ACOs and consent decrees that the Company has entered into with the EPA. For New York State Superfund sites and Appendix B sites, the required process and protocol are governed by Con Edison's BCAs and ACOs with the DEC. For the Astoria Site, the procedures and protocols are governed by the DEC operating permit discussed earlier in our testimony and the DEC regulations implementing RCRA. For UST sites, the required procedures and protocols are specified in EPA and DEC regulations and guidance. For other SIR sites, the required procedures and protocols are specified in DEC regulations and guidance.

While there are some differences in the specific investigation process for each of these types of sites, the goal of the process applicable to each such site is the same - the scope of the investigation will characterize and delineate the nature and extent of a site's contamination with sufficient specificity to support a determination by the DEC, DOH, and/or EPA as to whether remediation is necessary to protect human health and/or the environment from the risks posed by the contamination and, if remediation is needed, to assess

and determine the scope of the required remediation activities.

For sites with no government involvement or only partial government involvement (i.e., many of the sites included in the Other Sites category), we make decisions concerning site investigation and remediation in compliance with the inventory of best practices for SIR programs. The Company pursues cost-effective remedies based on the current use and contemplated future use or re-use of the sites and their zoning, taking into account applicable regulations, guidance, and potential health and environmental impacts, with the goal of readying these properties for sale and minimizing potential long-term environmental liabilities for the Company.

The first step of the investigation process under the MGP Agreements is to conduct a DEC-approved Site Characterization Study ("SCS"), which is a subsurface investigation to evaluate whether there is evidence of historical MGP-related contamination in the soil, soil vapor, or groundwater at a site. DEC-approved SCS work plans focus on site areas that were the former locations of MGP structures that produced or stored feedstock or residual materials capable of causing environmental

contamination, such as ammonia wells, condensers, gas holders, oil and coal tar storage tanks, relief holders, and tar wells. We identified the locations of these types of facilities as part of the detailed historical review Con Edison performed before entering into the 2002 Agreement with the DEC. As required by the DEC and DOH, a draft SCS work plan must include site background information, including the known/suspected locations of former gas production and storage structures, prior investigation findings, if any, and the proposed work scope (*e.g.*, soil boring and test pit locations, soil vapor sampling, groundwater monitoring well installation, air monitoring, and laboratory analytical requirements).

Based upon the historical information that the Company has compiled for the manufactured gas production and/or storage operations formerly conducted at an MGP Site and the input and guidance provided by the Company's EH&S site project manager, Con Edison's environmental consultant prepares a draft work plan for the Company's review. The Company's EH&S site project managers actively communicate with DEC and DOH site project managers and the Company's consultants during the preparation of draft SCS work plans to ensure that the

draft plans meet the DEC's and DOH's requirements and the Company's expectations. After we make any revisions based on the Company's EH&S site project manager's review, we submit the draft SCS work plan to the DEC for its review and approval. The DEC will solicit input from the DOH.

Once the draft work plan has been approved by DEC and DOH, the SCS field work may begin. A fact sheet is typically prepared for distribution to appropriate stakeholders prior to the start of the SCS fieldwork.

For sites no longer owned by Con Edison, the Company must obtain the property owner's consent in the form of an access agreement before the SCS fieldwork commences. The negotiation of access agreements for these sites can be a challenging and time-consuming process due to the nature of the operations currently being conducted on them, such as schools, hospitals, apartment building complexes, public parks, and commercial businesses. Access agreements for such sites typically include provisions specifically developed to ensure that the SCS field work does not unduly interfere with on-going site operations.

Upon the completion of the SCS fieldwork, we submit a report to the DEC and DOH for their review and approval. Depending on the findings of the SCS, these agencies will determine which of the following three steps is the most appropriate for a site:

- No further action is required because there is no evidence of MGP-related impacts that warrants further investigation or remediation;
- Additional investigation is required to better characterize and delineate the nature and extent of the MGP-related impacts present on and around the site; or
- Remediation is necessary to address the MGP-related impacts that have been sufficiently characterized and delineated, and the Company must proceed with the development/evaluation of remedial alternatives.

A Remedial Investigation (“RI”) refers to the second and subsequent rounds of investigation beyond the SCS. More than one round of on-site investigation and, in some cases, off-site investigation may be necessary to define the contamination with a sufficient degree of certainty to support the assessment of potential

remedial alternatives and the development of a Remedial Action Work Plan (“RAWP”) incorporating the remedial activities that the DEC and DOH deem appropriate. The RI process is similar to that for SCSs, with community outreach and, when the work is done at a third party-owned property, access agreement negotiations. RI work plans must be approved by the DEC and DOH.

After the RI fieldwork and sample analyses are completed, we submit a draft RI report to the DEC and DOH for their review and approval. Based on the results of the RI, these agencies will make one of the three determinations specified above in our discussion of the SCS process.

Remediation Determinations

Q. Under what circumstances does the DEC and DOH typically require the remediation of site contamination?

A. DEC and DOH require remediation when they determine that the contamination present at a site presents a current or potential future significant threat of harm to public health and/or the environment or is necessary to meet statutory or regulatory goals and objectives. This determination is made on the basis of the results of the SCS and/or RI for a site. With regard to potential public health impacts, DOH will consider whether potential complete exposure pathways have been identified at the site during the investigation work.

Q. Do DEC and the DOH consider costs in determining whether remediation is required?

A. No. That determination is made by them solely on the basis of whether remediation is required to mitigate a current or potential future significant threat of harm to public health and/or the environment or to meet statutory/regulatory goals and objectives. If such threats are found to exist or remediation of the contamination is necessary to achieve statutory and

regulatory goals/objectives, remediation must be performed.

Q. Do costs play any role in the remedy selection process?

A. Yes. While the DEC and the DOH do not consider economic impacts as one of the two threshold criteria in determining whether and to what extent remediation is required, the DEC's regulations and guidance documents permit consideration of costs in evaluating remedial alternatives. Under those regulations and guidance documents, "cost effectiveness" is a secondary permissible criterion for such evaluations and can be considered by the DEC when it evaluates and determines whether to select one of two or more remedial alternatives that are protective of human health and the environment and that are consistent with applicable and relevant rules, regulations, policies and guidance. For example, under DEC's regulations and guidance documents, the goal of remediation is to restore sites to their pre-contamination condition to the extent that it is technically feasible to do so. If this goal cannot be met, the remedy selected must, at a minimum, adequately protect human health and the environment, and include technically feasible remediation measures for so-called

"source materials", such as free coal tar, coal tar-contaminated soil, and purifier waste. If two or more competing remedial alternatives are capable of meeting all these goals and are essentially equivalent in addressing non-cost-related criteria, DEC can select the least costly alternative. The criteria used by the DEC in evaluating remedial alternatives are described in more detail in our testimony below concerning the Remedial Planning Process.

Remedial Planning Process

Q. Please describe the remedial planning process that Con Edison must follow for SIR Program Sites for which DEC and the DOH or EPA have determined that remediation is required.

A. Under the MGP Agreements, ACOs or BCAs for New York Superfund Sites, Appendix B, and the hazardous waste management facility operating permit for the Astoria Site), once the DEC and DOH determine that remediation is required, Con Edison is required to identify and evaluate potential applicable remedial alternatives for DEC's and DOH's approval. In the case of federal Superfund Sites, Con Edison must identify and evaluate potential applicable remedial alternatives for EPA's approval.

Q. For sites at which remediation is required, please describe the process the Company follows in its development of proposed remedial alternatives.

A. We will focus on the specific process for MGP Sites. However, the process applicable to other types of SIR Program sites is similar.

For MGP Sites, Con Edison must prepare an Alternatives Analysis Report or Alternatives Analysis and Proposed Remedial Action Work Plan (each an “AAR”) for DEC and DOH consideration and approval. In that AAR, Con Edison must identify potential remedial alternatives, screen them to determine which alternatives appear technically feasible to implement, and then assess the feasible alternatives using the evaluation criteria discussed below.

The first step in the AAR process is to meet with DEC and DOH to discuss their views on the general parameters of what they believe would comprise an approvable remediation program for a site, given the site’s use and the extent of the contamination present. For sites no longer owned by Con Edison, meetings are also scheduled with the site owners to identify any changes in site use being considered by them. These

meetings are essential to understanding the perspective of the regulatory agencies and property owners, so that Con Edison does not waste time and resources pursuing "dead ends."

Pursuant to the DEC's requirements, the AAR must identify potential remedial alternatives and evaluate them against the following criteria in order to determine which alternative is the most appropriate based on all the relevant factors. The first two factors listed below are referred to as Threshold Criteria that must be satisfied in order for an alternative to be considered further for selection. The next five are referred to as Primary Balancing Criteria and the last two are Modifying Criteria. The primary balancing and then modifying criteria are used to compare the remedial alternatives that satisfy the Threshold Criteria.

Threshold Criteria:

- overall protectiveness of public health and the environment;
- compliance with standards, criteria, and guidance;

Primary Balancing Criteria:

- long-term effectiveness and permanence;

- reduction in toxicity, mobility, or volume of contamination through treatment;
- short-term impacts and effectiveness;
- implementability;
- cost-effectiveness, including capital costs and annual site maintenance plan costs. According to DEC guidance, “this criterion is an evaluation of the overall cost effectiveness of an alternative or remedy” and “a remedy is cost effective if its costs are proportional to its overall effectiveness”; and

Modifying Criteria:

- community acceptance
- State acceptance based on current, intended and reasonably anticipated future land use (when a complete remediation to unrestricted use levels would not be achieved).

If the DEC and DOH do not find the Company’s AAR to be approvable, these agencies will inform the Company of their reasons for disapproval and specify the revisions that the Company must incorporate into the draft AAR. For example, the DEC or DOH may prefer a different alternative over the one recommended by the Company.

Once the DEC and DOH deem the AAR to be approvable, a notice will be published in the State's Environmental Notice Bulletin for a 30-day public comment period (45 days for sites in the Brownfield Cleanup Program). A public meeting is held at which DEC, DOH, and Con Edison present the recommended remedial alternative and receive comments from the public. Con Edison will distribute a Fact Sheet to stakeholders announcing the availability of the AAR and the public meeting.

Q. Does Con Edison make the final decision on which remedial alternative must actually be implemented for site being addressed under government oversight?

A. No. While it may suggest remedial alternatives, Con Edison does not make the final decision on which remedial alternative must actually be implemented - that decision is made by the DEC (or EPA for federal Superfund sites). After the close of the public comment period, DEC will formally approve the AAR. Depending on the comments received, the AAR may be revised to reflect public input. Community acceptance is one of the criteria considered by the DEC in the selection of an approved remedy.

Q. How are remediation decisions made for sites with no or only partial government oversight, as is the case for many sites included in the Other Sites category?

A. For these sites, Con Edison complies with the inventory of best practices for SIR programs, and pursues cost-effective remedies based on current use and contemplated future use or re-use of sites and their zoning, taking into account applicable regulations, guidance, and potential health and environmental impacts, to prepare these properties for sale and minimize potential long-term environmental liabilities for the Company. Remediation decisions are made by an internal team that includes the Company’s EH&S, Real Estate, and Law Departments.

Q. Is the selected remedial alternative sometimes implemented by third party property owners instead of the Company?

A. Yes. For properties undergoing redevelopment, the Company and the property owner/developer may enter into a cooperation agreement to coordinate remediation and site redevelopment and share costs. By cooperating and implementing required remediation work in conjunction with a property owner’s construction project, Con Edison

can achieve cost savings by sharing with or allocating to the property owner the cost of activities common to both remediation and construction work. This includes such high cost items as, sheeting and shoring, soil excavation, dewatering, soil transportation and disposal, and back-filling. In such cases, Con Edison would have an oversight role to see that the remedy is being properly implemented in a cost effective manner. In the case of federal Superfund sites in which the Company is a member of a PRP Group, the PRP Group may implement the selected remedy.

Q. Is agency approval of a remedial alternative the end of the remediation planning process?

A. No. The decision documents that the DEC or EPA issue when they select and approve a remedial alternative for a site generally contain only summary information about the remedial alternative. Depending on the complexity of the remedy and the site, the DEC will require Con Edison to prepare either a Remedial Action Work Plan (“RAWP”) or detailed remedial design for DEC and DOH approval. A detailed remedial design is typically required for the more complex remedies/sites. As part of these designs, the DEC generally requires the development of a remedial

design package containing detailed drawings, plans, and specifications to implement the selected remedial alternative. In some cases, additional studies or investigations may be required. For example, if the DEC requires groundwater treatment to meet a specified cleanup level, Con Edison may conduct bench-scale laboratory studies needed to design the treatment system required to meet the remedial objectives. The detailed drawings, plans, and specifications for construction of the selected remedial alternative are subject to DEC/DOH review and approval.

Remedial Construction Process

Q. Please describe Con Edison’s remedial construction process.

A. The Construction Management (“CM”) Department within Con Edison’s Construction organization is responsible for supporting the efforts of Con Edison’s EH&S Department to manage the remedial construction phase of remediation projects. Remedial design plans and specifications and engineer’s cost estimates are prepared by the Company’s environmental engineering consultants working jointly with the EH&S project manager and CM. Depending on the estimated cost of remediation, pre-qualified remediation

contractors at one of three cost categories will be used to solicit technical proposals and bids for the performance of the remedial construction work. For relatively small and straightforward projects, a technical proposal and associated technical evaluation may not be required.

Additional information concerning review of technical proposals is provided later in our testimony, in the Consultants/Contractors and Internal Staffing section.

After the award of a Purchase Order to the selected remediation contractor, CM will manage the contractor's performance of the work with the EH&S Remediation project manager participating as a key member of the team. DEC generally has an inspector assigned to sites for which significant remedial construction work is required to ensure that the Company complies with the requirements of the approved remedy and design specifications and to participate in project team meetings. For projects entailing less significant remedial activities, the DEC inspector will typically visit the sites periodically.

In addition, the Con Edison environmental engineering consultant that prepared the approved design and bid specifications will be present to see that the agency-

approved remedy and design and bid specifications are implemented properly, and to obtain information needed to prepare the remediation report (sometimes referred to as the final engineering report) and, in some cases, to perform air monitoring and/or post-excavation soil sampling.

As stated previously in our testimony, when remediation is to be performed at third party sites, the Company must enter into an access agreement with the property owner. In addition to providing access, the agreements contain, as applicable, commitments by the property owner not to violate post-remediation institutional controls required as part of the DEC-approved remedy and not to interfere with the operation of any DEC-required engineering controls.

Q. Does the completion of the remedial construction phase of the DEC-approved remedies for Con Edison’s MGP Sites or other SIR Program sites mark the end of Con Edison’s obligations under its MGP Agreements or other agreements with the DEC for those sites?

A. It does so only for sites that have been remediated to DEC “unrestricted use” standards. However, because many of the Company’s MGP Sites and other SIR Program sites

are located in highly-developed areas occupied by existing buildings or facilities, or present other logistical challenges, it is frequently not feasible to remediate a site to meet “unrestricted use” standards pursuant to DEC regulations and guidance. At other sites, it may not be cost-effective to meet “unrestricted use” standards due to the background levels or depths of contaminants present at the site. In such cases, Con Edison may propose, and the DEC and DOH may allow, remediation to alternative standards that protect public health and the environment for specified uses of the site. If Con Edison does not remediate a site to “unrestricted use” standards, Con Edison must comply with one or more DEC-required institutional and/or engineering controls at the site to address the remaining contamination after completing remedial construction and to minimize the potential for exposure to such contamination. Examples of typical institutional controls include restrictions on the use and redevelopment of a remediated property that are made enforceable by the DEC through environmental easements or deed restrictions. Engineering controls include subsurface containment or cutoff walls, sub-slab soil gas ventilation systems,

groundwater treatment, or product (*e.g.*, coal tar, gasoline, or fuel oil) recovery systems. These controls are required in perpetuity or until the DEC, with DOH concurrence, determines that they are no longer necessary.

In order to comply with these various controls, the Company is required to prepare a Site Management Plan ("SMP") for DEC's approval. A typical SMP includes procedures to:

- operate and maintain engineering controls and/or treatment systems;
- maintain compliance with institutional controls, where applicable;
- periodically inspect and evaluate site information to determine whether the remedy continues to be effective; and
- monitor and report the performance and the effectiveness of the remedy, including periodic sampling.

Consultants/Contractors and Internal Staffing

Q. Please describe the role of outside consultants and subcontractors in the Company's SIR program.

A. The Company uses qualified and competitively priced environmental consultants to perform engineering / scientific work to prepare investigation work plans, perform investigations and prepare reports of investigation findings, evaluate remedial alternatives, prepare remedial action plans and specifications, perform treatability and pilot tests, as well as remediation oversight, and prepare remediation reports under the direct supervision of the project manager.

Q. What primary types of subcontractors do environmental consultants typically use during investigations?

A. The Company’s environmental consultants typically use subcontractors to perform physical work such as drilling subcontractors to perform test pits and to install soil borings and groundwater monitoring wells, laboratory subcontractors to perform sample analyses required by agency-approved work plans, and land surveyor subcontractors to document the precise geographic coordinates of test pit, boring, and well locations.

Q. Why doesn’t the Company contract directly with these subcontractors?

A. The Company looks to the environmental consultants for overall management of these subcontractors. It would be

counter-productive and would confuse the line of responsibility between the environmental consultant and subcontractors if the Company were to contract directly with the subcontractors.

Q. What about the option of buying the required drilling equipment and using the Company’s own laboratory for analytical support?

A. There is not sufficient regularly scheduled work to justify the cost of purchasing drilling equipment, including associated regular maintenance and repair costs, and hiring of properly trained and experienced full-time operators. With respect to using an in-house laboratory, although the Company has a state-approved environmental laboratory, it does not meet agency requirements for analytical data validation deliverables. Also, Con Edison’s ACOs and consent decrees with the EPA explicitly require the use of independent contractors acceptable to EPA for such work.

Q. What role do remediation contractors, who perform physical work, play in the Company’s SIR Program?

A. The Company uses qualified and competitively priced remediation contractors to implement the required

remedial construction elements of its agency approved site remedies.

Q. What types of subcontractors do remediation contractors typically use during remediation projects?

A. Remediation contractors typically use engineering subcontractors to prepare detailed design documents (e.g., sheeting and shoring plan) and obtain building permits; environmental/safety consultants to prepare environment, health and safety plans, perform air and personnel monitoring, and obtain wastewater discharge permits; waste transporters and waste management facilities to dispose of wastes generated during the remediation project; and laboratories to perform analyses required by waste management facilities or for other purposes. In addition, remediation contractors use various material and equipment suppliers and installers.

Q. Why doesn’t the Company contract directly with these subcontractors?

A. The Company believes it is more appropriate to place responsibility for these activities on the contractor. This makes the contractor accountable for all aspects of the work, including work performed by subcontractors. For example, if there are any delays in obtaining

materials (e.g., steel for sheeting), delays in obtaining permits (e.g., City sewer discharge permit for wastewater or City Department of Buildings permits), delays in obtaining approvals from waste management facilities, or the presence of off-specification material for waste disposal, the contractor would be responsible.

