CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
ELECTRIC CASE TESTIMONIES
VOLUME 4

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Q. Please state your name, title, employer, and business address.

A. My name is Ivan Kimball. I am Vice President, Energy Management for Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company"). My office is located at 4 Irving Place, New York, New York 10003.

Q. Please describe your responsibilities in that position.

A. I am responsible for providing the overall strategic planning and direction for forecasting service area demand, evaluating electric, natural gas, and steam resource options, and procuring electricity and natural gas. I perform these functions for the customers of Con Edison, Orange and Rockland Utilities, Inc. ("O&R") and Rockland Electric Company ("RECO").

Q. Please describe your professional background.

A. I have been in my current position since July 2012. From August 2008 to June 2012 I was Director, Electricity Supply for Con Edison. In that position I was responsible for day-to-day electricity supply operations, including the scheduling of generation and load bids with the New York Independent System Operator ("NYISO") and neighboring control areas; developing the overall electric power procurement plans for full service customers; developing and implementing Con Edison's electric hedging program; strategically evaluating and participating in capacity and transmission congestion contract ("TCC") auctions; managing contractual rights with various non-utility generators; and processing monthly invoices for wholesale purchases and sales of capacity, energy, and TCCs for Con Edison and its affiliates, O&R and RECO. From December 1998 to August 2008, I was employed by Consolidated Edison Energy, Inc. ("Con Edison Energy") where I was most recently the Director of Asset Management. My responsibilities included management of the business aspects of the generating facilities owned by Consolidated Edison Development, Inc. ("Con Edison Development") in New England and other generating facilities with whom Con Edison Energy had contracts. This included day-to-day scheduling, fuel procurement, electricity market sales and planning, and associated regulatory and accounting matters. From September 1987 to December 1998, I was employed by Con Edison in various positions of increasing responsibility.

Q. Briefly state your educational background.

A. I received a Bachelor of Science degree and a Master of Science degree in Nuclear Engineering from Rensselaer Polytechnic Institute in May 1986 and September 1987, respectively.

Q. Have you previously testified before the New York Public Service Commission ("Commission")?

A. Yes. I have testified before the Commission in Cases 09-E-0428, 13-E-0030, 16-E-0060, and 16-G-0061.

PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. I describe Con Edison's historical and projected wholesale electric supply purchases for the Company's full service customers. Historical supply purchases cover the period from January 2013 through December 2017 and projected supply purchases cover the period from January 2019 through December 2023, which includes the rate year. This section of the testimony also describes the Company's efforts to minimize supply costs to customers.

I also discuss incremental capital costs that the Company expects to incur for system enhancements relating to the implementation of the nMarket Upgrade/Replacement Project, Transmission Owners Data Reconciliation System Next Generation, Metrix IDR Upgrade and Functional Enhancements, and Business Analytics for AMI.

HISTORICAL SUPPLY COSTS

Q. What are the Company's objectives when purchasing electric supply for its full service customers?

A. The Company seeks the lowest reasonable electric purchase costs for its customers, subject to reliability and contractual constraints. As part of this objective, the Company also seeks to mitigate price volatility.

Q. In what ways does the Company accomplish these objectives?

A. The Company pursues commercial opportunities, such as favorable contract restructurings or negotiations.

The Company also pursues structural and tariff changes in the NYISO's wholesale electric markets that are beneficial to the Company's customers through active participation in the NYISO governance process and through filings with the Federal Energy Regulatory Commission ("FERC"). Where appropriate, the Company pursues certain matters before FERC through litigation, settlement and mediation conferences, and the filing of comments and petitions in an effort to obtain just and reasonable wholesale electric prices for its customers. I discuss these efforts later in my testimony.

Q. Please describe, in general terms, how Con Edison procures electric supply for its full service customers.

A. Electric energy and capacity are obtained from four main sources: Brooklyn Navy Yard ("BNY"); Con Edison's own steam-electric generation; Con Edison's Request for Proposal (RFP) Auctions; and purchases made from the NYISO's energy, capacity, and ancillary services markets. The Company also uses financial hedges to mitigate price volatility for its customers.

Q. I show you a one-page document entitled, “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. - WHOLESALE ELECTRICITY SUPPLY COSTS – CALENDAR YEARS 2013 THROUGH 2017,” and ask whether it was prepared under your supervision and direction?

A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT (ES-1)

Q. What does Exhibit (ES-1) show?

A. Exhibit (ES-1) illustrates the costs from January 1, 2013 through December 31, 2017 for energy, capacity, and other services acquired on behalf of the Company’s full service customers. This exhibit shows a slight decline in the volume of the Company’s total energy supplied, which is primarily due to customers migrating from full service to retail access.

Q. Please describe the Company’s firm supply contracts.

A. As noted in Exhibit (ES-1), about 2,000 MW (approximately 32% of the Company’s capacity supply) and almost 6.7 million MWh (approximately 32% of the Company’s energy supply) were provided by the Company’s three firm contracts in 2017. Two of these were mandated NUG contracts with Public Utilities

Regulatory Policy Act ("PURPA") units, and one was with Entergy. Two of these three firm contracts expired at the end of December 2017.

Q. Please describe the Company's steam-electric generation.

A. As noted in Exhibit (ES-1), 732 MW (approximately 12% of the Company's capacity supply) and over 3.0 million MWh (approximately 15% of the Company's energy supply) were provided by the Company's steam-electric generation facilities in 2017. Fuel costs for this generation are allocated between the steam and electric services in a manner established by the Commission.

Q. Please describe the Company's spot purchases.

A. The Company's spot energy purchases are made from the NYISO, primarily in its day-ahead market, but also from its real-time market. The NYISO prices energy in both of those markets at eleven different load zones. About 85% of Con Edison's customers' consumption is in NYISO's Zone J, the New York City ("NYC") load zone. The remainder is located in NYISO Zones H (Millwood) and I (Dunwoodie).

Spot capacity purchases are made from the NYISO’s capacity markets. The NYISO administers four capacity market areas: one for NYC, one for Long Island, one for Lower Hudson Valley (“LHV”), and one for rest-of-state (“ROS”). The majority of Con Edison’s capacity obligation is in NYISO’s NYC market; the remainder is in the NYISO’s LHV and ROS markets. The NYISO conducts auctions that allow load serving entities (“LSEs”), like Con Edison, to purchase capacity for a one-month period or for periods of up to six months. Any LSE with capacity obligations not met by the sum of contract purchases and purchases made in these “strip” or monthly auctions is provided capacity by the NYISO from spot auctions the NYISO conducts monthly. Prices in each spot auction are set at the intersection of a demand curve, which is administratively established through the NYISO’s governance processes and approved by FERC, and the supply offer curve. One aspect of the spot auction is that it is a single clearing price auction, which means that all supply offers in NYISO’s spot auction that are below the intersection of the administrative demand curve and the supply offer curve receive the spot market clearing price. The NYISO demand curve allows purchases in excess of reliability requirements, and it is typical for more capacity to be available for sale than is required to be purchased. Such excess capacity is purchased by NYISO on behalf of the LSEs, which are obligated by the NYISO tariff to pay their allocated share of such "excess capacity."

Q. Please describe the Company's financial hedging practices.

A. The Company uses financial hedge products to mitigate the volatility of its spot purchases. Products include fixed-for-floating price swaps, also known as contracts for differences ("CFDs"), and options. CFDs are typically traded on a "5x16" basis, meaning their value is computed over the 16 peak hours (7 AM to 11 PM, prevailing time) on non-NERC-holiday weekdays. CFDs may also be traded on an "around the clock" basis, priced at the arithmetic average of all 24 hours in a day.

Options typically provide a financial benefit to the option holder when the contracted parameters, such as spot price, temperature, or both, exceed prior agreed-upon thresholds. The premiums or purchase costs of such options are related to the volatility of the underlying product, the length of time prior to delivery, and the agreed-upon strike price and/or temperature threshold.

Q. What has been the impact of the Company’s hedging program?

A. Exhibit (ES-1) identifies the net impact of the Company’s financial hedging from 2013 through 2017, including the cost of those hedges. The exhibit shows that the Company’s hedging practices stabilized wholesale supply prices for customers, which is the objective of the program. In accordance with the PSC’s August 28, 2006 Order Instituting Proceeding and Soliciting Comments and its April 19, 2007 Order Requiring Development of Utility Specific Guidelines for Electric Commodity Supply Portfolios and Instituting a Phase II to Address Longer-Term Issues in Case 06-M-1017, the Company maintains a supply portfolio that is hedged, but not 100% hedged for its residential and small commercial customers, and meets with Commission Staff at least once a year to review its hedging performance and plans.