Q. What about the option of buying the required construction equipment or using Company employees to perform some of the remediation activities?

A. There is not sufficient regularly scheduled work to justify the cost of purchasing specialized construction equipment, including associated regular maintenance and repair costs, and hiring of specially trained and experienced operators. Examples of specialty equipment include large diameter (*e.g.*, 30 inches) drill rigs for installing secant piles, equipment used to install slurry walls, equipment for performing in-situ chemical treatment, and equipment for performing in-situ contaminant stabilization.

Q. Has the Company adopted any procedures for selecting and retaining environmental consultants and remediation contractors?

A. As discussed below in our testimony, the Company has and implements comprehensive procedures and protocols for selecting and retaining outside environmental consultants and remediation contractors.

Q. How many Con Edison employees are directly involved in the Company’s SIR Program on a full-time or a regular basis?

A. The Company currently has 25 employees directly involved in its SIR Program on a full-time or a regular basis. This includes 11 employees in the Company’s EH&S Department (described above), 10 employees in its CM Department, and four employees in the Law Department. The number of CM Department employees involved in the SIR Program may vary depending on SIR Program activity and construction project activity.

Q. Please describe the role of the EH&S employees in the Company’s SIR Program.

A. The Remediation Department of EH&S has overall responsibility within the Company for managing the Company’s SIR Program. This department consists of a Director, two Managers and 8 engineers and/or scientists. Remediation staff persons serve as Project Managers and

Project Engineers for their assigned sites under the SIR Program. Their responsibilities include:

- Directing the consultants on all phases of the project including the development of investigation work plans for DEC and DOH approval;
- Coordinating with the Law Department, Corporate Affairs, and property owners to complete access agreements;
- Coordinating with CM to implement the investigation and remediation work plans;
- Reviewing and approving the consultants' budget, and reviewing and recommending for approval consultants' invoices;
- Coordinating with the DEC, DOH, EPA, consultants, and property owners on the development of proposed remedies;
- Participating in the procurement process to select a remediation contractor for each of their remediation projects;
- Participating in negotiations with property owners on cooperation agreements with respect to remediation responsibilities and cost sharing;

- Participating in public meetings and other meetings with stakeholders in connection with investigation findings, proposed remedies, and other project-related issues;
- Preparing and overseeing project schedules and budgets;
- Preparing quarterly projections of expenditures and estimates of future liability; and
- Providing periodic reports on the status of their projects to Company management.

Q. Please describe the role of the CM employees in the Company's SIR Program.

A. CM employees support EH&S in the implementation of the SIR Program investigation and remediation work. This includes support of fieldwork, review of bid specifications, and management of remediation contracts and contractors.

Q. Please describe the role of the Law Department employees in the Company's SIR Program.

A. The Law Department provides environmental legal support, including: (1) the negotiation and preparation of access and other agreements with the present owners, lessees, and/or developers of the Company's and its corporate

predecessors' former MGP and other sites; (2) the negotiation and preparation of consent orders, consent decrees, PRP group participation agreements, and other agreements for Superfund sites owned by third parties, (3) as applicable, participation in PRP groups and allocation proceedings for third-party Superfund sites, (4) when appropriate, litigation to protect the Company's interests when negotiations are unsuccessful in resolving important issues (*e.g.*, claims against insurance carriers and third parties), and (5) evaluation of legal risks associated with environmental contamination before purchasing new sites or selling existing ones.

Q. Are there other Company employees who support the SIR Program on an intermittent basis?

A. Yes. These include, but are not limited to, employees in Corporate Affairs, Wellness Center, Real Estate, other groups within EH&S, and other organizations as necessary.

Internal Controls

Q. Does the Company have internal controls for managing its SIR Program?

A. Con Edison has a comprehensive system of internal controls in place to see that it performs its SIR projects at the lowest reasonable cost. The following

internal controls are employed by the Company to achieve this objective:

- standardized remediation contractor management protocols;
- established procedures for selecting and retaining environmental consultants and remediation contractors;
- rigorous process for the review and approval of consultant and contractor invoices;
- self-assessments; and
- internal audit process.

Q. Please identify the Company’s remediation contractor management protocols.

A. These protocols include the Company’s Contract Administration Manual (“CAM”), Supplemental Construction Contract Requirements (“Supplemental Requirements”), and the Standard Terms and Conditions for Construction Contracts (“Standard Terms”), which are provided as part of the Company’s workpapers in this proceeding.

Q. Please summarize the purpose of the CAM.

A. The purpose of the CAM is to provide direction for Company personnel in the administration of contracts to promote the efficient use of Company and contractor

resources, as well as compliance with all applicable laws and regulations. It provides detailed guidance for the administration of construction contracts, including remediation-related construction work. The manual describes the Company's procedures for requisitioning and procurement of construction contracts, establishes guidelines for executing changes to labor contracts after the purchase order or contract has been issued, defines the procedures utilized to process payments under construction contracts, and establishes a system for monitoring progress of major projects against a planned schedule. It also sets standards of performance for field activities and provides procedures to be followed in their execution and provides instructions to promote compliance with the Company's requirement that contractors working for Con Edison have fully developed site/task specific Environmental, Health and Safety Plans for their work.

Q. Please summarize the purpose of the Supplemental Construction Contract Requirements.

A. The Supplemental Construction Contract Requirements ("Supplemental Requirements") contain requirements for the contractor's management of construction work,

including remediation-related construction work. The Supplemental Requirements establish requirements for contractor performance regarding documentation, notice to proceed, payment provisions and invoicing procedures, approval of subcontractors, schedule monitoring, working hours, use of proper personal protective equipment ("PPE"), adherence to safety regulations, contractor performance evaluation and identification of hazards encountered at the job site. The Supplemental Requirements identify required submittals and a schedule of submissions for items such as shop and work drawings, operating procedures, substitution of materials, and as-constructed drawings. They supplement Con Edison's Standard Terms and Conditions and govern the contractor's work regarding the use of qualified representatives; work permits; equipment and material delivery, handling, and storage; waste transportation and disposal; and site maintenance.

Q. Please summarize the purpose of the Standard Terms.

A. The Company's Standard Terms are incorporated into its contracts for construction services, including remediation-related construction work. The Standard Terms define the contractual obligations of the

contractor and Con Edison. The obligations and stipulations that are addressed include, but are not limited to Contract Formation; Specifications, Plans, and Drawings; Price and Payment; Time for Completion; Excusable Delay; Safeguards in Work; Work Conditions; Contractor's Performance; Con Edison's Authority; Estimated Quantities; Warranties; Changes; Claims; Codes, Laws and Regulations, and Maintenance of Work.

Q. Are there similar terms and conditions for professional services and service contracts?

A. Yes. The Company has Standard Terms and Conditions for Professional Services Contracts Standard Terms and Conditions for Service Contracts. These documents are being provided as part of the work papers associated with this testimony.

Q. Please describe the process Con Edison uses to select and retain its SIR Program environmental consultants.

A. The Company’s internal procurement process to retain environmental consultants for the SIR Program consists of the following general steps:

- Identification of technically qualified and cost competitive consultants - A technical evaluation is performed as a pre-qualification phase before a

Purchase Requisition is issued or cost proposals are solicited.

- Preparation of Purchase Requisition – This is the formal request to the Company's Supply Chain Department for procurement action. The Purchase Requisition is issued by EH&S and includes the services required, estimated budget, recommended bidders, scope of work and any other related documents.
- The Purchase Requisition must be approved by the appropriate level within the Company before it is sent to Supply Chain.
- Issuance of Request for Quotation - After it receives a Purchase Requisition, Supply Chain assigns a procurement specialist to the project. The procurement specialist works with EH&S to prepare a Request for Quotation ("RFQ") inviting consultants to submit technical proposals and commercial proposals. The RFQ may include a pre-bid meeting and always includes a deadline for submitting proposals. Alternatively, Supply Chain may follow a two-step process by first issuing a Request for Information ("RFI") and then issuing an

RFQ to solicit commercial proposals once the most technically qualified firms are identified by EH&S, or by issuing multiple rounds of RFQs where the first round is to solicit vendor qualifications.

- Pre-Bid Meeting – If necessary, a pre-bid meeting is typically conducted at least one week after the consultants receive the RFQ. This allows the consultants to review the scope of work prior to the meeting and to ask pertinent questions.
- Review of Technical Proposals or Qualifications – An RFQ may require the consultants to submit separate technical and commercial proposals. Technical proposals and qualification packages are forwarded by Supply Chain to EH&S for review. Commercial proposals are retained by Supply Chain for evaluation if the bidding consultants' technical proposals are found to be acceptable. Technical evaluation criteria are normally established by EH&S prior to the issuance of the RFQ or RFI, and the consultants are informed of those criteria. After completion of its technical review, EH&S provides a report with the review results to Supply Chain.

- Review of Commercial Proposals – After receiving the results of the technical or qualifications evaluation from EH&S Supply Chain evaluates the commercial proposals submitted by those consultants with acceptable technical scores or those deemed to be technically qualified. For projects that do not require a technical proposal, the commercial evaluation begins upon the receipt of the commercial proposals. Supply Chain identifies the low bidder (or bidders if multiple contracts are to be awarded), and negotiates pricing with the low bidder(s), if appropriate. A meeting with the consultant(s) may be held to avoid possible misunderstandings regarding the required work scope.
- Contract Award – The consultants that have been found to be technically acceptable or technically qualified and that have submitted the lowest cost proposal based on the commercial evaluation are recommended by the Supply Chain procurement specialist for award of a Purchase Order (“PO”) or a Purchase Agreement (“PA”) to perform the consulting services. The level of approval required depends on the value of the PO or PA.

Q. How does Con Edison select remediation contractors?

A. The selection of contractors is a multi-step process. The first step in Con Edison's remediation contractor procurement process for its SIR Program was the development of a pre-qualified bidders list. The purpose of this list is to streamline the selection process by establishing a short list of contractors pre-qualified to bid on future MGP, as well as other, remediation projects. The list obviates the need to evaluate which firms should be invited to bid on each remediation project.

The procurement process to hire a remediation contractor consists of the following general steps:

- Preparation of Purchase Requisition – This is the formal request to Supply Chain for procurement action. The Purchase Requisition is issued by CM, and it includes the services requested, estimated budget, recommended bidders, detailed specifications and other related documents. The Purchase Requisition must be approved by the appropriate level within Construction before it is sent to Supply Chain.

- Issuance of Request for Quotation - After Supply Chain receives a Purchase Requisition, a procurement specialist is assigned to the project. The procurement specialist works with CM and EH&S to prepare a Request for Quotation ("RFQ") inviting the contractors to submit a technical proposal and a commercial proposal. Depending on the scope of work and other considerations, Supply Chain may request a commercial proposal only, without a technical proposal. The RFQ includes a scheduled field visit to the site and a deadline to submit proposals.
- As indicated earlier in our testimony, technical proposals may be required for large (based on cost and scope of work), complex projects (based on engineering considerations and property constraints), to help bidders understand the scope and complexities of the project. For relatively small, straightforward projects, a technical proposal and associated technical evaluation may not be required. For these sites, Supply Chain will issue an RFQ under which the contractors would submit just a commercial proposal without a technical proposal. A decision concerning whether

to perform a technical evaluation is made by the EH&S Remediation Department in consultation with Construction.

- Field visit – The field visit is typically conducted at least one week after the contractors receive the RFQ. This allows the contractors to review the specifications prior to the field visit and ask pertinent questions.
- Review of technical proposals (when a technical proposal is required) – The RFQ requires the contractors to submit separate technical and commercial proposals. Technical proposals are forwarded by Supply Chain to CM and EH&S for their review. The commercial proposals are retained by Supply Chain for later evaluation if the bidding contractors' technical proposals are found to be acceptable. Technical evaluation criteria are normally established by CM and EH&S prior to the issuance of the RFQ, and the contractors are informed of those criteria.
- Review of commercial proposals – After receiving the results of any technical evaluation from CM and EH&S, Supply Chain evaluates the commercial

proposals submitted by those contractors with acceptable technical scores. For small, straightforward projects that do not require a technical proposal, the commercial evaluation begins upon the receipt of the commercial proposals. Supply Chain works with the Company's Bid-Check Estimating Section to evaluate the pricing information submitted by the contractor with the lowest cost proposal to determine if the proposed labor rates, unit prices, lump sum prices, and other cost items are reasonable and consistent with current market conditions. A meeting with the contractor may be held to avoid misunderstandings regarding the required work scope.

- Contract award – The contractor that submitted a technically acceptable proposal (if a technical evaluation was performed) and the lowest cost proposal based on the commercial evaluation is recommended by the Supply Chain procurement specialist for award of a PO or PA to perform the remediation. The level of approval required depends on the value of the PO or PA.

Q. Does Con Edison have policies and procedures associated with the procurement process?

A. Yes. Some of these policies and procedures are listed below and copies are provided as work papers for this testimony:

- Corporate Instruction 280-4: “Administration of Construction, Service, and Public Improvement/Interference Contracts”. This corporate instruction authorizes publication of the CAM described above.
- Corporate Policy Statement 300-5: “Statement of Procurement Policies and Procedures”.
- Corporate Instruction 320-14: “Acquisition of Materials, Supplies, or Services”.
- Supply Chain Operating Procedure SCOP-301: “Procurement Decisions”.
- Supply Chain Operating Procedure SCOP-302: “Bid Evaluations”.
- Supply Chain Operating Procedure SCOP-303: “Request for Quotations”.
- Supply Chain Operating Procedure SCOP-304: “Bid Negotiations”.

- Supply Chain Operating Procedure SCOP-305: "Authorizing Purchase Orders and Contracts".
- Supply Chain Operating Procedure SCOP-306: "Terms and Conditions for Procurements".
- Supply Chain Operating Procedure SCOP-307: "Contract Management and Renewal".
- Supply Chain Operating Procedure SCOP-308: "Contract and Standard Purchase Order Modifications".
- Supply Chain Operating Procedure SCOP-310: "Procurement Files".
- Supply Chain Operating Procedure SCOP-201: "Supplier Qualification".
- Corporate Environmental, Health and Safety Procedure CEHSP A12.03: "EH&S Qualifications for Supplier Procurement and Oversight".

Q. Please describe the Company's oversight process for the services provided by its SIR Program remediation contractors.

A. The Company utilizes CM personnel to administer and oversee remediation contracts. Remediation projects are procured primarily as fixed price contracts that may have unit prices for certain types of work such as excavation and disposal, backfill, and water treatment. As

described above, CM utilizes established procedures contained in the Company's Contract Administration Manual ("CAM") to monitor work and to execute changes to contracts.

The CAM prescribes the responsibilities of the field personnel responsible for managing contract construction work and provides detailed procedures for documenting the progress of work in the field. Field Inspectors are assigned to projects and, depending on the size and scope of the work, will generally oversee the work of the contractor on a daily basis. The duties of Field Inspectors include, but are not limited to, such items as job set-up review; schedule review and compliance; review of work completed by the contractor; inspection of work, environmental and safety compliance; completion of the Con Edison daily log book; input into the Contractor Oversight System (COS); and project closeout procedures. The Field Inspector will set up and maintain a central filing system to retain pertinent contract correspondence and documents such as:

- Budget and Cost;
- Purchase Orders;
- POCRs/POCAs (Change Orders);

- Specifications;
- Correspondence;
- Schedules;
- Performance Logs;
- Payments;
- Permits;
- Submittals and Approvals;
- Meetings;
- Environmental and Safety Records;
- Project Close Out Documents;
- Materials and Equipment;
- Check Lists;
- Sampling Reports;
- Asbestos Notifications;
- Air Monitoring;
- Licenses and Training;
- Disposal Sites; and
- Manifests.

The Company’s Field Inspectors are responsible for the implementation of changes to the base contract and are thoroughly familiar with the reason for the change, its scope and effect on the schedule. In the case of design

changes, sufficient liaison with the EH&S project manager is required to make sure the change is implemented in a timely fashion so as to minimize its effect on the overall job. For all changes, the Field Inspector (also known as the Construction Inspector or “CI”) prepares a Finding of Fact that provides a description of the change, the reason for the change, a range figure estimate of material, equipment and labor costs, and details the change’s effect on the project schedule. Findings of Fact are reviewed and approved by the CI’s supervisor and at higher levels of management depending on the individual and cumulative dollar value of the estimated cost of the change. The EH&S project manager for the remediation project also must concur with the Findings of Fact before they are approved. After the Findings of Fact are approved at the appropriate management level, a change order request is issued to the contractor to provide a price for the work. If the change order is estimated to be more than $25,000.00, Con Edison’s Bid Check Estimating group will also provide an independent price for the work performed. Once a price agreement is reached, a contract modification is processed based once again on the designated management

approval level, which is dependent on the individual and cumulative dollar value of the change. If agreement cannot be reached on a fixed price or unit price, then Con Edison may authorize the contractor to proceed to implement the change on a time and materials basis in accordance with the aforementioned contract management documents until an agreement is reached or in lieu of an agreement on a fixed or unit price.

Q. What is the Company's process for the review and payment of SIR Program environmental consultant invoices?

A. Con Edison's EH&S Department manages contracts with environmental consultants. The following steps are generally followed by EH&S project managers in their review of invoices submitted by the consultants:

- Utilize an online centralized accounting system that tracks all unit rates specified in the PO for labor, material charges, and other line items. This feature of the system eliminates the potential for consultants to charge rates that are not specified in the PO and eliminates potential contractor calculation errors that could occur with paper invoices.

- Reconcile the number of units for each line item/work activity claimed to have been used/performed with the number of units actually used/performed. This is done through discussions, a review of field notes and other supporting documentation. Under the accounting system, consultants submit electronic invoices on the system in lieu of submitting paper invoices. Before a consultant submits an invoice electronically, the consultant provides the EH&S project manager with the quantity of each PO line item that it plans to invoice and the information that supports the planned invoice, such as time sheets or subcontractor invoices. The project manager then is required to review the supporting information to verify that it is consistent with the information specified in the purchase requisition used by Con Edison to request the consultant’s services. Purchase requisitions specify the requested services by PO line item and identify the appropriate project and task numbers (previously known as account numbers or work order numbers) that will be charged.

- Once the project manager is satisfied that the charges proposed for invoicing by the consultant are substantiated (for invoices up to $3,000), the project manager will enter the approved quantity for each line item in the system as having been received. For invoices exceeding $3,000, the project manager will submit proposed invoices and supporting information to the Section Manager for approval before entering approved quantities for each line item in the system. The system will automatically reject payment requests for line item amounts exceeding those authorized in a purchase requisition.

Q. What is the Company's process for the review and payment of SIR Program contractor invoices?

A. CM is responsible for the review and approval of SIR Program remediation contractors invoices. CM uses the following Con Edison documents to format, reconcile and process payment applications from such contractors: (1) CAM; (2) Supplemental Requirements, and (3) Standard Terms. The purposes of these documents are explained earlier in our testimony.