PROJECTED SUPPLY COSTS

Q. Have you prepared a projection of generation capacity for the Company's steam-electric plants?

A. Yes.

Q. I show you a one-page document entitled, "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. - STEAM-ELECTRIC GENERATION CAPACITY (MW) PROJECTED FOR 2019 AND 2020," and ask whether it was prepared under your supervision and direction?

A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT (ES-2)

Q. What does Exhibit (ES-2) show?

A. Exhibit (ES-2) shows the capacity from the Company's retained generation located at its steam-electric plants (collectively referred to as "steam-electric generation").

Q. Have you also prepared a projection of wholesale energy costs?

A. Yes.

Q. I show you a one-page document entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. - PROJECTION OF WHOLESALE ELECTRICITY SUPPLY COSTS – RATE YEARS ENDING DECEMBER 2019 through DECEMBER 2023" and ask whether it was prepared under your supervision and direction?

A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT (ES-3)

Q. What does Exhibit (ES-3) show?

A. Exhibit (ES-3) sets forth my projections of electricity supply costs from January 2019 through December 2023, based upon the forecast of full service sendout provided to me by the Company's Forecasting Panel.

Q. Please describe the methodology used to develop these projections.

A. As noted earlier, capacity and energy are supplied from four major categories: the BNY contract, steam-electric generation, the Company's RFP Auctions, and spot purchases, from NYISO.

Firm contract capacity and energy costs were projected based on existing contract terms and reflect the historical dispatch of the units. Most firm contract energy costs are indexed to some fuel supply such as the delivered cost of natural gas or fuel oil. Natural gas price projections were based on September 2018 NYMEX Natural Gas forward prices.

Steam-electric generation costs were projected using the PROMOD cost optimization model. Steam sendout projections and fuel price forecasts were input into PROMOD, which models the operating characteristics of the Company's steam-electric units. The natural gas prices were based on the Wood-Mackenzie forecasts. Wood-Mackenzie is a research and consulting firm that provides commercial analysis and strategic advice for the global energy, metals and mining industries, for commodity delivered to the Henry Hub, Louisiana. Natural gas "basis differentials," reflecting the cost of interstate transportation from Henry Hub to Transco Zone 6 (NYC), were then applied to the natural gas prices. This delivered cost of natural gas was then increased to reflect the cost of taxes on generation fuel, yielding the natural gas price forecast. These forecasted natural gas basis differentials were provided by Wood-

Mackenzie. The fuel oil forecasts were based on the Wood-Mackenzie forecasts and NYMEX futures prices as described above. This delivered cost of fuel oil was then increased to reflect the cost of taxes, shipping and handling, yielding the fuel oil price forecast. Based on the modeled dispatch of the steam-electric units and a projected allocation of costs from Steam Operations for "processing charges," such as water, chemicals, and labor, the costs and volumes of energy available for electric supply were determined, as summarized on Exhibit (ES-3).

Q. Please explain why external services are used to develop natural gas and fuel oil price projections.

A. Natural gas and fuel oil prices are subject to significant period to period variations due to supply interruptions, economic and regulatory changes, and general market forces. An external consulting firm like Wood-Mackenzie can leverage its industry experience and market intelligence in producing commodity price projections.

Q. Please continue with your description of Exhibit (ES-3).

A. Spot capacity purchase costs are based on a projection of capacity supply margins in the NYC, LHV, and ROS regions as provided by the NYISO; the application of these margins to expected demand curve parameters to project prices; and then the application of these prices to the Company's expected spot capacity requirements in the NYC, LHV, and ROS regions. Excess capacity costs purchased by the NYISO and allocated to LSEs, as described earlier, are also included in these cost projections.

Spot energy costs are based on market values as of October 9, 2018. These price projections were then applied to the forecast of full service volumetric requirements as provided to me by the Company's Electric Forecasting Panel, after deducting energy projected to be supplied from firm contracts and steam–electric generation.