Remediation contractors are required to submit Performance Statements that correlate with their project schedule. Performance Statements are tabulated summaries of the contractor's work and mirror the contractor's price schedule. Lump sum, unit price and change order items are listed on the Performance Statement and include information on the description of work, the quantity of work, the unit price of work if applicable, and the total value of work. The Performance Statements indicate the value of work completed to date, the value of work requested for the current payment application and the total value of work remaining. CM receives performance statements from the contractor that includes back-up information such as weight tickets, survey measurements and as-built drawings that are used to substantiate the accuracy of the invoice. If the invoice is not approvable in its entirety, the contractor is required to revise it as appropriate or approval of partial payment is recommended. Once the CM section that manages the remediation contractor determines that the performance statement is acceptable, that section signs the performance statement and sends it to the contractor and to CM's Administrative Services Group. The contractor

then submits the signed performance statement along with its invoice to CM's Administrative Services Group, which compares the signed performance statement provided by the CM section that manages the contractor and the invoice submitted by the contractor. CM's Administrative Services Group reconciles the contractor's invoice with the performance statement before processing the invoice for payment.

Once an invoice is approved, it is receipted on the Company's centralized online accounting system for subsequent payment.

Q. Does Con Edison prepare and review financial reports for SIR sites?

A. Yes. Con Edison's Accounting Department works with the EH&S Remediation group, and prepares and distributes reports on a monthly basis indicating site-specific and program-specific expenditures.

Q. Are these monthly reports reviewed to identify any expenditure that may have been erroneously charged to a particular site?

A. Yes. Accounting Department staff and EH&S Remediation staff review listed expenditures. If any expenditures are identified that appear to have been charged to a SIR

site account erroneously, Accounting and EH&S investigate and, if appropriate, have the charge transferred to appropriate project and task numbers.

Q. Has Con Edison conducted internal audits of its SIR Program projects?

A. Audits of SIR projects have been conducted by Con Edison's Auditing Department, Quality Assurance team, and an external consultant. The audit process reviews have included, among other things, whether:

- The project was competitively bid and awarded to the lowest bidder among the technically acceptable contractors;
- The engineering package was accurate and complete;
- EH&S regulations and contractor health and safety plans were complied with;
- Construction Management properly managed, monitored, and documented the project, and any changes in the project scope were properly justified;
- Project payments were accurate and timely, and any increases in pricing were properly justified and reviewed for accuracy;
- Construction Management effectively monitored contractor work and completed the appropriate

oversight inspections and the required associated documentation.

During 2016, there was one Audit conducted for the SIR Program. This Audit assessed whether remediation crews were working in accordance with Con Edison policies and procedures, the contractor's Health and Safety Plan, and applicable EH&S regulations.

COMPLIANCE WITH RATE CASE FILING REQUIREMENTS

Q. Are you familiar with the Commission's rate case filing requirements with respect to SIR costs?

A. Yes, we are. In its Order of November 28, 2012, in Case 11-M-0034 ("Order"), the Commission adopted several rate case filing requirements with respect to SIR costs in order to enhance its oversight of these costs.

Q. Please state what these filing requirements are.

A. The Commission's order states that in any future rate filing in which a utility seeks to recover SIR expenses, it must provide sworn testimony: (1) establishing that the remediation process is in compliance with existing timetables and DEC requirements, or providing explanations for any divergence; (2) discussing the utility's cost control efforts, including an attestation

to utility compliance with the best practices inventory; and (3) indicating the results of any internal process the utility may have conducted with respect to review of SIR procedures, and in particular explaining how internal controls are brought to bear on site investigation and remediation projects.

Q. Please discuss the Company’s compliance with these requirements.

A. For a discussion of the Company’s compliance with existing timetables and DEC requirements for remediation programs, see SIR Program section of our testimony. Pursuant to the Commission’s Order, the utilities have established an inventory of best practices, which has been accepted by the Department of Public Service staff. By this testimony, we are attesting that Con Edison complies with the best practices inventory. We discuss in detail above the Company’s SIR cost control efforts and practices in the section of our testimony entitled “SIR Cost Saving Efforts and Practices.” Finally, we discuss above the Company’s internal controls and how those controls are brought to bear on site investigation and remediation projects.

SAFETY-RELATED CAPITAL PROGRAMS

Q. Are there any capital programs the Panel will be sponsoring?

A. Yes, the Panel will address the following programs:

- Soft Tissue Injury Prevention Program; and
- Subject Matter Expert Body Camera Initiative.

Q. Was the document entitled “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. 2020-2022 EH&S CAPITAL SAFETY PROGRAMS/PROJECTS,” prepared under the EH&S panel’s direction and supervision?

A. Yes, it was. This is the document which has been identified as Exhibit ___ (EHS-8).

Q. Please describe this exhibit.

A. This exhibit includes the “white papers” associated with the three-year capital expenditures. The white papers contain the description of work, justification, alternatives, milestones, benefits and funding requirements for each capital program and project.

Soft Tissue Injury Prevention Program

Q. Please explain the need for the proposed Soft Tissue Injury Prevention Program (“STIPP”).

A. Over the past several years, a number of Con Edison employees have experienced soft tissue injuries (*i.e.*, ergonomics-related injuries) in the course of performing

their work. These injuries are often caused by improper postures while conducting work related activities. Con Edison workers perform lifting and other physically challenging activities on a daily basis that can put them at risk for these injuries. The stresses on the body result from both the amount of weight lifted as well as the manner in which lifting is performed, including twisting unusually shaped and sized objects, and working for extended periods in awkward positions. These injuries can result in both physical and mental stress on workers, leading to not only lost days of work, but also negative impacts on productivity and job satisfaction. The table below shows the total number of OSHA recordable injuries and soft tissue injuries over the past four years.

Year	Total OSHA Recordable Injuries & Illnesses	Soft Tissue Injuries
2015	187	32
2016	161	31
2017	161	34
2018	182	38
4-Year Total	691	135

Q. What is the average annual cost of soft tissue injuries at Con Edison?

A. Con Edison's workers compensation medical costs for soft tissue injuries averaged $2.74 million annually from 2012 to 2016. In addition to the workers compensation medical costs, there are other costs to the Company, including worker replacement, investigation time, and administration time.

Q. Are soft tissue injuries preventable?

A. Yes. Soft tissue injuries are preventable with proper ergonomic training and by providing individualized feedback to employees. The Company piloted a "Kinetic REFLEX" device, which helps employees identify high-risk body postures. This wearable device measures the biomechanics and lifting, pushing, and pulling posture of employees, and provides them with real-time feedback when their posture is deteriorating. This encourages posture awareness and self-correction.

Q. Please describe the Company's planned STIPP initiative.

A. Introduction of Kinetic technology could assist in reducing soft tissue injuries throughout the Company by properly identifying high-risk postures. The wearable sensors increase self-awareness by delivering feedback

upon detection of a repetitive at-risk body position. The collected data will be analyzed and feedback provided to improve the individuals' overall health. Additionally, we will use the data in task-based ergonomic training programs and in identifying opportunities for the adoption of engineering controls.

Q. What is the anticipated timeframe for this program?

A. The Company deployed 26 Kinetic REFLEX devices as a pilot program during the period November 2016 to February 2018. The Company selected three work groups for the pilot program based on their materials handling and engagement in other physically challenging activities. The preliminary data show a reduction in high-risk postures in these groups in the range of 31% to 77%. The Company is planning to deploy 500 Kinetic REFLEX devices in RY1 to organizations that have experienced soft tissue injuries or that perform repetitive/predictable physically challenging tasks.

Q. Does the program include training?

A. Yes, another component of the STIPP project is improving the training provided to employees that are involved in lifting and other physically challenging activities with high-risk for soft tissue injuries in their day-to-day

work. After deployment of STIPP REFLEX devices, supervisors will be able to review individual worker risk profiles and aggregate metrics about their workforce. This data will provide supervisors with actionable insights on how to reduce these risks. In addition, the Company will use the Kinetic REFLEX devices to collect and analyze the data on high-risk physically challenging tasks.

Q: Does the Company belong to any industry organizations related to soft tissue injury prevention?

A: Yes. In this effort to reduce soft tissue injuries, the Company networked with Electric Power Research Institute ("EPRI"), a collaborative group of electric utilities, of which Con Edison is a member. EPRI members help each other improve their ergonomics programs by benchmarking and sharing proven, best practice approaches. For this program, the Company used resources developed as a result of EPRI research on soft tissue injury prevention.

Q: Are there any other significant components to the STIPP program?

A: Yes, the remaining components of this STIPP program include:

1. Development of employee and task-specific feedback and ergonomics training by a professional ergonomists which will be delivered to high-risk employees by supervisors.
2. Analysis of data and the setting of priorities on an on-going basis to realign the deployment of the Kinetic REFLEX devices to high-risk work groups. Data analysis will be used to modify high-risk tasks using engineering controls to eliminate or reduce excessive ergonomics stressors on employees.

Q. What are the estimated costs of the STIPP?

A. The total capital cost for this program is $900,000 in RY1, $300,000 in RY2, and $300,000 in RY3. For additional information on this program and request, please see the white paper contained in Exhibit ___ (EHS-8).

Subject Matter Expert Body Camera Initiative

Q. Please explain the need for the proposed Subject Matter Expert (“SME”) Body Camera Initiative.

A. Over the past several years, there have continued to be high hazard injuries. These high hazard injuries are often life altering for the individual or individuals involved in the event. These injuries include arc flash

burns, gas ignition burns, fractures and other serious injuries. In many cases these individuals are not able to return to work or can no longer perform the tasks and duties that they were trained to perform. Con Edison has implemented a number of safety programs to address these injuries. While Con Edison has seen a substantial reduction in OSHA recordable injuries and illnesses, our employees are still experiencing high hazard injuries that can have life changing consequences. Over the past five years, the Company has averaged two high hazard injuries annually. Con Edison is initiating this program to help reach the Company's goal of reducing the Company's high hazard injuries to zero.

The Company is planning to pilot, and after review of the results of the pilot, implement the use of hardware (body cameras) and software to reduce the risk involved in performing certain high energy tasks as described below.

Q. Please describe the Company's planned SME Body Camera Pilot Initiative.

A. The initiative will have employees wear body cameras on typical and emergency overhead work that involves live work on 120/240 secondary, 4 Kv primary, 13 Kv primary, 27 Kv primary cable and equipment.

Q. What is the anticipated timeframe for this program?

A. This pilot program will begin in the first quarter of 2020 as Phase 0. Upon completion of the Phase 0 evaluation, if the Company determines that the initiative is viable, it would continue the program through December 2022. The Phase 0 segment requires partnering with a firm that has developed and deployed body camera hardware and software, developing a use case for specific software attributes, making recommendations as to hardware and carrier vendors, developing a cost benefit analysis, and preparing bidding documentation.

Q. Does the Company’s program include training?

A. Yes, training in the use of the body camera hardware and software will be part of the program. Another component of the SME Body Camera Initiative will be the ability to observe crews doing specific tasks in real time to enhance adherence to procedures and specifications. Supervisors will be able to view noncompliance in real time, which will allow for targeted training. In addition, observation of risky behaviors can be targeted with human performance improvement tools and precursor training around:

1. Vulnerability to high energy

2. Poor work planning

3. Productivity safety stressors

4. Outside safety influences

In addition since real time recording of actions will be captured in the “cloud,” we will be able to use these events for lessons learned and teachable moments.

Q. Are there other significant components to the SME Body Camera Pilot initiative?

A. Yes, the remaining components of this program include using the body cameras to allow:

1. OSHA-required on site Job Briefings to be observed by a third party;

2. Operating orders to be verified through the human performance improvement tool known as “3 way communication.” In 3 way communication, to verify the person receiving the message understands the message, the sender states the message, the receiver acknowledges the sender and repeats the message in a paraphrased form, and the sender acknowledges the receiver’s reply;

3. Review of use of protective and test equipment in real time;

4. Development of a portfolio of coaching modules and lessons learned through events captured on the body cameras.

Q. What are the estimated costs of the program?

A. The total capital cost for this program is $1.0 million in RY1, $1.0 million in RY2, and $1.0 million in RY3. For additional information on this program and request, please see the white paper contained in Exhibit ___ (EHS-8).

Q. Does this conclude your testimony?

A. Yes it does.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

INFORMATION TECHNOLOGY PANEL

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INTRODUCTION

Q. Would the member of the Information Technology ("IT") Panel ("Panel") please state your name and business address?

A. Our names are Manuel Cancel, Allisyn Glasser, Mikhail Falkovich, Aseem Kapur, and Frank LaRocca, and our business address is 4 Irving Place, New York, NY 10003.

Q. By whom are the panel members employed?

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

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

A. **(Cancel)** I hold a Master's degree in Business Administration from Cornell University and a Bachelor's degree in Management Information Systems from Baruch College. I have been employed by Con Edison since 1981, holding positions of increasing responsibility in Engineering, Customer Service, IT, and Internal Audit. In June 2013, I was promoted to my current position, Vice President of IT. As Vice President of IT, I am responsible for corporate IT initiatives, including application development, network and data center operations, and cybersecurity. There are approximately 550 employees in IT.

(Falkovich) I hold a Bachelor of Science and Master of Engineering degrees from Cornell University. I have been

employed in the electric utility industry for the last 18 years, holding positions of increasing responsibility in IT, Engineering, Legal, and Information Security. I was hired by Con Edison as Director of Information Security in May 2016. I am responsible for the Company's cybersecurity initiatives, including threat and risk management, and cybersecurity compliance.

(Glasser) I hold a Bachelor of Science degree in Management Information Systems in 1998 from the University of Connecticut and a Master of Business Administration degree in Project Management from DeVry University in 2007. I have been employed by Con Edison since 1998, holding positions of increasing responsibility in Finance, Treasury, Shared Service Administration, Orange and Rockland Utilities, Inc. ("O&R") Operations, and IT. I was promoted to my current position, Director of IT Planning, in January 2014. As Director of IT Planning, I am responsible for the design, planning, implementation, and operations of the Company's networks, communications, and data center operations.

(Kapur) I received a Bachelor of Science Degree in Mechanical Engineering from Rutgers, The State University of New Jersey. In June 2003, I joined Con Edison as a management intern, holding positions of increasing responsibility in Distribution Engineering, Smart Grid Implementation Group, and Manhattan

Electric Operations before my current position of Director, Information Technology. I am responsible for development and delivery of software applications used to design, construct, and operate the electric distribution grid at Con Edison and O&R. The Business System Delivery team facilitates change of business practices and processes by using cutting edge technologies, information, and applications software.

(LaRocca) I hold a Bachelor's degree in Computer Science from St. John's University. Prior to working at Con Edison, I held the position of Chief Information Officer ("CIO") at Keyspan Energy from 1987 to 2008. I have been employed by Con Edison since 2008 and was previously responsible for developing and implementing the enterprise-wide capital optimization and governance process and established the Enterprise Project Management Office. I was promoted to Director, Office of the CIO in November 2016. I am responsible for IT Strategy, IT Governance, IT Project Management Office, Analytics, Architecture, IT Budget, and Temporary Staffing.

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

A. Manuel Cancel submitted testimony in Case 16-E-0060 and 16-G-0061. Allisyn Glasser submitted testimony in Cases 14-E-0493 and 14-G-0494. Aseem Kapur submitted testimony in Case 18-E-

0067. The other Panel members have not previously submitted testimony or testified before the Commission.

PURPOSE OF TESTIMONY

Q. Please explain the purpose of this testimony.

A. The Company's IT organization, working with all corporate organizations, directs the Company in managing and meeting its growing technology needs. The Company implements technology-based solutions to meet our key corporate initiatives – operational excellence, safety and an enhanced customer experience - and has grown as technology continues to advance. IT directs and supports all Company organizations by designing, developing, and implementing technology initiatives and strategies.

This testimony discusses:

- the Company's overall IT philosophy, including its strategy, guiding principles, and IT projects and planning, including major technology initiatives
- the planned IT-related capital investments and IT Operating and Maintenance ("O&M") expenses, including the general equipment categories associated with computer hardware and telecommunications
- IT's Business Cost Optimization ("BCO") initiatives.

Q. Please discuss how technology is changing.

A. Technology is advancing at a rapid pace. It is changing the way businesses operate; for example, mobile technology, cloud, and automation provide solutions that were not available several years ago. Technology trends continue to move quickly and our role is to stay abreast of the trends and enable the Company to take advantage of these technologies as appropriate.

Q. Please explain.

A. The Company, in general, and IT, specifically, is looking to transform the way we do business. We will also continue our investments to support our core business, improve the services we provide to customers, maintain cyber security and reduce costs. We have been and are making investments in several major technology initiatives that will transform the way we do business. For example, we are almost half-way through installation of our Advanced Metering Infrastructure ("AMI"). In this technology-focused age, the Company has additional plans for foundational investments such as Geographic Information System ("GIS"), new Customer Service System ("CSS"), and emerging technology trends, like the cloud and automation required to support safety processes, enable operational excellence, and improve the customer experience.

Q. What is the amount of funding for IT projects that the Company is including this filing?

A. The Company has included nearly $1 billion ($989 million) in requested capital and Operating and Maintenance ("O&M") expenditures for IT-related projects over the three-year period, 2020-2022, excluding AMI. As shown in more detail below, these programs and projects are described in this Panel's testimony and the testimony of other panels in this filing.

Q. Please provide an overall list of the IT-related programs and projects described by this Panel and by other panels.

A. The projects and programs described in this testimony are primarily for IT's needs and many also serve as foundational items for systems implemented Company-wide. This panel sponsors projects under the following categories:

- Cybersecurity
- Technology Enablers
- Systems/ Applications
- Infrastructure.

Some of the major projects and programs sponsored by other panels include:

- Customer Service System ("CSS") as discussed by the Customer Energy Solutions Panel
- Work and Asset Management as discussed by Electric Infrastructure and Operations Panel ("EIOP"), Gas Infrastructure, Operations and Supply Panel ("GIOSP"),

except that the mobility platform for these programs is discussed by this panel in the Technology Enablers category

- Outage Management System ("OMS") as discussed by EIOP
- Geographical Information System ("GIS") as primarily discussed by EIOP and supported by the GIOSP
- Grid Innovation as discussed by EIOP.

Q. Why are some IT-related projects and programs described by other panels?

A. IT works with the business organizations to design, develop, and implement systems that underpin the operations of the using organization. Each organization requests the programs necessary for its operations. These include larger projects ("major technology initiatives") which have a significant cost. Major technology initiatives require joint partnerships between IT and the using organization and, as described later, generally require studies in advance of any actions.

Q. What benefits does the Company expect from these major technology initiatives?

A. The Company expects that these investments will provide many benefits, including to streamline and consolidate our systems, enable new functionalities needed to advance State policy objectives, advance cybersecurity, and reduce obsolescence risk.

Q. How are the overall IT needs of the Company addressed?

A. IT assigns employees to work with operating and/or support organizations to assist with those organizations' technology needs. IT staff and the business area organizations work together to determine the needs and develop proposed solutions for those needs. For example, the EIOP testimony describes several IT projects aimed at improving outage and storm response, distribution automation, GIS, and work management improvements. Similarly, the GIOSP testimony explains its technology plan to improve the Company's work and asset management processes.

Q. Please discuss IT's role in these major technology initiatives.

A. IT, working with all corporate organizations and senior management, contributes to the staging of technology initiatives. Due to the overall size of requested IT-related projects and programs in recent years, including in this filing, IT has applied a holistic approach to understand and support these investments.

Q. Please provide an overview of the Company's funding requests sponsored by this Panel.

Q. This testimony and accompanying exhibits describe IT's proposed capital projects ($187.5 million over 2020-2022) and

O&M program changes ($42.7 million incremental over 2020-2022).

The three rate years 2020-22 are the 12-month period ending December 31, 2020 (“Rate Year” or “RY1”) and, if there is a three-year rate plan, the twelve-month periods ending December 31, 2021 (“RY2”) and December 31, 2022 (“RY3”).

Q. Please describe the forecasted capital request for each rate year and its main drivers.

A. The 2020 capital request is $69.3 million, a $35.2 million increase from 2019. The main drivers for this increase are our analytics program, which analyzes data to improve operations ($7.5 million), major application upgrades, such as Oracle EBS ($7.6 million), and mobility programs that assist employees by allowing mobile devices to access business systems ($16.8 million). The 2021 capital request is $58.3 million and the 2022 capital request is $59.9 million.

Q. Please describe the O&M request and the main drivers for the O&M request.

A. For O&M, we are forecasting program changes for $35 million in incremental expenditures in RY1, $3 million in RY2, and $4.7 million in RY3. The main drivers for the increase are the continued expansion of our cybersecurity efforts and Oracle Software licensing, both of which are explained later. There are additional O&M incremental costs related to various

enabling technologies, such as mobility, analytics, robotics process automation, and the mainframe upgrade.

IT OVERVIEW

Q. Please describe the relationship of IT's efforts to the Company as a whole.

A. IT provides the Company with reliable, secure and innovative technology to meet the needs of its customers and employees in an ever-changing and increasingly complex environment. IT works to:

- Develop, implement, and maintain cybersecurity programs, awareness, and operations
- Develop and implement IT strategy and governance
- Design, develop, implement, and maintain reliable and available business systems
- Design, implement, and operate IT infrastructure, networks, and communications platforms
- Enable customers and employees to continuously improve, using various technologies as they continue to advance, including analytics, cloud technologies, mobility, and robotics process automation.

Q. How does IT support the Company goals?

A. IT works closely with the Company's various strategic planning groups, operating, and supporting organizations to develop the Company's IT plans. IT forecasts and plans future technology

needs, developing standards and product development life cycles (*e.g.*, roadmaps) for technologies that show, among other items, dates for planned upgrades or when support will no longer be available. IT also establishes processes so that the Company may maintain current technology and obtain solutions to future needs. IT also looks to continuously advance and improve the Company's technology cabapilities by understanding available technology.

GUIDING PRINCIPLES

Q. What are the IT organization's Guiding Principles to prioritize and align the Company's portfolio with the IT strategy and plan for projects in the upcoming period?

A. IT's Guiding Principles direct Company-wide IT investment decisions. They are:

1. **Achieve business value**: Strategically align IT work with business objectives and priorities by partnering with our internal customers and define clear project plans for technology needs.

2. **Promote "One Enterprise":** Implementing enterprise-wide systems and platforms requires that the Company implement several initiatives, including

- Standardizing common platforms/solutions to reduce costs and streamlining business processes by using Company-wide application platforms

- Reducing and segmenting the application portfolio and matching support levels to system needs
- Focusing talent on the highest value work, such as technology enablers, and using vendors for standard work
- Developing strategic partnerships with vendors to standardize technology platforms and effectively manage costs and support.

3. **Excel at the basics**: Modernize core IT systems and infrastructure to improve security, availability, reliability, cost efficiency, and ability to respond to new needs by further adopting cloud architecture, consolidating datacenters to optimize on-premise footprint, and optimizing computer and telecommunications equipment inventory.

4. **Enable speed and flexibility**: Given evolving external customer expectations, rapidly changing requirements in the utility industry, including the Reforming the Energy Vision (“REV”) proceeding, and available technology, IT will use software development methodologies that promote simpler design and more frequent product delivery.

5. **Foster and promote innovation**: Leverage rapidly maturing, best-practice capabilities to support future growth and efficiency. IT’s objective is to innovate and modernize our utility/business operations using Technology Enablers, discussed later.

Q. Please explain IT's plan for projects and programs.

A. IT has an overall plan relating to the projects and programs over the next five years, which has guided IT and the Company through recent major technology initiatives. This plan considers corporate-wide projects as well as IT's strategy of investment in four key areas – Cybersecurity, Technology Enablers, Systems/Applications, and Infrastructure, to address the Company's growing technology needs. We further discuss IT's projects and planning process in the next section of this testimony.

Q. Please explain IT's Cybersecurity strategy.

A. The Company works to mitigate the growing cybersecurity threat and assure the confidentiality, integrity, and availability of our systems and data through implementation of a robust set of processes and internal controls. To accomplish this, we continue to focus on deploying new technology to mitigate new and evolving threats, growing the capabilities and functions of the cybersecurity team, and implementing new procedures and policies to embed security throughout Company processes and systems.

Q. Please discuss the Technology Enablers, often referred to as "Digital Transformation," portion of the IT Strategy.

A. The Company is investing in technology enablers, which are technologies that provide the ability to improve existing

business processes and provide technical enhancements that increase software and hardware capabilities. These technologies include Cloud, Robotics, Analytics, and Mobile Platforms. When we implement these programs, we are also standardizing these new technologies to avoid technology redundancies, reduce costs, embed cybersecurity, and enable quicker delivery of the technologies mentioned above.

Q. Please discuss the third component of IT strategy, Systems/Applications.

A. Our Systems/Applications strategy continues to move our portfolio from over 500 discrete and sometimes redundant departmental systems to more fully functional enterprise capabilities. By applying the guiding principles, we will focus employee resources on opportunities that deliver the most value while using more agile development methods and enabling technologies. We are leveraging enterprise agreements to deliver new or enhanced capabilities on most major projects and will have the opportunity to access supplemental and specialized resources through strategic partnership with sourcing vendors (managed service providers). In addition, we are allocating our application support resources by service tiers defined by the impact that each application has on Company strategic priorities of safety, operational excellence, and customer experience.

Q. Please discuss the last component, Infrastructure.

A. We continue to modernize and consolidate our data centers, modernize and expand our networks, continuously enhance our security practices, and leverage cloud technologies to increase reliability, resiliency, scalability, and speed to market while reducing the total cost of ownership.

Q. IT's Guiding Principles and Strategy both identify the need to standardize and consolidate. Is that accomplished through master agreements with key vendors?

A. Yes. Part of this process of standardizing and consolidating is working with key partners, such as Oracle and IBM, to implement overall platforms and systems. We accomplish this by establishing strategic partnerships with vendors that include entering into overall master agreements with certain vendors, which allow us to use their products, influence product roadmaps, receive improved pricing, and gain other benefits.

Q. Has the Company entered into these types of agreements?

A. Yes, most recently with Oracle. The Oracle Strategic Partnership ("OSP") enhances operational efficiency and improves customer experience through technology innovation. The OSP also aligns with Con Edison's BCO initiative discussed later. The OSP includes unlimited use of on-premise software as well as the migration to cloud solutions for certain

software products, including E-Business Suite, Primavera P6, and Human Capital Management. Cloud migration allows us to reduce capital investments in infrastructure components.

Q. Has the Company entered into other enterprise agreements?

A. Yes. In 2018, the Company entered into enterprise agreements with IBM for its Maximo work management product and with CGI, formally Logica, for its Asset and Resource Management ("ARM") product. Both work management products are currently used across the Company and we are expanding deployment of these products. We are replacing other legacy systems and manual processes with these applications to support platform consolidation and process standardization. The consolidation around these work management platforms will create synergies for common training, resource sharing, centralized support, and scheduling.

IT PROJECTS AND PLANNING

Q. Has IT's projects and planning process included the implementation of major technology initiatives?

A. Yes. We have several major technology initiatives that have been completed in recent years, as well as several underway, all of which have furthered our goals of transforming and improving how the Company operates.

Q. Please discuss recently completed major technology initiatives.

A. Over the past decade, as part of the prior five-year projects and planning process, the Company has implemented several major technology initiatives, including a Human Resource and Payroll System, a Finance and Supply Chain platform, and a work management platform in Electric Operations.

Q. Does the Company have any major technology initiatives underway?

A. Yes. The Company is currently implementing several major initiatives, including:

- AMI
- Digital Customer Experience ("DCX")
- Distribution System Platform ("DSP")

Q. In addition to these major technology initiatives, is IT implementing any transformational enterprise-level technology enablers?

A. Yes. IT has four technology enabler projects underway – data analytics, cloud computing, mobility, and robotics process automation.

Q. How does the Company prioritize key major technology initiatives and enablers?

A. Initiatives and IT enablers are prioritized through the corporate capital optimization process as described by the Shared Services and Accounting Panels. In addition, IT considers the guiding principles and emerging technology

trends in determining what projects to undertake in what order as it works with business areas to understand business needs and determine what technology can best meet their objectives. Senior management also guides and governs the process. As a result, the Company performs a strategic planning process to develop a technology plan and evaluate whether to undertake projects considering, among other items, value to customers, risk mitigation, cost benefit and rate impact, and resources required to complete the projects.

Q. Once the need for a major technology initiative is identified, what is the Company's process for developing such a system?

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

Q. What is an implementation study?

A. An implementation study is a combination of high-level requirements, impact on existing technology, project feasibility, and planning steps and is a pre-requisite for the implementation of major technology initiatives. Con Edison has completed implementation studies prior to implementing major corporate systems.

Q. Why does the Company perform an implementation study?

A. The Company uses the implementation study to determine the scope of the project, which then becomes the basis for the work plan, labor, hardware/software needs, vendor partnerships, and any other components.

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

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

- summary of business requirements, including which functions need to be developed and implemented
- detailed project schedule with
  - implementation options,
  - necessary resources, and
  - an initial cost estimate
- infrastructure and capacity plan
- comprehensive data conversion plan
- complete testing plan
- rollout plan and
- change management plans.

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

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

Q. Is this Panel proposing projects and programs with capital and or O&M expenditures over the next three years?

A. Yes.

Q. Please explain how the projects/programs are organized.

A. We have established four categories for the project/programs that have both capital and O&M expenditures. They are Cybersecurity, Technology Enablers, Systems/Applications, and Infrastructure.

CYBERSECURITY

Q. Please describe the Company's cybersecurity initiative.

A. Cybersecurity is the process of maintaining the confidentiality, integrity, and availability of computing resources against attacks from hackers and malicious software. Protecting our systems is important because there are risks to both our critical infrastructure and customer information, including personally identifiable information ("PII"). A successful cyber-attack could, for example, have safety and/or reliability consequences for our customers, our employees, and the public. Over the past few years, the risk of a cybersecurity incident has increased dramatically, as can be

seen by multiple organizations experiencing impacts to their operations and losing confidential customer information.

Q. Does the Company have a cybersecurity program?

A. Yes. The Company has implemented a strategy that combines defense-in-depth (multiple security layers) with defense-in-breadth (multiple tools at these layers) concepts. As new risks are identified, and the capabilities of adversaries increase, the Company reassesses current security controls, implements new processes and capabilities, and invests in new technologies to maintain a secure posture and stay ahead of malicious actors. Cyber-attack risks include operating failures of control systems, damage to transmission and distribution assets, the loss of sensitive data, and employee and public safety.

Q. Does the Company work with others regarding cybersecurity?

A. The Company participates in industry-wide initiatives with Edison Electric Institute (“EEI”), American Gas Association (“AGA”), North American Electric Reliability Council (“NERC”), and other regional and governmental partners to improve cybersecurity capabilities for the electric sector. We also design, facilitate, and participate in drills with our industry and government partners.

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

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

- o The Company's ongoing reviews of its cybersecurity program with Department of Public Service Staff
- o The Commission's recommendations, in Case 13-M-0178, for utilities to handle, protect, and dispose of customer PII
- o Revisions, and additions to NERC's Critical Infrastructure Protection standards, which contain federally enforceable cybersecurity rules for the bulk electric system
- o National Institute of Standards and Technology ("NIST") Cybersecurity framework, which contains a voluntary framework for cybersecurity standards, and
- o Potential legislation at both the federal and state level regarding cybersecurity and privacy, including data breaches.

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

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

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

A. Prevention is aimed at avoiding any attacks on our system. Education provides employees with information on their role in preventing cyber intrusions, awareness of cybersecurity threats, and proper cyber hygiene protocols.

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

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

- Mandates that any new technology implementation is passed through an architectural and cybersecurity review. Thus, systems are assessed against current standards and risks mitigated prior to installation
- Performs risk assessments on external parties or vendors who receive sensitive information to assess whether appropriate security controls are in place to mitigate the risk of sensitive and confidential data loss
- Protects the perimeter and internal IT assets with the latest firewall and intrusion prevention technology
- Deploys technologies on the internal network to either detect or prevent malicious traffic and data loss and mitigate insider threat risk
- Performs proactive vulnerability scanning using the latest tools to identify risks and exposures, and

mitigate risks through aggressive patching and configuration policies

- Engages external security experts to perform periodic penetration tests on the Company's systems

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

A. The Company uses several methods to do this. First, Con Edison has established a "CyberAware" brand and regularly publishes advisories and best practice information to employees. We provide advisories to employees when there are potential threats that employees can assist in detecting or the threat may affect the Company or personal equipment. Second, the Company tests employees monthly with phishing emails to raise awareness and mitigate the risks of phishing attacks. Phishing test results are shared with Company executives, so employees understand the risk of clicking on inappropriate links. Third, the Company regularly trains and drills employees on cybersecurity topics either through mandated training, such as the newly designed cybersecurity training for control center personnel, Standards of Business Conduct training, and regular drills both on the departmental level, and Company-wide.

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

A. The Company operates a 24x7 Cybersecurity Operations Center ("CSOC"), which monitors our entire computing network to detect threats, anomalies, and vulnerabilities. Once detected, the CSOC evaluates any alerts of a threat or issue, and, if necessary, notifies the appropriate personnel and takes remediation and incident response actions. The CSOC also receives any unclassified alerts related to information-sharing from government agencies and other external partners. Once this information is received, the CSOC reviews the information contained in the alerts and checks to determine if any indicators of compromise are seen on our system. We also work with external entities that provide the Company with information on potential threats on a real-time basis.

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

A. The Company has designed and segmented its network to minimize the impact of a breach. The Company has also developed plans and procedures to respond to cyber-attacks and data breaches. Forensic experts are on staff to both aid in incident response efforts and for post-incident forensic analysis.

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

A. Yes. Given the significant rise in the capabilities, volume, and impact of cybersecurity threats, we must continue to further grow and develop IT's capabilities, implement

technology, and develop processes to further protect our systems and data, improve detection, resiliency, and recoverability.

Q. How are you addressing the continued work?

A. To stay ahead of the threats that exist, we must have the technology in place to prevent and detect threats and upgrade these technologies as new or upgraded versions becomes available. Staying ahead of the threats means continuing many of the items as discussed above. The Company will also continue to work with outside experts on security and threat monitoring.

Q. What projects is the Company planning to undertake for cybersecurity?

A. There is one overall cybersecurity program that contains numerous components.

Q. Is there a document that further explains the Company's cybersecurity program?

A. Yes. There is a confidential exhibit entitled Cybersecurity.

MARK FOR IDENTIFICATION AS CONFIDENTIAL EXHIBIT __ (IT-1)

Q. Was this document prepared under the Panel's direction and supervision?

A. Yes.

Q. Does the Company have an incremental request for its cybersecurity program?

A. Yes. See the chart below.

	Capital - Total Annual Request				O&M - Program Change			
	2020	2021	2022	Sum - 3 years	2020	2021	2022	Sum - 3 years
Cybersecurity	$6,671	$5,876	$5,876	**$18,423**	$9,400	$400	$425	**$10,225**

TECHNOLOGY ENABLERS

Q. Is the Company planning on undertaking projects/programs to enable new technology and enhance existing technology?

A. Yes. As discussed earlier, we have four categories of projects associated with Technology Enablers. They are Data Analytics, Cloud Computing, Digital Factory/Mobility, and Robotics Process Automation.

Q. Has the Panel prepared an exhibit describing the enabling technology programs IT will be undertaking?

A. Yes, the exhibit entitled, Technology Enablers, consists of seven whitepapers and was prepared under our direction and supervision.

MARK FOR IDENTIFICATION AS EXHIBIT __ (IT-2)

Q. Is there a capital and O&M request associated with these programs?

A. Yes.

	Capital - Total Annual Request				O&M - Program Change			
Technology Enablers	2020	2021	2022	Sum - 3	2020	2021	2022	Sum - 3

				years				years
Analytics Center of Excellence (Analytics)	$7,500	$7,500	$7,500	**$22,500**	$3,700	$0	$0	**$3,700**
Oracle EBS Cloud Migration (Cloud)	$7,600	$0	$5,580	**$13,180**	$13,100	$1,400	$3,300	**$17,800**
Cloud IaaS, PaaS and SaaS (Cloud)				**$0**	$3,800	$1,200	$1,000	**$6,000**
Digital Factory (Mobility)	$11,000	$11,000	$11,000	**$33,000**	$3,000	$0	$0	**$3,000**
Work and Asset Management Mobility (Mobility)	$5,758	$1,920	$0	**$7,678**				**$0**
IT Enabling Technologies CoE (RPA)				**$0**	$500	$0	$0	**$500**
New Technology (RPA)	$572	$572	$572	**$1,716**				**$0**
Subtotal – Technology Enablers	**$32,430**	**$20,992**	**$24,652**	**$78,074**	**$24,100**	**$26,000**	**$43,00**	**$31,000**

Data Analytics

Q. Please describe Data Analytics.

A. Analytics uses quantitative and statistical techniques to gain insights into data that answer complex problems to improve operations.

Q. Please provide an overview of the Company's proposed analytics program.

A. The Company's analytics program is focused on optimization, support, and governance of the Company's collective investments in advanced analytics. The Company's proposes to expand the existing central analytics group to further the

Company goals of finding new opportunities for cost savings, risk and operational and technical redundancy reduction.

Q. Why is the Company pursuing an enterprise analytics program now?

A. Benchmarking against peer utilities shows that there are opportunities for gaining insights provided by increased volumes of data generated from the Company's investments in AMI and other technologies. Analytics will serve as a key enabler to drive value for the Company, its customers, and employees in the areas of safety, customer experience, and operational excellence.

Q. What projects or initiatives have been identified as being potentially enabled by analytics to produce value for the business, and is there a document that further explains these projects?