Q. Please continue with your description of costs in Exhibit (ES-3).

A. To mitigate the need for spot purchases and the associated price volatility of spot purchases, the Company has implemented two requests for proposals

(“RFPs”) for physical and financial supply. Through the first RFP conducted in May 2018, the Company purchased from multiple counterparties 400 MW of around-the-clock NYISO Zone J (New York City) financial energy consisting of natural gas price-indexed products; through the second RFP conducted in October 2018 the company purchased 600 MW of New York City and Lower Hudson Valley unforced capacity (“UCAP”) consisting of both financial and physical fixed priced capacity. The Company administered the RFP through online auctions for energy products for each of the three calendar year terms from 2019 through 2021, and capacity products for one-year terms for each of the three capability years commencing May 2019, May 2020, and May 2021.

Q. Has the net impact of the RFP been included in these projections?

A. Yes, they are included in the costs of the firm contracts on the exhibit.

Q. How does the Company plan to use the RFP process going forward?

A. The Company plans to conduct additional annual RFPs for both energy and capacity up to three years forward into the future. The RFPs will complement the financial hedges in the Company's hedge plan. This will allow the Company to further diversify its portfolio to mitigate wholesale supply price volatility to our customers.

Q. Has the net impact of financial hedges been included in these projections?

A. Hedges have been assumed to be "at the money," thereby not affecting customers' prices for the purposes of these cost projections. However, financial hedges command premiums for reducing buyers' risks and so would be expected to increase costs marginally over the long term.

SUPPLY COST SAVING INITIATIVES

Q. What efforts does the Company undertake to minimize supply costs to customers?

A. The Company tries to minimize supply costs by working to reduce the administrative costs of running its RFPs, representing customer interests in regulatory proceedings, and advocating for proposals that would reduce supply costs.

Q. What efforts did the Company undertake to reduce the administrative costs of running its RFPs?

A. In 2018, the Company piloted third-party RFP auction platform administered in-house at a significantly reduced cost over its prior vendor. The new platform requires the Company to incur new costs for customization, licensing, maintenance, and incremental internal labor costs, but still has resulted in much lower total auction platform and administrative costs than the previous external vendor’s end-to-end product costs.

Q. What are the cost differences between the prior vendor and the new vendor?

A. Under the prior vendor, annual auction fees collected from Con Edison suppliers ranged between approximately $1.1 million dollars and $2.2 million dollars. These fees were reflected in a supplier’s offer price, which means they were passed on to customers. In contrast, the new vendor’s fees are less than $120,000 per year.

Q. Is the Company proposing any tariff revisions with respect to the recovery of costs associated with conducting on-line auctions?

A. Yes. The Company is proposing to revise the tariff to recover the vendor fees that are today indirectly recovered from customers through the supply charge. As we have explained, under the previous vendor all costs, including customization, licensing, maintenance, and external labor, were estimated and provided to suppliers as an auction fee which would be incorporated into their bids and passed on to customers as a supply cost. By switching vendors, adopting a new platform, and administering the new platform in-house, the Company has reduced these administrative costs from between $1 million and $2.2 million to less than $120,000. However, the Company’s new approach results in these administrative costs becoming disaggregated from the supply costs and assumed by Energy Management without a mechanism for recovery. The Company is proposing tariff revisions to avoid this possibility and to allow the Company to recover as a supply cost the disaggregated administrative costs related to using an on-line auction platform.

Q. What regulatory efforts has the Company undertaken to minimize supply costs to customers?

A. A primary objective of the Company is to actively promote customers’ interests by advocating for the adoption of wholesale market rules that maintain reliability and resilience, align with state policy goals, and create fair and competitive market prices for all customers, including the Company’s full service customers. Moreover, the Company has consistently advocated for the implementation and maintenance of market mitigation measures necessary to prevent the influence of market power on electric prices. The Company aggressively pursues NYISO market structure and tariff changes that are beneficial to its customers through active participation in the NYISO’s governance process and in FERC proceedings.

Q. Please give some examples of the Company’s efforts in these NYISO processes and FERC proceedings.

A. Con Edison has been active in promoting rules that create fair and competitive wholesale markets. For example, the Company successfully proposed and implemented a new “collar” in the demand curve reset process to improve the stability and predictability of the annual updates. The Company also supported a revised optimization methodology for determining Locational Capacity Requirements, which included a Transmission Security Screen to provide for reliability protection in the New York City zone. The methodology was approved by FERC in 2018. Additionally, Con Edison advocated for a balanced approach to revising energy market offer caps for all the RTO/ISO markets in the FERC rulemaking proceeding in 2016. FERC agreed with the Company’s position by issuing a rule that would allow resources to recover their legitimate costs while protecting customers from unreasonably high prices and the exercise of market power.