A. There are three initiatives which have been highlighted for early investigation and are described in detail in the Analytics Center of Excellence white paper included in Exhibit __ (IT-2). The Analytics Center of Excellence will lead the overall corporate analytics effort. The project will develop one platform for analytics use and governance standards as well as assist organizations in implementing analytics projects. After the initial analytics projects roll out, we

expect to see an increase in requests for additional analytics projects.

Q. Do these projects support Company priorities?

A. Yes. The projects executed through the analytics program will support key Company priorities by improving safety, operational excellence, and customer experience. This will be accomplished by providing organizations tools, methodologies, solutions, support, and additional data which can be utilized to make decisions.

Cloud

Q. Please explain the transformational category, Cloud Computing.

A. Cloud computing is a network of remote servers hosted on the Internet used to store, manage, and process data in place of local servers or personal computers. The “cloud” has matured to the point where companies can achieve value in reliability and competitive pricing in the cloud to extend, replace, or defer constructing and maintaining their own facilities. Cloud solutions create the opportunity for the Company to reduce hardware and software licenses as the vendor can provide server and computing capabilities without the Company having to procure, manage, maintain, and upgrade this equipment. In addition, this arrangement provides flexibility because the cloud provider would provide resources for certain

required workloads that use internal data centers resources as needed, such as disaster recovery servers. By using cloud computing, Con Edison is deferring the cost of a new data center for several years as well as consolidating existing data centers.

Q. Does Cloud Computing support key Company objectives?

A. Yes. Cloud enhances the customer experience by providing new capabilities to our employee and customers and improve operations excellence through automation of server and storage processes, such as server builds and patching.

Q. Are there specific cloud projects that the Company plans to undertake?

A. Yes. We will continue our rollout of Microsoft Office 365, which is a cloud-based application that increases employee productivity and collaboration and continue the migration of existing Company Oracle applications to reduce on premise footprint and provide an easier method to upgrade and maintain these systems. Other cloud initiatives include cloud expansion of the analytics platform and mobility, described elsewhere in this testimony.

Digital Factory/Mobility

Q. What is the transformational category, Mobility?

A. Mobility is the ability to use devices to access business systems on the go. The Company has undertaken a Digital

Transformation. This Digital Transformation will change how the Company interacts with its customers and employees, developing enterprise-wide IT capabilities to integrate, secure, deploy, maintain, and monitor product solutions using mobile as the main platform.

Q. How is the Company implementing this Digital Transformation?

A. The Company is currently planning two projects intended to improve the device capability. They are the Digital Factory, and Work and Asset Management Mobility Solution.

Q. Please explain the Digital Factory.

A. Digital Factory is the Company’s digital transformation program. It will introduce an iterative software development methodology including new roles and ways of working to support Con Edison’s need to build applications.

Q. Please explain Work and Asset Management Mobility solution.

A. The Work and Asset Management Mobility Solution, described in Exhibit __ (IT-2), will provide both EIOP and GIOSP with an upgraded and updated mobile platform for their work management system. This platform will enable the use of mobile devices that provide features, such a touch response and dynamic links to other useful information sources and automate and streamline processes.

Q. Please continue.

A. As mentioned earlier, the Company has entered into an enterprise-wide arrangement with CGI to improve the platform. Moreover, the Oracle and other enterprise agreements discussed earlier will assist the Company not only with increasing cloud deployment but also with the digital transformation.

Robotics Process Automation

Q. What is Robotics Process Automation ("RPA")?

A. RPA is an emerging business process automation technology. It is based on the concept that software "robots" can mimic the action humans perform on a workstation. It automates a business process which could require access to several applications, thereby reducing the need for complex and costly system integrations.

Q. How does the RPA technology category assist the Company in meeting is key objectives?

A. RPA allows us to improve our customer experiences, operational excellence, and reduce costs. On the customer experience side, as an example, a bot can aid a customer in navigating and completing a transaction with helpful prompts or suggestions that are generated by detecting what the customer is doing in real time. RPAs can improve operational excellence by reducing errors and enforcing strict adherence to procedures. Finally, RPA's can also reduce costs by assisting customers during non-business hours.

Q. What projects support RPA?

A. There are two projects – New Technology and IT Enabling Technologies Center of Excellence, which are described in Exhibit __ (IT-2).

SYSTEMS/APPLICATIONS

Q. What is covered under the System/Applications category of projects and programs.

A. As discussed earlier, under this category, the Company will standardize and reduce the systems and applications in our portfolio. To do this, the Company will:

- o consolidate and modernize business systems
- o change its application support model to tiered application support
- o outsource certain maintenance and support functions.

The last two items are discussed in the BCO portion of the testimony below.

Q. What projects are associated with the Company’s systems and applications?

A. IT and other internal organizations are working on several other initiatives, including CSS, Work and Asset Management systems, OMS, GIS, and Grid Innovation that will modernize, upgrade, and enable new functionality. IT has two projects in this area: Business System Consolidation and Business Systems Sustainability.

Q. Please discuss Business System Consolidation and Business Systems Sustainability.

A. Business Systems Consolidation is the Company's shift from custom programs tailored to individual business units to implementing larger enterprise platforms that do much more than custom or tailored applications can do and may be used by different business units. This consolidation has been ongoing for a decade and in addition to the BCO impacts discussed later, also helps us leverage the platforms.

The Business Systems Sustainability Program focuses on sustaining and upgrading the server and desktop operating systems and databases, such as Microsoft, Oracle, and Linux, to provide new software versions with enhancements and security improvements. These operating systems regularly provide new versions and updates; this program assists the Company with implementing these various versions and upgrades in a timely fashion.

Q. Has the Panel prepared a document that explains the two projects included in this category?

A. Yes. We have two whitepapers, included in the Exhibit entitled Systems and Applications. This exhibit was prepared under our direction and supervision.

MARK FOR IDENTIFICATION AS EXHIBIT __ (IT-3)

Q. Is there a capital request associated with these programs?

A. Yes.

	Capital - Total Annual Request			
Systems/Applications	**2020**	**2021**	**2022**	**Sum - 3 years**
Business System Consolidation	$855	$1,995	$0	**$2,849**
Business Systems Sustainability Program	$1,273	$1,274	$1,273	**$3,820**
Subtotal - Systems/Applications	**$2,128**	**$3,268**	**$1,273**	**$6,670**

INFRASTRUCTURE

Q. Are there projects and programs associated with the Company's existing infrastructure?

A. Yes. There are nine projects to modernize and upgrade our existing infrastructure. The following shows the projects and associated expenditures for those projects during RY1-RY3.

	Capital - Total Annual Request				O&M - Program Change			
Infrastructure	**2020**	**2021**	**2022**	**Sum - 3 years**	**2020**	**2021**	**2022**	**Sum - 3 years**
SCADANet	$532	$532	$532	**$1,595**				**$0**
Enterprise Applications	$280	$368	$368	**$1,016**				**$0**
Desktop Infrastructure	$704	$704	$704	**$2,112**				**$0**
Collaboration Tools	$236	$236	$236	**$707**				**$0**
CCTN Expansion and Modernization	$9,591	$9,591	$9,591	**$28,772**				**$0**
Data Center & NOC Infrastructure	$2,052	$2,052	$2,052	**$6,157**				**$0**
Mainframe Upgrade				**$0**	$1,500	$0	$0	**$1,500**
XM 8 Communications	$2,354	$2,355	$2,355	**$7,063**				**$0**

Equipment								
XM10 Computer Equipment	$12,335	$12,335	$12,334	**$37,004**				**$0**
Subtotal - Infrastructure	**$28,084**	**$28,172**	**$28,171**	**$84,427**	**$1,500**	**$0**	**$0**	**$1,500**

Q. Has the Panel prepared a document that explains the nine projects included in this category?

A. Yes. In the Exhibit entitled, Infrastructure, which was prepared under our direction and supervision, there are nine whitepapers.

MARK FOR IDENTIFICATION AS EXHIBIT __ (IT-4)

Q. What key objectives are addressed through this category of work?

A. These projects are operationally required to maintain and operate data centers, networks, communications, and enterprise platforms. They improve the customer and employee experience and operational excellence by enabling proactive upgrades and enhancements.

Q. Are there any projects the Panel would like to discuss?

A. Yes. We will discuss CCTN, Enterprise Applications, and the two general equipment categories that IT is responsible for, XM-8 and XM-10.

Q. Please discuss CCTN.

A. CCTN is Con Edison’s fiber optic communication system, which is used to securely transport corporate data, voice, and Supervisory Control and Data Acquisition data to where it is

consumed. The network is comprised of Company-owned fiber optical cables, optical equipment, and wireless infrastructure components. There are over 120 Company locations hosting the fiber optics, wireless, and ancillary equipment used by CCTN. The CCTN program provides for continued growth and reliability and achieves investment in capital rather than O&M incurred by using public carriers where possible.

Q. What are the expected benefits for safety, operational excellence, and customer experience?

A. The Company’s CCTN program provides a safe and secure high-speed communications network to our corporate locations, such as data centers, control centers, substations, contact centers, and field workout locations for radio systems, telemetry, feeder protection, and control of our energy delivery systems. As part of this project, we will continue to replace older fiber spans and install new technology and fiber spans as needed.

Q. Please explain Enterprise Applications.

A. Con Edison deploys a standard architecture for business systems and PC network access. This infrastructure operates behind the scenes, determining how computers are named, addressed, and located by other computers. This capital project focuses on implementing new and upgraded infrastructure applications that support the enterprise in a variety of functions such as

maintaining secure file exchange, electronic faxing, user account security, infrastructure management, automatic call direction, and enterprise operations management.

Q. Please explain the general capital equipment categories associated with IT products.

A. In addition to the General Equipment categories described by the Shared Services Panel, there are two categories of general equipment, which IT governs the purchase of, XM8 and XM10.

Q. What is XM-8 and XM-10?

A. The equipment in XM-8 and XM-10 provide the means for Company employees to communicate and access business systems. Items in XM-10 are critical computing components including the mainframe, servers, PCs, tablets, laptops, mobile data terminals (“MDTs”), storage, network equipment for Local Area Networks (“LANs”), internet-facing technology improvements to allow remote access, and infrastructure needed for the Wide Area Network (“WAN”). Upgrades and technology upgrades are required to provide a reliable and accessible environment for critical resources located in server farms and to support server growth from new business system projects. Other equipment in this category includes Uninterruptable Power Supply (“UPS”) devices, network cabling, wireless networks, and the fiber channel networks used for electronic storage.

The budget for XM-8 provides the means for capital communications equipment to support Company wireless and telephone networks. This allows employees to communicate and access business systems, including the Customer Information System, Outage Management systems, electric, gas, steam monitoring and control systems, as well as several other financial, Human Resources, and legal systems.

Q. Does this category address the Company's key objectives?

A. XM-10 and XM-8 upgrades help maintain corporate assets promoting performance and security improvements. The programs under the XM-10 and XM-8 budgets support:

- Safety – private wired and wireless communications which provide isolation from public sources of vulnerability and enable Con Edison to respond rapidly to emergency situations and critical incidents over secure and segmented channels. These private communication systems provide reliable performance and highest priority for life-sustaining alerting and feeder relay protection. The equipment will be maintained in a vendor-supportable state and refreshed prior to its end-of-life cycle, which includes periodic security patches and hardware upgrades through our purchasing channels.
- Operational Efficiency – the communication, data computing, and networking infrastructure provides a stable and

efficient platform for the applications and processes used by the various operating businesses to achieve and maintain high levels of operational efficiency around telemetry, applications used by customer-facing personnel, workout locations, and backhaul from field assets.

- Customer Experience – the customer-centric applications and voice communication systems used in the customer contact centers depend on the capital improvements work in our datacenters, wide and local area networks, and communications applications to provide a secure and reliable experience. This program addresses the need to meet current customer expectations for more information delivered in a variety of easily consumable formats such as mobile platforms, while also maintaining the security, integrity, and confidentiality of sensitive customer information.

IT BCO INITIATIVES

Q. Are you familiar with the Company's BCO Program as discussed in the Accounting Panel's testimony?

A. Yes, we are.

Q. Is IT implementing specific initiatives as part of the Company's BCO program?

A. Yes. IT has identified four initiatives, each of which is described below. The amount of savings associated with these initiatives are presented in Exhibit __ (AP-3, Schedule 16).

Q. Please describe the first IT BCO initiative.

A. IT's first BCO initiative pertains to the optimization of the Company's data centers. IT currently operates 12 on-premise data centers. The Company plans to consolidate these 12 data centers to three on-premise data centers, while expanding Cloud Computing and renting data center space from a third party. We expect to implement this initiative over five years, *i.e.*, 2018 - 2023. To project savings for this initiative, IT baselined costs associated with operating the current environment of 12 data centers and compared that to the cost of operating fewer data centers, taking into account an estimate of the transition timeline and efficiencies assumed with virtualization technologies and increased use of cloud software.

Q. Please discuss the second IT BCO initiative.

A. The second IT BCO initiative is called Sourcing and refers to IT's contracting with vendors known as managed service providers ("MSP") to provide various commodity IT services currently performed in-house.

Q. What are Commodity IT services?

A. These services include IT support work that is common in most companies, does not require specific business knowledge, or for mature business systems, where the ongoing support work has become routine. These services include managing and resolving service requests, supporting legacy systems, enhancing functional capabilities for systems, providing preventive maintenance, and repairing equipment.

Q. Please continue.

A. Vendors will provide these services at agreed upon prices and at measurable quality and performance levels. Sourcing also provides as-needed access to broad capabilities, such as business analysis, systems development, and testing to enable IT to more quickly respond to expanding business requirements and shifting priorities. Sourcing enables IT to focus employee resources on strategic work, including new systems development, analytics, mobility, and other enabling technologies while the vendor performs the commodity IT work. Concurrent with the Sourcing Initiative, IT seeks to stratify the application portfolio by criticality (gold, silver, and bronze) and establish tiers of problem severity and response times through a Tiering Initiative. Currently, Company applications receive the same level of service attention despite different levels of criticality among these applications. Tiers will align with corporate strategic

priorities, *i.e.*, degree of impact to safety, operational excellence and customer experience. IT expects to complete this Tiering initiative implementation in RY1.

Q. How was the savings derived for this initiative?

A. IT derived the savings for the Sourcing and Tiering initiatives by applying benchmarked savings percentages to our current spend for each of the potential outsourced services. We also factored in an estimate for the number of current employees that would transition out of the IT organization as a result of the Sourcing and Tiering initiatives and the pace at which they would do so.

Q. Please describe third IT BCO initiative.

A. IT's third BCO initiative is referred to as "Application Rationalization." Previously, the Company had a more decentralized technology planning approach, where individual business units selected their respective application portfolios. As a result, IT currently supports over 500 complex business applications, some with redundant functionality. The catalog of individual systems includes core applications (*e.g.*, asset and work management, automation infrastructure, customer experience, and outage management) and support systems (*e.g.*, finance, human resources, supply chain, and facilities). To reduce labor and licensing costs, IT is consolidating and decommissioning applications across

the Company where feasible. By the end of 2021, IT expects to reduce the Company's application portfolio by approximately 75 applications.

To project savings associated with this initiative, IT identified the applications to be consolidated or retired and determined the labor costs associated with maintaining the system, licensing, and infrastructure costs. The savings associated with this initiative are considered "Influenced Savings," which are savings allocated to other departments based upon their usage of the applications.

Q. Please describe fourth IT BCO initiative.

A. The fourth IT BCO initiative is referred to as "End User Device Minimization." This initiative seeks to reduce overall hardware and communication costs by optimizing the number of phones, computers, and printers in the Company. For instance, IT plans on addressing the Company's printer fleet by eliminating individual printers in favor of departmental printers and implementing secure printing (*i.e.*, printer holds the document until the ID card is swiped at the printer control panel). We expect to complete this initiative by the end of 2020.

To project savings for this initiative, IT developed an inventory of devices (mobile phone and computer) currently provisioned, including usage statistics on each device, and an

average yearly cost to support each device type. IT determined savings estimates by estimating device reduction targets for employees with multiple devices and devices with low usage.

Q. What are the challenges associated with implementing these initiatives and realizing their savings?

A. The Company faces various challenges in realizing the projected savings for each IT BCO initiative. For instance, the Sourcing initiative represents a significant change in IT's process, structure, and culture. Implementation risks include selecting the right vendor, identifying the right processes to source, the change management effort required to transfer IT processes to a selected vendor, establishing a vendor management strategy, and managing the impact to the Company's employees and operations.

Other notable risks include the implementation risks associated with the Application Rationalization and Data Center optimization initiatives. Although an application may be decommissioned under the Application Rationalization initiative, we may still need to store the data as per the records retention policy. This may impact our savings, as there is a cost to maintaining the data, even though the application is no longer being supported.

For the Data Center optimization initiative, implementation risks include the coordination of moving production applications, and migrating the systems without any operational issues.

Q. Does this complete the Panel’s initial testimony?

A. Yes, it does.

Contents

I. INTRODUCTION

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

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

Q. By whom are the panel members employed?

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

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

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

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

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

various human resources activities including Benefits, Compensation, Human Resource Support, Employee and Labor Relations, and the Employee Wellness Center. Specifically, my responsibilities include developing human resource policies and programs for the Company; negotiating and administering labor agreements that are compliant with federal, state and city regulations for human resource related activities (*e.g.*, Family and Medical Leave Act ("FMLA"), Employee Retirement Income Security Act ("ERISA"), Health Insurance Portability and Accountability Act ("HIPAA")); directing the preparation of information requested or required for compliance; establishing wage and salary structure pay policies; implementing cost containment strategies for health benefit programs; negotiating administrative fees with health insurance carriers; recommending alternate benefit administrators and plan changes; managing a staff of over 100 professionals; and developing, implementing and monitoring all aspects of the Company's executive compensation.

I joined Con Edison in 1989 as a management intern and have held positions of increasing responsibility in a variety of operating and support positions including:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

II. PURPOSE OF TESTIMONY

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

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

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

Q. Please summarize the Panel's testimony.

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

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

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

Third, we discuss three Corporate Security capital projects, one to replace obsolete closed circuit television (“CCTV”) cameras throughout the Company, and another to replace obsolete recording devices, and lastly a project to enhance cybersecurity forensic capabilities.

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

Fifth, we discuss Learning & Inclusion’s Transforming Learning Through Innovation.

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

Finally, we discuss Shared Services' role and programs in the Company's Business Cost Optimization Program.

Q What period does this testimony cover?

A. The Panel will present the projects and programs planned for the 12 month period ending December 31, 2020 ("Rate Year" or "RY1"). While as discussed by the Company's Accounting Panel, the Company is not proposing a multi-year rate plan in this rate case, the Company would be willing to pursue, through settlement discussions with Staff and interested parties, a three-year rate plan. To facilitate settlement discussions, we also address capital plant additions and other programs and initiatives for the two years following the Rate Year. We will refer to the 12 month periods ending December 31, 2021 and December 31, 2022 as "RY2" and "RY3", respectively.

Key Themes

Q. Please state the Company's key principles driving its funding request in this filing.

A. There are three principles which guide all of the programs and projects for which funding is sought in this filing:

- Safety and reliability for both customers and employees
- Operational excellence
- Customer experience

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

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

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

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

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

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

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

II. GENERAL EQUIPMENT

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

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

Q. What are the categories of General Equipment?

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

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

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

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

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

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

More specifically, the following example illustrates the vital role General Equipment plays and how it is interwoven into the Company’s daily operations from the standpoint of reliability, efficiency and safety. An underground splicing crew requires, in addition to splicing equipment such as a propane torch, a van (XM-

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

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

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

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

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

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

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

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

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

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

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

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

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

Q. What does the CGC do?

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

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

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

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

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

A. We project the following capital expenditures:

- RY1 - $49.4 million
- RY2 - $49.4 million
- RY3 - $49.4 million

Q. Have you prepared an exhibit entitled “General Equipment” that explains each category of General

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

A. Yes.

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

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT ___ (SSP-1)

Q. What does this Exhibit show?

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

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

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

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

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

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

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

A. Facilities and Field Services is the Control Agency for Office Furniture (XM-1), Stores Equipment (XM-3), Laboratory Equipment (XM-5), Tools and Work Equipment (XM-6), and Miscellaneous Equipment (XM-7). Transportation Equipment (XM-2) will be discussed in the next section.

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

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

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

Q. Please continue.

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

Q. Please describe laboratory and testing equipment.

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

when a worker descends into a manhole or around excavations.

Q. What is in the XM-6 budget?

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

Q. Please continue.

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

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

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

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

Q. Can you provide an example of these changes?

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

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

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

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

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

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

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

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

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

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

levels for each separate category are listed in Exhibit __(SSP-1)

XM-2

Q. Please discuss the next category of XM equipment.

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

Q. Please describe the manner in which the Company develops budgets for General Equipment XM-2 “Transportation Equipment” .

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

XM-4

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

III. RESEARCH AND DEVELOPMENT

Q. Please describe the R&D organization.

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

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

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

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

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

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

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

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

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

rehabilitation of energy infrastructure without the need to excavate.

Q. Was a document, entitled “Shared Services – Research & Development - O&M and Capital,” Exhibit ___(SSP-2), prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT ___(SSP-2)

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

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

Q. How is the R&D portfolio developed?

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

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

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

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

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

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

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

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

Q. How often is the portfolio reviewed?

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

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

A. Yes. The Company has a long history of successful R&D project completions. Projects that have improved our Electric operations include:

1. The “Distributed Generation Quick Connect Plug” electric R&D project successfully developed and demonstrated a device that enhances the method of connecting generators to the secondary grid during a cascading event. By developing and installing the Distribution Generation (“DG”) Plug at pre-determined locations, crews will be able to connect generators without splicing in a shorter timeframe. This will help with customer restoration efforts and be more cost effective by reducing the amount of cable splicing performed by the crews.

2. The “Structure Monitoring System” electric R&D project successfully developed and demonstrated a cost effective manhole monitoring system that can report back information such as the presence of elevated temperature, combustible gases and contact voltage. In 2017 the Company installed approximately 1,000 Structure Observation System (“SOS”) units in critical Metropolitan Transit

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

3. The Company successfully pilot tested a meter collar, installed between the electric meter socket and the meter, which will facilitate the installation of customer sited distributed energy resource (“DER”) and will also provide DER production data. The meter collar reduces customer costs for DER interconnection, including possible avoidance of service upgrades to the customer’s main service panel. The DER

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

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

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

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

1. A natural gas dispersion study to understand how natural gas in a typical apartment's kitchen environment migrates through the room in order to understand the best placement for a residential methane detector and to evaluate the benefits of lowering the minimum alarm level of the Underwriter Laboratories standard governing residential methane detectors from 25% of the lower explosive limit ("LEL") to 10% LEL.

2. Development of a prototype Emergency Main Shut-Off System ("EMSOS") for a large diameter, low-pressure metallic mains to serve as an alternate to installing shut-off valves. The EMSOS stations will be placed in strategic locations in the distribution system in order to provide a lower cost alternative to installing isolation valves and will be available to provide for main isolation during emergencies.

3. Performed demonstration project of the Picarro Surveyor technology as a means of using

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

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

Q. Are all R&D projects successful?

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

Q. You mentioned that the Company works collaboratively with others, please describe the Company’s collaborative research efforts.

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

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

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

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

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

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

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

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

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

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

R&D - Electric

Q. Please provide an example of collaborative research for the electric sector.

A. Con Edison initiated a project with EPRI in 2017 to test a super capacitor technology that has the potential to support high power and long duration applications. As part of the study project, EPRI and Con Edison will independently evaluate the vendor's super capacitor energy storage and inverter control technology while simultaneously conducting site preparation and analysis for an onsite demonstration project at Con Edison's headquarters in Manhattan. Benefits that this specific energy storage technology solution can potentially offer include:

- High efficiency reduces energy required during charge/discharge cycle, and lowers operating cost of storage;
- Negligible heat generation during battery operation eliminates the need for installing energy intensive cooling systems, therefore delivering energy savings;
- High cycle life and efficiency allow for peak shaving of rapid peaking load profiles – reducing

peak demand on the grid and increasing network capacity utilization;

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

R&D - Gas

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

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

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

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

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

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

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

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

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

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

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

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

A. No.

Q. Please explain why.

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

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

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

Q. Please explain why.

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

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

Knowledge Management System

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

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

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

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

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

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

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

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

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

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

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

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

otherwise requesting additional funds to use in this fund.

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

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

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

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

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

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

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

IV. CORPORATE SECURITY

Q. Please explain the responsibilities of Corporate Security.

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

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

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

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

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

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

Q. Do you have an exhibit entitled “Shared Services-Corporate Security-Capital” detailing the three capital programs?

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

MARK FOR IDENTIFICATION AS EXHIBIT ___ (SSP-3)

Con Edison recognizes its electric, gas and steam systems are a critical component of the infrastructure of New York City and Westchester County. To adequately safeguard its facilities, Con Edison continues to incorporate comprehensive security processes to protect the Company, its employees and its physical assets, such as generating stations and substations. Electronic physical security mitigation measures currently implemented consist of CCTV, intrusion detection, card access and DVR equipment. We continue to add facilities where we have these systems to our Security Operations Center (“SOC”) where they are monitored on a 24x7 basis. This

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

Camera Rollout Program

Q. Please explain the first capital project being requested.

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

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

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

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

A. Yes. Additional information is shown in Exhibit ___ (SSP-3) on the pages entitled "Corporate Security – Companywide Camera Rollout Program."

DVR/NVR Replacement

Q. Please explain the second capital project being requested.

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

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

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

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

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

Q. What are the projected costs for this program?

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

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

A. Yes. Additional information is shown in Exhibit ___ (SSP-3) on the pages entitled “DVR/NVR replacement.”

Cyber Forensics

Q. Please explain the third capital project being requested.

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

preserving, and evaluating Industrial Control System devices.

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

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

V. HUMAN RESOURCES

Q. What is the HR organization responsible for?

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

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

Q. What programs is HR sponsoring in this testimony?

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

Q. Do you have an exhibit titled “Shared Services - Human Resources – O&M and Capital” detailing these programs and their associated costs?

A. Yes.

Q. Was it prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT ___ (SSP-4)

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

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

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

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

Q. What steps does HR take to control costs?

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

HR Payroll System

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

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

Q. What is the HR Payroll System?

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

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

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

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

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

Strike Contingency

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

A. The Company and its two local unions, IBEW Local 3 and UWUA Local 1-2 employees, have collective bargaining agreements. The Local 1-2 agreement will expire in June 2020 and Local 3's agreement will expire in June 2021. In the event of a labor stoppage, the Company has a planned approach to provide for the continued safe operation of its facilities and its services.

Q. Are there costs associated with these preparations?

A. Yes. The Local 1-2 and Local 3 Contingency Programs are ongoing initiatives that the Company has traditionally implemented once every three or four years to align with the end of the collective bargaining agreement period. If a three year rate plan is developed, each of these contracts will potentially expire during the rate plan. As a result, and since recent contracts have been for four years, the annual cost for these initiatives is priced out at one-fourth of the estimated cost. The estimated cost for strike contingency is $1.6 million for Local 1-2, and $200,000 for Local 3, or a total of $1.8 million

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

VI. LEARNING & INCLUSION

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

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

- Enhance technical and leadership skills and competencies of our employees
- Foster a culture of inclusion, equity and respect for all
- Engage employees to demonstrate behaviors that support our company values

- Advance meaningful performance and career development planning
- Implement optimized sourcing and recruiting results

Transforming Learning Through Innovation

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

A. L&I is sponsoring one capital funding request: “Transforming Learning Through Innovation.”

Q. Do you have an exhibit titled “White paper-Learning Inclusion Digital Learning Transformation” detailing this initiative and it’s associated costs?

A. Yes.

Q. Was it prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT (SSP-5).

Q. Why is the project important to the company?

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

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

Q. What would the Capital funding include?

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

VII. FACILITIES AND FIELD SERVICES

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

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

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

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

- Demolition and New-Build projects (three projects)
- Critical Repair and Upgrade programs and projects (four projects)

- Safety and Environmental Programs and Projects (three projects)
- Transportation Operations Project

Q. Have you prepared exhibits titled “Shared Services – Facilities and Field Services – Capital”?

A. Yes, we have.

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

A. Yes, they were.

MARK FOR IDENTIFICATION AS EXHIBITS ___ (SSP-6)

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

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

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

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

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

Demolition and New-Build Projects

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

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

McKeon Door Demolition

Q. Please describe the McKeon Door building.

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

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

Q. For what purpose was this property purchased?

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

Q. What are the current plans for the property?

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

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

Q. What are the estimated costs for the demolition?

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

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

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

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

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

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

Sherman Creek Service Center

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

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

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

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

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

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

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

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

Brinkerhoff Work Out Center

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

A. Yes.

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

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

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

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

Critical Repairs and Upgrade Projects and Programs

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

A. The capital spending plan supports:

- o Service Center Renovation and Store Room Modernization Program
- o Critical Infrastructure – Short Term Priority Projects and Programs
- o Roof Program Projects
- o Facility Security Program upgrades Projects

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

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

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

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

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

Q. How does Facilities minimize costs?

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

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

such as, “critical infrastructure – programs, “roofs,” “energy efficiency” and “service center renovations” being deferred until later years.

Critical Infrastructure – Short Term Priority Projects and Programs

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

A. Yes. There are two categories of work performed under Facilities Buildings and Yards - Critical Infrastructure, which are broken down into either Short-Term Priority “Projects” or “Programs”. This category has a white paper included in Exhibit ___ (SSP-6), entitled “Facilities Critical Infrastructure Short Term Priority/Program”.

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

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

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

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

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

- 3rd Ave Yard Stores Building 1 – Remediation of Cracks on Building Walls for $2.3 million in 2020 & 2021.

- Victory Blvd - Conference Room A/C Unit for $0.2 million in 2020.
- Van Nest Compressed Gas Cylinder Storage for $0.3 million scheduled for 2020.

Q. Now, please describe the projects under Critical Infrastructure – “Programs” (programmatic, lower priority).

A. These capital programs are also intended to maintain and improve the overall conditions at the buildings and yards as well as maintain the facilities. We list projects in the Critical Infrastructure - Programs Category either as a result of a completed ESR or program assessment or based on engineering or historical knowledge of the systems and equipment (*e.g.*, since the expected life of a Freon-based HVAC system is approximately 20 to 25 years, units that are 15 years or older will be listed in the five-year plan). A completed ESR provides a scope of work and budgetary order of magnitude cost estimate required to address a system problem. The full scope of these projects is outlined in the white paper entitled “Facilities Critical Infrastructure Short-Term Priority/Programs”.

Q. Does Exhibit ___ (SSP-6) detail the expected critical infrastructure programs to be undertaken in the next several years?

A. Yes. This Exhibit ___ (SSP-6) lists these upcoming programs.

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

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

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

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

Roof Replacement Program

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

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

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

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

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

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

Facilities Service Center Renovation and Store Room Modernization

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

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

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

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

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

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

Q. Are there reasonable alternatives to the program?

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

Facility Security Program upgrades Projects

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

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

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

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

Safety and Environmental Programs and Projects

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

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

- o Energy Efficiency Program
- o Compliance Projects (Safety, Environmental, and Regulatory)
- o Astoria SWSS Corrective Action Project

Energy Efficiency Program

Q. What is the Company planning to do for the Energy Efficiency Program?

A. The Energy Efficiency Program is a compilation of various Energy Efficiency Measures ("ECMs") identified in the Level III Investment Grade Energy Audits completed for: Irving Place Corporate Headquarters; Flatbush Avenue, Rye and Davis Avenue Regional Headquarters; and the Learning Center ("TLC") buildings. A Level III Energy Audit provides detailed project cost and savings calculations with the high level of confidence required for major capital investment decisions. Con Edison conducted the Level III Energy Audit as part of its efforts to comply with the New York City Local Law 87 requirement to conduct periodic audits.

These ECMs identify methods to reduce energy use at each location. The majority of the ECMs identified are associated with lighting, HVAC systems (to include

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

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

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

Compliance Projects and Programs

Q. Please explain the compliance projects.

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

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

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

Q. Please summarize each project.

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

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

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

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

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

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

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

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

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

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

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

SWSS Correction Project

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

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

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

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

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

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

Q. Please explain further.

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

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

In order to address the “Stormwater Collection and Conveyance” issues and improve stormwater runoff from the East Storage Yard, which presently overwhelms downstream catch basins, the consultant recommended to supplement the SWSS drainage collection system by adding catch basins and slot drains. Additional stormwater catch basins within the East Storage Yard would improve drainage and reduce the flow of runoff from this area to the North Storage Yard. This would also alleviate the bypassing and clogging of catch basins with high sediment loads, and help to capture and treat runoff from the Site, more effectively— reducing the frequency of inlet filter clogging across the site. Additional catch basins would also reduce stormwater runoff from flowing across the Site cover, which could reduce PCB concentrations. It is also recommended that the existing concrete/asphalt system of the Astoria East Yard be completely removed and

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

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

A. Yes. This project is discussed further in the white paper entitled “Astoria SouthWest Storm Water System Corrective Action Plan,” in Exhibit___(SSP-6).

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

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

Transportation Operations Fuel Station Upgrade

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

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

Q. How does Transportation minimize costs?

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

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

Q. What does the Transportation capital spending plan support?

A. The capital project plan for Transportation supports:

- o Upgrade of an existing gasoline and diesel Fuel station

Q. Is this project detailed in the exhibit___(SSP-6) entitled “Shared Services - Facilities and Field Services - Capital”?

A. Yes it is.

Gasoline and Diesel Fuel Station Upgrade Project

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

A. Currently, the Company has twelve gasoline/diesel fueling stations and eight CNG fueling stations. Generally, Company vehicles go to these locations to refuel by using a Company-issued gas card system.

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

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

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

A. This capital project funds the replacement of obsolete and deteriorating equipment at the Company’s twelve fueling stations.

Q. Is there a need to upgrade these stations?

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

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

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

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

Q. What is the current status of this project?

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

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

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

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

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

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

VIII. BUSINESS COST OPTIMIZATION INITIATIVES

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

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

services that support operations (including device testing, logistics and environmental services). Shared Services also negotiates, executes and manages contracts used throughout the Company and is responsible for other key functions including research and development, corporate security and emergency preparation services.

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

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

Q. Are the cost savings produced by the Shared Services organization’s BCO initiatives considered “direct savings?”

A. No. Given that Shared Services is an internal service provider, the savings from its BCO initiatives benefit Shared Services’ internal customers. Therefore, these savings are presented as “influenced savings” within each of the Company’s organizations supported by Shared Services. That is, the savings are reflected

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

Q. Please discuss Shared Services' first BCO Initiative.

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

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

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

engagement with internal customer groups is undertaken before a “category”, or area of spend, is subject to the Category Management BCO Initiative. Factors influencing when a category is subject to review include total spend, number of suppliers, number of stakeholders and complexity of the category. Implementation is done in “waves.” A group of categories is selected and referred to as a “wave”.

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

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

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

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

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

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

Q. Please discuss Shared Services' second BCO initiative.

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

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

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

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

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

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

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

Q. What is Shared Services' third BCO initiative?

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

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

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

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

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

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

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

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

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

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

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

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

Q. Please describe Shared Services' fifth BCO initiative.

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

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

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

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

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

Q. Please describe Shared Services' sixth BCO initiative.

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

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

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

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

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

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

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

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

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

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

Q. Please describe Shared Services' eighth BCO initiative.

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

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

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

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

- Complexities, costs and “time to market” associated with integrating new software with existing transaction platforms (*e.g.*, Oracle);
- Duration in searching, recruiting and hiring professionals with the requisite skillsets and capabilities to deploy advanced technologies.

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

A. Yes. Additional information is shown in Exhibit ___ (SSP-7) on the pages entitled “Shared Services - Integrated Supply – Capital.”

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

A. Yes, they were.

MARK FOR IDENTIFICATION AS EXHIBIT ___ (SSP-7)

Q. Does this conclude this Panel’s testimony?

A. Yes, it does.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DIRECT TESTIMONY OF

GAS RATE PANEL

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I. INTRODUCTION

Q. Would the members of the Gas Rate Panel ("Panel") please state their names and business addresses.

A. William Atzl, Margaret Lenz, and Yan Flishenbaum, 4 Irving Place, New York, New York 10003.

Q. By whom are you employed and in what capacity?

A. **(Atzl)** I am employed by Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company") as the Director of the Rate Engineering Department.

(Lenz) I am employed by Con Edison as the Department Manager of the Gas Rates section in the Rate Engineering Department.

(Flishenbaum) I am employed by Con Edison as the Department Manager of the Load Research and Cost Analysis sections in the Rate Engineering Department.

Q. Please summarize your educational background and business experience.

A. **(Atzl)** 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 employment

was with the 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. ("Orange and Rockland," or "O&R") as a Commercial and Industrial Representative in the Commercial Operations Department. At Orange and Rockland, I also held the positions of Commercial and Industrial Engineer, Program Administrator - Demand-Side Management, Manager - Demand-Side Management Operations, Manager - Energy Services and Pricing, and Manager – Regulatory Affairs. In October 1999, I joined Con Edison and held the position of Department Manager – Electric and Gas Rate Design – O&R and Director prior to my present position.

(Lenz) I received a Bachelor of Science Degree in Mathematics from St. Lawrence University in 1981. I also received an MBA Degree in Finance in 1995 from Adelphi University. In 1981, I was employed by Con Edison in its Management Intern Program. I have held various positions of increasing responsibility in the Company's Planning, Corporate Accounting, Energy Services, Rate Engineering and Revenue and Volume Forecasting departments. I have been in my current position since December 2012.

(Flishenbaum) I received a Bachelor of Business Administration Degree in Economics from Pace University in 2001 and a Master of Business Administration Degree in Finance and Economics from New York University in 2008. In 2001, I began my employment with Con Edison in the Cost Analysis Area of the Rate Engineering Department. In 2003, I was promoted to Analyst, mainly involved in the development of the costing methodologies related to unbundling. I was promoted to Senior Analyst in 2005. In 2008, I was promoted to Senior Rate Analyst responsible for developing the Company's cost-of-service models. In 2013 I was promoted to Section Manager of the Electric Rates area of the Rate Engineering Department. I have been in my current position since September 2016.

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

A. Yes. All members of the Panel have previously testified before the Commission.

II. PURPOSE OF TESTIMONY

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

A. Our testimony presents the Company's:

(1) Gas embedded cost of service ("ECOS") study, including the development of unbundled costs associated with competitive services;
(2) Gas marginal transmission and distribution cost analysis;
(3) Proposed revenue allocation and rate design;
(4) View on the off-peak firm delivery rate;
(5) Revenue and bill impacts showing the projected number of bill increases and decreases, and typical monthly bills, by class;
(6) Other tariff changes; and
(7) Computer System Enhancement Programs.

III. EMBEDDED COST-OF-SERVICE STUDY

Q. Did you perform an ECOS study for this proceeding including the development of unbundled costs associated with competitive services?

A. Yes, we did. Exhibit __ (GRP-1) is entitled "Consolidated Edison Company of New York, Inc. – Embedded Cost-of-Service Study – Gas Department – Year 2017."

Q. Please describe the exhibit.

A. The ECOS study and unbundled cost components analysis exhibit consists of three schedules. The first schedule, entitled Exhibit ___ (GRP-1), Schedule 1 "Consolidated

Edison Company of New York, Inc. – Embedded Cost-of-Service Study – Gas Department – Year 2017 – Rates in Effect January 1, 2019," shows the results of the embedded cost of service study. The second schedule entitled Exhibit ___ (GRP-1), Schedule 2, "Merchant Function," shows the Merchant Function Charge ("MFC") calculations. The third schedule, entitled Exhibit ___(GRP-1), Schedule 3 "Billing & Payment Processing," shows the unbundled costs for printing and mailing a bill and receipts processing functions.

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

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

Q. What cost categories are analyzed in the ECOS study you are presenting?

A. The ECOS study analyzes costs and revenues associated with the Company's transmission, storage and distribution operations. It also includes the competitive cost categories related to the gas merchant function, the receipts processing function and the printing and mailing a bill functions. Competitive revenues included in the study are the MFC revenues associated with commodity procurement and credit and collections, as well as billing

and payment processing ("BPP") revenues. The Gas Cost Factor ("GCF") revenues, Monthly Rate Adjustment ("MRA") revenues and associated expenses are not included in the ECOS study. Revenues and expenses associated with the uncollectible component of the MFC, System Benefits Charge ("SBC"), and Regulatory 18-A Assessment ("18A") have also been excluded from the study. Revenues and gas costs are presented as if there were no interruptible customers.

Q. What time period does the ECOS study cover?

A. It covers Con Edison's gas operations for the calendar year 2017.

Q. What gas revenues are reflected in the ECOS study?

A. Gas revenues reflect current delivery rates, which went into effect January 1, 2019 ("current rates").

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

A. The ECOS study analyzes Con Edison's four firm classes: SC 1, SC 2 Rate I (including customers served under SC 13), SC 2 Rate II, and SC 3.

Q. How are the results of the ECOS study expressed?

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

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

A. The total system rate of return is 9.89% as shown on Table 1, Page 1, Column (1), Line 17 of the ECOS study.

Q. What are the class rates of return shown in the ECOS study?

A. The following class rates of return are shown on Table 1, Page 1, Line 17 of the ECOS study:

SC 1: 12.97%

SC 2 RATE I: 12.53%

SC 2 RATE II: 10.39%

SC 3: 8.74%

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

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

Q. Based on the application of the ±10% tolerance band around the calculated total system rate of return of 9.89%, what are the ECOS study class surpluses and deficiencies?

A. The revenue surpluses and deficiencies are shown on Table 1 of Schedule 1, lines 26 and 27 respectively. SC 1 is surplus by $22,426,848, SC 2 Rate I is surplus by $11,786,378, SC2 Rate II is within the tolerance band, and SC 3 is deficient by $7,797,562.

Q. What is the significance, for example, of the SC 3 class revenue deficiency?

A. The deficiency is the amount of revenue increase, at current rates, required to bring SC 3's return to the lower level of the tolerance band around the system rate of return.

Q. What is the significance of the SC 1 surplus?

A. The surplus is the amount of revenue decrease, at current rates, required to bring the SC 1 return to the upper level of the tolerance band around the system rate of return.

Q. Please describe what is shown on Table 1A, which is the last page of Exhibit__(GRP-1).

A. Due to the application of a 10% tolerance band around the system rate of return, the total of the ECOS surpluses and deficiencies in this study is a net system surplus. Hence the SC 1 surplus of $22,426,848 and the SC 2 Rate I

surplus of $11,786,378, at the upper level of the tolerance band, when offset against the SC 3 deficiency of $7,797,562, at the lower level of the tolerance band, results in a net surplus of $26,415,664. To ensure that ECOS study indications are revenue neutral to the Company, Table 1A adjusted the SC 1 and SC 2 Rate I surplus classes and the SC 3 deficient class to offset the net system surplus.

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

A. There are two main steps in the preparation of the ECOS study: (1) functionalization and classification of costs to operating functions, such as gas supply, distribution, customer accounting and customer service (with further division into sub-functions, such as distribution-demand component (mains) and distribution-services), and (2) allocation of these functionalized costs to customer classes.

Q. Please describe the functionalization and classification step.

A. The functionalization and classification step assigns the broad accounting-based cost categories to the more detailed categories used in the ECOS study. This

breakdown is required, for example, to differentiate distribution-demand related costs from distribution-customer related costs. This allows for the proper allocation of these costs to the classes based on cost causation.

Q. Please continue.

A. During the process of functionalization, all costs are classified as being demand-related, commodity-related, or customer-related. Demand-related costs are fixed costs created by the on-peak hourly loads placed on the various components of the gas system. Commodity-related costs are variable costs caused by the total quantities of gas delivered during the year. Customer-related costs are fixed costs caused by the presence of customers connected to the system, regardless of any customer's particular level of usage.

Q. Please describe the allocation step.

A. This step allocates the functionalized and classified costs to the customer classes based on the appropriate demand, commodity (sales) or customer allocation factors, which are shown on Table 7 of the ECOS study.

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

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

Q. Does the ECOS study contain an analysis of customer costs by class of service?

A. Yes. Please refer to Table 6, Page 1, Line 14 of the ECOS study. The monthly customer costs by class are as follows:

SC 1: $22.40

SC 2 RATE I: $80.70

SC 2 RATE II: $112.16

SC 3: $124.30

Q. What do customer costs include?

A. Customer costs include: a distribution-customer component, services, meter and house regulators, customer installation, payment processing, printing and mailing a bill, customer accounting, uncollectibles and customer service.

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

A. Yes. The ECOS study separately identifies the following competitive functions: gas merchant function, receipts processing, and printing and mailing a bill.

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

A. The gas merchant function contains costs associated with procuring the gas commodity, including an allocation of customer care-related activities, customer service-related activities and Information Technology ("IT").

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

A. The customer care allocation includes costs associated with the Company's call centers, service centers, and credit and collection/theft activities. The customer service allocation also includes an assignment of education and outreach costs.

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

A. Pursuant to the Unbundling Policy Statement, customer care and customer service-related costs were allocated to the gas merchant function on the basis of total revenues (i.e., including commodity revenues, SBC and 18A revenues).

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

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

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

A. Yes. The ECOS study includes the development of separate supply-related and credit and collection-related MFC components to recover the costs for these commodity-related competitive services from two categories of customers. The supply-related MFC component consists of the costs associated with procuring commodity, and an allocation of IT and education and outreach associated with commodity. The credit and collection-related MFC component consists of costs associated with credit and collection/theft. Only full service customers will pay for these MFC components. The costs for credit and collection services associated with the Purchase of Receivables ("POR") program have been identified separately and are reflected in a component of the POR discount applicable to marketers serving firm transportation customers receiving utility consolidated bills.

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

A. One hundred percent of gas procurement activity costs and 25 percent of credit and collection/theft, IT, and education and outreach costs were allocated on a per-therm basis. The remaining 75 percent of credit and collection/theft, IT, and education and outreach costs were allocated on a per-customer basis.

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

A. The Company followed basic cost causation principles and determined that customer care-type activities are predominantly driven by the existence of customers on the system as opposed to their usage characteristics. On the other hand, the functional cost of purchasing commodity is aligned with sales volumes. This allocation is consistent with the Order Adopting Unbundled Rates and Backout Credits and Specifying Terms for the Recovery of Revenues Lost As a Result of Such Rates and Credits, issued April 15, 2005, in Case 04-E-0572, approving Con Edison's unbundled rates.

Q. Is the allocation of the MFC components to various groups of customers shown on Exhibit __ (GRP-1)?

A. Yes. Schedule 2 of Exhibit __ (GRP-1), pages 1 and 2, shows the allocation of the competitive supply-related MFC cost components and the competitive credit and collection-related MFC cost components to the residential and commercial categories of customers. The exhibit presents these two components as percentages of total revenues, which is the sum of the T&D and competitive revenues (i.e., MFC, BPP and POR Discount Credit and Collection revenues) used in the ECOS study. Separate percentages are shown for the residential and commercial groups of customers for use in the development of the MFC.

Q. Is the allocation of unbundled costs for the printing and mailing a bill and receipts processing functions shown on Exhibit __ (GRP-1)?

A. Yes. Schedule 3 of Exhibit __ (GRP-1) shows the unbundled costs for printing and mailing a bill and receipts processing functions. The printing and mailing a bill function and the receipts processing function consist of the customer accounting expense of accepting customer payments and billing customers, including both direct costs and an allocation for call center and walk-in center operations based on a detailed study of those activities.

Credit and collection, education and outreach, and uncollectible expenses were allocated to these functions on the basis of functional revenues. The unbundled average unit cost for receipts processing is 50 cents per bill. The average unit cost for printing and mailing a bill is 61 cents per bill. The costs for these two functions combined yield $1.11 in unbundled costs associated with billing and payment processing. The costs associated with billing and payment processing do not vary by service classification and, thus, the system-wide $1.11 in unbundled costs is applicable to all service classifications.

IV. GAS MARGINAL T&D COST ANALYSIS

Q. Did you perform an analysis of the marginal cost of delivering an additional therm of gas on the transmission and distribution system?

A. Yes. The analysis is shown on Exhibit __ (GRP-2) titled "Consolidated Edison Company of New York, Inc. – Marginal Cost Analysis."

Q. Please describe the exhibit.

A. Exhibit __ (GRP-2), Schedule 1, shows the steps in the calculation of the marginal cost of delivering an additional therm of gas on Con Edison's gas transmission

and distribution system. Exhibit __ (GRP-2), Schedule 2 presents a comparison of marginal costs developed in Schedule 1 to current T&D revenues.

Q. What period was used to calculate marginal costs?

A. We used the forecast period of five years from January 1, 2019 through December 31, 2023. This period includes the twelve months ending December 31, 2020 (”Rate Year”).

Q. Please define marginal T&D costs.

A. Marginal T&D costs are the costs associated with additions and modifications to the T&D system infrastructure that result from increased throughput due to increased sales. This does not include costs associated with service piping or any equipment inside the customer’s premises.

Q. How did you estimate the marginal T&D costs for this study?

A. First, we identified capital costs incurred for the T&D system to maintain reliable service under peak design conditions as a result of increased sales. Line 1 in Exhibit __ (GRP-2), Schedule 1, shows the projected average annual capital investment in the T&D system for the years 2019-2023 that results from increased sales. Next, we calculated the annualized costs associated with the average annual capital costs by applying a carrying charge of 7.56%, plus an additional 2.52% in annual O&M,

to Line 1. The final step in our analysis was to compute the average T&D capital costs per unit of increased sales by dividing the incremental annualized capital costs by the projected increase in annual sales and escalating the result to bring it to Rate Year dollars. Line 6 of Exhibit __ (GRP-2), Schedule 1, shows the computed projected increase in sales (in therms); Line 7 shows the general escalation factor; and Line 8 shows the resultant total average marginal T&D cost per unit of increased sales.

Q. How do the marginal T&D costs compare to what is currently being recovered in rates?

A. Exhibit __ (GRP-2), Schedule 2, shows that marginal costs currently exceed what is being recovered in delivery rates for SC 2 Rate II. Marginal costs are less than what is being recovered in delivery rates for SC 2 Rate I. The amount by which marginal costs are less than what is being recovered in delivery rates is the basis for the discounts participating customers receive under Rider D – Excelsior Jobs Program ("EJP"), which is further discussed in detail below. If marginal costs exceed what is being recovered in delivery rates, no discount under EJP is warranted.

V. REVENUE ALLOCATION AND RATE DESIGN

Q. Did the Accounting Panel provide you with the increased delivery revenue requirement for the Rate Year?

A. Yes, the increase in the delivery revenue requirement for the Rate Year, which is proposed to be obtained from firm sales and firm transportation customers in SCs 1, 2, 3, 9 and 13, amounted to $210.131 million including gross receipts taxes.

Q. Please describe how you determined the Rate Year delivery revenue increase applicable to each class.

A. We performed the following steps in allocating the increased delivery revenue requirement:

- Gross receipts taxes of $6.452 million were deducted from the total Rate Year increased delivery revenue requirement of $210.131 million to derive the delivery revenue increase in the Rate Year of $203.679 million.
- Rate Year delivery revenues at the current level for SC 1, SC 2 Rate 1 and SC 3 were then realigned to eliminate the deficiency and surplus indications from Exhibit __ (GRP-1), Schedule 1, Table 1A. To address the need to eliminate the surpluses and deficiencies while considering the impacts on SC 3 customers, we applied one third of the class-specific deficiency and surplus indications ("revenue adjustments") from the

ECOS study in a revenue neutral manner prior to applying the revenue increases. This approach allows us to address revenue and cost imbalances while considering customer bill impacts. Our intent is to reduce further any deficiencies and surpluses in subsequent years.

- The Rate Year delivery revenue increase was then allocated to each class by applying the overall Rate Year delivery revenue percentage increase to Rate Year delivery revenues as realigned for the ECOS study surplus and deficiency indications as described above. The Rate Year delivery revenue percentage increase of 14.49% was developed by dividing the proposed delivery rate increase by the total Rate Year delivery revenues.
- We then determined the total Rate Year delivery revenue increase for each class by adding the revenue adjustments we proposed based on Table 1A of the 2017 ECOS study to the delivery revenue increase allocated to each class.

Q. Please explain how you designed firm gas delivery rates for each service class.

A. The rate design process consisted of the following steps:

- determining the amount of the revenue increase applicable to the competitive charges;

- determining the remaining amount of the revenue increase to be applied to non-competitive charges; and
- designing rates for non-competitive charges.

Q. Please explain how you determined the amount of the delivery revenue increase attributable to the competitive charges.

A. The amount of the delivery revenue increase attributable to the competitive charges is determined by taking the difference between the competitive service revenues at the proposed rates, designed in accordance with the Unbundling Policy Statement, and the competitive service revenues at current rates. The change in competitive delivery revenues reflects changes in the MFC fixed components. For reasons we will discuss later in this testimony, we are not proposing any changes to the billing and payment processing ("BPP") charge.

Q. Please describe the MFC fixed components.

A. The MFC fixed components consist of: a supply-related component, a credit and collections-related ("C&C") component, and a POR C&C component. Separate MFCs were calculated for the following MFC groups: (1) residential customers (SCs 1 and 3) and (2) commercial customers (SCs 2 Rate I, 2 Rate II and 13).

Q. Please describe how you designed the MFC.

A. As shown on Exhibit __ (GRP-1), Schedule 2, Page 1, the costs associated with the supply-related component are:

(1) 0.11714% of total delivery revenues for residential customers; and

(2) 0.03501% of total delivery revenues for commercial customers.

To determine the Rate Year revenue requirement associated with these costs for each MFC group, the respective percentages were applied to the total Rate Year revenue requirement at the proposed rate level. The resulting Rate Year revenue requirement for the supply-related portion of the MFC for each MFC group was then divided by the combined Rate Year sales for SC 1 and SC 3 full service customers and the combined Rate Year sales for SC 2 Rate I, SC 2 Rate II and SC 13 full service customers, respectively, to determine the $/therm supply-related component of the MFC for each MFC group.

Q. Please continue.

A. As shown on Exhibit __ (GRP-1), Schedule 2, Page 2, the total costs associated with credit and collections-related component of the MFC are 0.54052 percent of total Con Edison delivery revenues at current rates.

To determine the Rate Year C&C-related revenue requirement, this percentage was applied to the total Rate Year delivery revenue requirement at the proposed level. The total Rate Year C&C-related revenue requirement was then split between full service and POR customers based on the respective split of full service and POR forecasted Rate Year volumes. The portion of the C&C-related Rate Year revenue requirement to be recovered from full service customers through separate MFC rate components was further allocated among: (1) SC 1 and SC 3 customers and (2) SC 2 Rate I, SC 2 Rate II and SC 13 customers based on the breakdown of relative class percentages for full service customers' portion of C&C costs as shown on Exhibit (GRP-1), Schedule 2, Page 2. The resulting Rate Year revenue requirements for the C&C-related portion of the MFC for each MFC group were then divided by the respective Rate Year volumes for full service customers to determine the $/therm C&C-related component of the MFC. The residual Rate Year C&C-related revenue requirement will be recovered through a percentage adder to the POR discount rate.

Q. Have you changed the BPP charge?

A. No. Under the current Electric and Gas Rate Plans established in Cases 16-E-0060 and 16-G-0061, in order to

have a consistent BPP charge applicable to gas and electric service, the BPP charge was set at $1.20, although the unbundled cost for billing and payment processing was higher for electric service. Similarly, Marketers currently pay $1.20 per bill per account for consolidated billing services provided by the Company. As noted in Section III, the unbundled cost for gas billing and payment processing is $1.11 per bill. However, the Electric ECOS study determined that the unbundled cost for electric billing and payment processing is $1.18 per bill, and accordingly the Electric Rate Panel is proposing to keep the BPP at the current level of $1.20. The Company is proposing to keep the gas BPP charge at its current level of $1.20 per bill to maintain a consistent BPP charge for electric and gas service.

Q. How will the BPP charge be applied?

A. Single service gas customers purchasing both commodity and delivery from the Company and single service retail access customers receiving separate bills from the Company and a Marketer will pay $1.20 per bill, which is also unchanged.

Q. Will dual service customers pay the same BPP charge as single service customers?

A. Yes, but half of the charge is treated as a gas charge under the Company’s gas rate schedule and the other half

as an electric charge under the Company's electric rate schedule.

Q. Please describe the next step in the rate design process.

A. The revenue increase to be applied to the non-competitive charges for each class was determined by adjusting the total revenue increase for the variation between the competitive charges by class at current rates and competitive charges by class for the Rate Year.

Q. Please describe how you designed the non-competitive charges to collect the Rate Year non-competitive delivery revenue increase.

A. The minimum charges, which include delivery of the first three therms of gas, were increased for the firm service classes. The minimum charge for SC 1 was increased from $23.70 to $26.30 as explained below. The minimum charge for SC 2 Rate I and SC 2 Rate II was increased from $30.45 to $34.80 and the minimum charge for SC 3 was increased from $20.40 to $23.80 to better reflect the ECOS study customer cost indications. The SC 13 minimum charge also increased since it's a function of the SC 2 minimum charge in that it recovers the same annual minimum charge revenue over a 7 month period, i.e., the number of months that customers can take service under SC 13, instead of over a 12-month period.

Q. Please explain why the minimum charge for SC 1 was increased.

A. The majority of SC 1 customers use 5 therms or less per month and the vast majority of SC 1 delivery revenue is associated with the minimum charge. Therefore, applying the revenue increase solely to the volumetric charge would disproportionally affect customers using more than 5 therms per month.

Q. Please continue to describe the rate design for the non-competitive charges.

A. After considering the amount of the delivery revenue increase attributable to changes in the minimum charges, the remaining non-competitive delivery revenue increase within each class was allocated as follows:

- The charges for the per therm rate block for SC 1 (i.e., for all usage over 3 therms per month) was designed to collect the balance of the revenue increase assigned to SC 1.
- The charges for the three volumetric rate blocks within SC 3 (i.e., for usage from 4 to 90 therms, for usage from 91 to 3,000 therms and for usage greater than 3,000 therms) were increased, on a uniform percentage basis, based upon the remaining revenue increase for this class after deducting the changes

in annual revenues attributable to the minimum charge and to the air conditioning rates (as explained below).

- The charges for the first volumetric rate block (i.e., for usage from 4 to 90 therms) within SC 2 were set equal for Rate I and Rate II. The charges for the remaining two rate blocks within Rate I and Rate II (i.e., for usage from 91 to 3,000 therms and for usage greater than 3,000 therms) were increased, on a uniform percentage basis, based upon the remaining revenue increases for Rate I and Rate II after deducting the change in annual revenues attributable to the minimum charge, the first volumetric (4-90 therms) per therm charge, and the air conditioning rates (as explained below).
- After accounting for the change in revenues to be collected through the SC 13 minimum charge, the two volumetric rate blocks for SC 13 were assigned the balance of the rate increase assigned to SC 13 on an equal percentage basis. Consistent with our current rate design, the SC 2 and SC 3 air-conditioning rates were set equal to the proposed block rates in SC 13, because the air-conditioning rates apply to seasonal off-peak firm gas usage as SC 13 rates do.

- Rider G (Economic Development Zone) rates were set equal to the applicable SC 2 rates for the first 250 therms per month of usage. The delivery rates for usage from 251-3,000 therms (the "penultimate rate") and in excess of 3,000 therms (the "terminal rate") were increased at the same uniform percentage as their applicable SC 2 rates. This rate design maintains the relationship between Rider G rates and SC 2 rates, i.e., the terminal rate (usage in excess of 3,000 therms) is 50% of the corresponding SC 2 delivery rates, and the rates for usage from 251-3,000 therms (the "penultimate rate") is equal to the increased terminal rates plus the difference between the proposed SC 2 terminal rates and the proposed SC 2 penultimate rates, thereby maintaining the existing differential between the SC 2 penultimate and terminal rates.

Q. Are you proposing any changes to the distributed generation ("DG") rates under Riders H and J?

A. Yes, we are proposing to increase the non-competitive delivery rates for Riders H and J as follows:

- The Rider H minimum charges, which include the first 3 therms of gas use, were increased by the same percentage increase as the SC 2 Rate 1 minimum

charge. The per therm rates and the contract demand rate were then increased on a uniform percentage basis, based upon the remaining revenue increase for Rider H after deducting the change in annual revenues attributable to the minimum charges.

- The minimum charge and per therm rate for Rider J, Rate I, applicable to SC 1 and equivalent SC 9 customers, was increased by the same percentage increases as applied to the SC 1 non-competitive delivery rates.
- The Rider J minimum charge, applicable to SC 3 and equivalent SC 9 customers in buildings with four or less dwelling units, was increased by the same percentage increase as the SC 3 minimum charge. The per therm rate was then increased based upon the remaining revenue increase, after deducting the change in annual revenues attributable to the minimum charge.

Q. Did you allocate any of the delivery revenue increase to Firm Bypass customers in SC 9 or customers in SC 14?

A. No. Firm Bypass customers in SC 9 were not allocated any portion of the rate increase because bypass rates are set by contract based on the bypass customer's competitive alternatives. SC 14, the rate for natural gas used in vehicles, was not allocated any portion of the rate

increase because SC 14 customers are charged either fixed rates set by contract or market-based rates reflecting the competitive price of gasoline.

Q. Are you proposing any other rate changes?

A. Yes, we are proposing to update the discounts for customers who commence service under Rider D, EJP, on or after January 1, 2020.

Q. How did you determine the discounts for Rider D?

A. Exhibit ___ (GRP-2), Schedule 2, shows the ratio of marginal costs to what is currently being recovered in delivery rates. The rate discounts were based on one minus the ratio of the marginal costs to the corresponding revenue requirement for the respective class. This results in a discount of 23% for SC 2 Rate I and no discount for SC 2 Rate II. For customers commencing service under Rider D beginning on or after January 1, 2020, this percentage reduction would be applicable to their delivery rates. EJP discount percentages have been rounded to the nearest whole percentage.

Q. Are there any other changes to Rider D?

A. Yes. The tariff will specify that customers will receive the percentage discount that’s applicable at the time they commence service under Rider D. Existing customers under

Rider D will continue to receive their current discount percentage.

VI. INTERRUPTIBLE SERVICE

Q. Are you proposing any changes to rates of the interruptible service class?

A. Not at this time. However, this should not be taken as any indication that an increase, for example, in the Off-Peak Firm rate is not justified. Accordingly, we reserve our rights to propose an increase to interruptible rates in the future.

Q. Why are you not proposing an increase in the Off-Peak Firm rate at this time?

A. In accordance with the Commission's Order issued January 25, 2017, in Case 16-G-0061, the Company has been conducting an Interruptible Gas Collaborative ("the Collaborative") in order to examine interruptible gas rates and services, with input from DPS Staff and interested parties. We believe that the Collaborative should be completed before changes to interruptible rates and services are considered.

Q. Why do you suggest that an increase in Off-Peak Firm rates is justified?

A. As the Company has testified in prior gas rate cases, firm gas customers pay rates for delivery service that are designed to recover the full cost of the Company's distribution facilities. Non-firm gas customers use the Company's gas delivery system when there is capacity available in excess of firm gas customer requirements. Because firm customers have a first call on the use of this delivery capacity, non-firm customers pay discounted delivery rates. However, the rate charged for non-firm service should be set so that non-firm customers make a fair contribution to the recovery of delivery system costs. The Off-Peak Firm rate has been subject to only a small adjustment since this rate was first established in 1993 and, on a percentage basis, off-peak firm customers make a smaller contribution to the cost of the facilities used to provide service to non-firm customers.

VII. REVENUES AND BILL IMPACTS

Q. Having computed revised rates for each service classification, have you prepared exhibits showing what the estimated impact on customers' bills would be under the proposed rates?

A. Yes, We prepared Exhibit __ (GRP-3), the first page of which is entitled "CONSOLIDATED EDISON COMPANY OF NEW

YORK, INC. – RATE DESIGN – GAS DEPARTMENT – RATE YEAR 2020."

Q. Please continue.

A. Exhibit __ (GRP-3) includes four schedules that compare present and proposed revenue levels and rates and show the estimated impacts on customers' bills resulting from the proposed rates.

Q. Please explain each schedule.

A. Exhibit __ (GRP-3), Schedule 1, shows, by service classification, the Rate Year annual service class revenues at current January 1, 2019 rates, the Rate Year annual service class revenues at the proposed rates, and the resulting change in Rate Year service class revenues. Also shown is the number of customer bills that would have been increased, decreased and remain unchanged in the Rate Year based upon customer data for the 12-month period ended December 31, 2017. The revenues reflect an estimated gas cost for both full service and transportation customers.

Exhibit __ (GRP-3), Schedule 2, shows a comparison of the current firm rates and charges, effective January 1, 2019, with the proposed firm rates and charges, for SCs 1, 2, 3, 9, 13, and for distributed generation rates under Riders H and J.

Exhibit __ (GRP-3), Schedule 3, shows bill comparisons by service class, at the current January 1, 2019 rates and at the proposed rates. It consists of tables that show comparisons of monthly bills at various usage levels under the current rates and charges and under the proposed rates and charges.

The revenues and bill impacts shown in Exhibit __ (GRP-3), Schedules 1 and 3 include the same gas cost, SBC and MRA rates, at the forecasted Rate Year level, in the revenues and bill amounts at the current revenue level and proposed revenues and bill amounts in order to demonstrate the impact of the change in delivery rates on a customer's total bill amount. The revenues and bill impacts therefore do not include the effect of changes outside the base rate level approved by the Commission, such as the tax sur-credit, Efficiency Transition Implementation Plan ("ETIP") cost recovery transferred from the SBC to base delivery rates, New York Facilities net payments and receipts transferred from base delivery rates to the MRA, and the Revenue Decoupling Adjustment revenues.

Q. Have you prepared any analyses that show the change in total firm customers' bills taking into account both the increase in proposed delivery rates and projections for other charges, such as commodity charges?

A. Yes. We prepared Exhibit __ (GRP-3), Schedule 4, entitled "Consolidated Edison Company of New York, Inc. Projected Gas Bills." In this schedule, we show a comparison of average monthly bills by service class at proposed rates and charges for three 12-month periods. In these comparisons, the commodity and delivery-related portions are also shown. The commodity charges reflect the effect of projected gas costs. The delivery charges consist of projected non-competitive and competitive delivery charges based on three years of projected delivery revenue requirements provided by the Accounting Panel. Delivery charges also include projections for various other charges, such as the MRA and SBC, for each of the three Rate Years.

VIII. OTHER TARIFF CHANGES

Q. Are you making any tariff changes as a result of program changes proposed by other Company witnesses in this case?

A. Yes. The Panel is sponsoring tariff changes associated with program changes being proposed by other Company witnesses as follows:

- The uncollectible ("UB") charges related to the MRA, under General Information Section IX.11, and MFC, under General Information Section IX.8, were updated

to reflect $0.46 per $100 as proposed by the Accounting Panel. The MFC UB factors were updated to reflect $0.7200 per $100 of commodity costs for residential customers and $0.2800 per $100 of commodity costs for non-residential customers, based on the system UB rate of $0.46 per $100 of commodity costs as proposed by the Accounting Panel.

- As proposed by the Accounting Panel, the Company has updated the corporate overheads and storage and handling fee in General Information Section IV.2.(B) and (F), which lists the elements of costs charged for special services performed by the Company.
- A new component, "Reconciliation of Interference Costs", has been added to General Information IX, Special Adjustments, to recover carrying charges associated with interference costs causing an exceedance of the gas net plant target, as proposed by the Municipal Infrastructure Support Panel and the Accounting Panel. Also, General Information VII.(B)(2) has been amended to include this component in the list Other Monthly Rate Adjustments.
- The Low Income Reconciliation Adjustment, under General Information Section IX.10, has been updated to reflect the proposed increase in the low income

funding level from $10.9 million to $15.936 million, as proposed by the Customer Operations Panel.

- General Information IV.3.(c) Request for Aggregated Company Records has been updated to allow building owners or agents not covered by the local law exemption to still obtain aggregated building level data, as proposed by the Customer Operations Panel.
- As proposed by the Customer Energy Solutions Panel, a new component, Energy Efficiency Employee Variable Pay Adjustment ("EEEVPA"), has been added to General Information Section IX Special Adjustments to recover firm gas customers' share of commission-based variable pay for certain energy efficiency and demand management employees not included in the Management Variable Pay program. The EEEVPA will be collected over a 12-month period. The new EEEVPA has been added to the list of monthly rate adjustments under General Information Section VII(B)(2).
- The System Benefits Charge provision, under General Information IX.16 and under Rates (J)(9) under Service Classification No. 9, was amended to exclude from recovery, through the Energy Efficiency Tracker Surcharge Rate, costs associated with programs funded through base delivery rates. This is consistent with

the transfer of ETIP costs from the SBC to the base delivery rates, as proposed by the Customer Energy Solutions Panel.

- As proposed by the Customer Energy Solutions Panel and the Accounting Panel, General Information IX.25, Earnings Adjustment Mechanism Related to AMI Customer Awareness ("AMI EAM"), has been renamed "Earnings Adjustment Mechanisms and Other Revenue Adjustments" and will be extended to recover any positive incentives earned under Earnings Adjustment Mechanisms, and recover/credit any other incentives and revenue adjustments associated with Company incentive mechanisms, as authorized by the Commission. The surcharge or credit amounts will be applicable to firm sales and firm transportation customers on a common cents per therm basis, collected over a 12-month period and reconciled annually. Also, General Information VII (B)(2) has been amended to include this component in the list of Other Monthly Rate Adjustments.

The following tariff changes related to Advanced Metering Infrastructure ("AMI") were made:

- Definitions were added or modified in the tariff for the following terms:

(1) "AMI meter" was added in General Information Section II.(1).

(2) "actual reading," in General Information Section II.(3), was modified to reflect that a remote reading is considered an actual reading.

(3) "Interval Meter" was added for clarity to include the legacy interval meters as well as AMI meters in General Information Section II.(33).

- Language was added throughout the tariff to specify that the Company will provide and maintain the communications service for customers served by AMI Meters installed under the Company's AMI program.

The Panel is also sponsoring these tariff changes associated with the program changes being proposed in the Gas Infrastructure, Operations and Supply Panel ("GIOSP") testimony:

- The Oil to Gas Conversion Program Surcharge, under General Information Section IX.13, has been modified to reflect the discontinuance of the Conversion Incentive Program (i.e., up to $1.465 million of incentives offered annually). However, this surcharge will continue to collect incentive payments provided to customers as authorized by Rate Plans in effect prior to January 1, 2020.

- The New York City and Westchester Area Growth Programs, under General Information Section III (J) and (K), and references to these programs throughout the tariff have been eliminated since these programs will not continue in the Rate Year, as discussed by GIOSP.
- Changes have been made to the Revenue Decoupling Mechanism Adjustment ("RDM") under General Information Section IX.14 and under Rates (J)(8) under Service Classification No. 9 to reflect the proposed change in the Revenue Decoupling Mechanism from a revenue per customer methodology to a revenue per class methodology.
- In General Information Section VII.(A)1(a)(i), "fixed gas costs" will include the cost for capacity, including fees, purchased through third party Asset Management Agreements;
- In General Information Section VII.(A)1(b), the variable gas cost will include all costs associated with using an online auction platform including auction platform licensing fees, maintenance fees, customization fees and related costs;
- The Pipeline Facilities Adjustment, under General Information Section IX.18, recovers payments made to

interstate pipeline companies for upgrades to interstate pipeline facilities at certain Company gate stations, pursuant to Commission-approved Company Rate Plan(s). This section has been amended to remove specific references to interstate pipeline companies, expenditure levels and Company rate plans. This section, as revised, will permit recovery of such payments as permitted pursuant to Commission-approved Company rate plans;

- The balancing service charge for Service Classification No. 9 Transportation Service Rates Sections (H)(2)(a) and (H)(2)(b) and for Service Classification No. 20 Transportation Receipt Service Charges and Credits Section (C), for Interruptible and Off-Peak Firm Customers taking the Monthly Balancing Service, will include a maximum Delivery Charge on over-delivery quantities for any day on which the Customer's or Seller's aggregated Daily Transportation Quantities are above 110% of their Daily Delivery Quantities.
- The provisions for "Emergency Electrical Generators," under General Information Section III.3.(H) have been modified to (1) require customers, who have not previously applied and been approved to use natural

gas for heating, to have an electric and a gas AMI meter, (2) remove the restriction on generator size, and (3) add a provision related to consequences for unauthorized winter season gas use during times when there is no electrical service interruption.

- The applicability section under Rider J, under General Information VI., has been expanded to require a customer to indicate if the request for gas service is for an emergency generator when they submit the Rider J application.
- The New York Facilities Adjustment, under General Information Section IX.21, will be amended to reflect 100% of the Company's net payments and receipts resulting from the New York Facilities Agreement among the Company, The Brooklyn Union Gas Company d/b/a National Grid NY ("Brooklyn Union"), and KeySpan Gas East Corporation d/b/a National Grid ("Gas East"), as proposed by the GIOSP and Accounting Panel;

Q. What other tariff changes are being sponsored by the Gas Rate Panel?

A. The following additional Gas Rate Panel sponsored tariff changes are summarized below:

- We have amended General Information Section IX.17 to indicate that Tax Sur-credits will no longer be provided after December 31, 2019 through the Tax Sur-credit mechanism since the benefits associated with the Tax Cuts and Jobs Act of 2017 will be reflected in base rates
- The factor used to estimate a customer's winter peak day gas usage under Rider H has been updated from 1.3 to 1.4 in order to reflect more recent actual customer usage data consistent with the data used in the ECOS study for this case.
- As discussed in the Rate Design section above, tariff changes have been made to specify the EJP discounts under Rider D applicable to customers based on their rate class and the date on which they commence service.

Q. Please describe any housekeeping changes you are making.

A. The housekeeping changes are as follows:

- As noted by the GIOSP, the Safety and Reliability Surcharge Mechanism ("SRSM") will continue. We have amended General Information IX.23, to streamline the language.
- The RDM, under General Information Section IX.14, is modified to eliminate the low income adjustment to

actual delivery revenue since this is no longer applicable.

- We modified the definition of the minimum charge under Service Classifications 1, 2, 3 and 13 to refer to the rate for the first 3 therms of gas rather than quoting the specific numerical rate.
- We eliminated obsolete tariff provisions related to (a) the reconciliation of New York State taxes prior to October 1, 2004, and (b) the Delivery Revenue Surcharge and other references throughout the tariff related to the extension of the suspension period in Case 16-G-0061.
- On leaf 183.4 we corrected the reference to the following leaf from 184 to 183.5.
- We amended General Information VII.(A)1.(d)to streamline the language related to the line loss and factor of adjustment.

Q. Are you updating the line loss factor and Factor of Adjustment at this time?

A. No. Since the Factor of Adjustment is updated each January based upon the average of actual line losses for the preceding five 12-month periods ending August, we do not have the values at this time. This will be updated at a later stage in this proceeding.

IX. RATE CASE ENHANCEMENTS PROJECT

Q. Is the Panel proposing any systems initiatives?

A. Yes, as discussed in the testimony of the Demand Analysis and Costs of Service Panel filed in the Company's electric rate case, the Customer Usage System ("CUS") project is common to both gas and electric services. As discussed in the whitepaper, this project provides gas-related load research benefits. For example, an interface to the CUS data warehouse will be built in order to permit validation of the load research data as compared to actual billing data.

Q. Does this conclude your direct testimony?

A. Yes, it does.