Con Edison has also advocated for fair participation rules for demand response and new technologies in the NYISO markets. For example, several years ago in 2015, the Company challenged two FERC orders that address demand response. In the first order, FERC reversed a five-year old ruling that made payments from the Company’s Distribution Load Relief Program to Special Case Resources (“SCR”) exempt from the applicable capacity market buyer-side mitigation offer floor. In the second order, FERC denied the Public Service Commission’s request for an exemption from mitigation for certain resources, including demand response resources. The Company sought rehearing at FERC on both issues. In 2017, FERC reversed itself and sided with the PSC and Company position that all SCR participants should be exempt from buyer-side mitigation. The Company has also been heavily engaged in projects relating to the integration of energy storage resources and distributed energy resources. Working collaboratively with the Joint Utilities, the Company continues to meet with the NYISO to address operational issues across the bulk and distribution system to allow for the efficient integration of these technologies into the NYISO’s markets. The new rules are expected to take effect by May 2020 for energy storage and December 2021 for distributed energy resources more broadly, including an opportunity for small resource aggregation. Con Edison also participates actively in most NYISO projects and proceedings and secures changes that benefit customers. For example, the Company advocated for changes to the way the NYISO treats mothballed and retired units for forecasts associated with Buyer Side Mitigation, as well as inflation rates for offer floors for mitigated units.

The Company has also continued its leadership in support of market structures designed to improve efficiency between regional markets, such as its effort to promote changes that avoid the improper price increases to customers when generation in transmission-constrained areas in downstate New York sell capacity to neighboring regions. The Company supported the NYISO's proposal, which was adopted by stakeholders and approved by FERC, and will result in more appropriate price signals when units sell capacity to neighboring regions by recognizing the electric benefits of the unit still being physically located in the state. Additionally, the Company advocated for a reasonable Operational Base Flow protocol to be used at the seam between NYISO and PJM in absence of the historical 1,000 MW wheel. FERC ruled in favor of the Company and New York customers, preventing the allocation of transmission expansion costs from PJM to NYISO.

The Company actively participates in the Budget and Project Prioritization process at the NYISO to influence the types of projects that the NYISO will work on from year to year. The Company’s 2018 efforts resulted in the NYISO adding a project for 2019 that will evaluate the impact of climate change and the need for resiliency reforms to the NYISO markets. The project was jointly proposed by the Company and the City of New York. The Company has also worked with the other New York Transmission Owners on recommended improvements to the project prioritization process that, if adopted by the NYISO, will give the stakeholders, including the transmission owners, a greater voice in projects undertaken by the NYISO from year to year.

Similarly, the Company has supported revisions that will help streamline the transmission planning process at the NYISO. The Company is also working with other stakeholders to develop additional recommendations to help address ambiguities and gaps that exist in the current public policy transmission planning process.

Finally, the Company assumes leadership roles within NYISO stakeholder groups and industry-wide organizations.

Q. What proposals does the Company advocate for that would reduce supply costs to customers?

A. As the Company has explained in comments to the Commission regarding new initiatives to help meet the State’s Renewable Portfolio Standards (“RPS”) goals, Con Edison supports utility ownership of renewable facilities over any power purchase agreement (“PPA”) arrangements. Utility ownership will result in lower supply costs to our customers than PPAs would. In addition utility ownership will capture the continuing benefits of the renewable facilities for our customers over the life of the facilities instead of ending at the expiration of the PPAs.

SYSTEM ENHANCEMENTS

Q. Please describe the Electricity Supply IT Systems.

A. Energy Management is responsible for forecasting electricity demand, annual volumes, annual revenues, and daily scheduling requirements to serve the Company’s customers. The Company needs certain software systems to develop these forecasts and to provide proper scheduling to the NYISO.

Q. Do these systems require capital enhancements and related O&M support costs during the rate period?

A. Yes. There are four IT system enhancements needed to support Electricity Supply and the forecasting and planning needs of Energy Management. The Company estimates that it will incur total capital installation costs for these systems of $3.915 million in Rate Year 1 (calendar year 2020), $6.31 million in Rate Year 2 (calendar year 2021,) and $6.545 million in Rate Year 3 (calendar year 2022).

Q. What are the drivers behind the need for these system enhancements?

A. The New York State's Reforming the Energy Vision ("REV") initiative mandates that the Company be able to support changes in the makeup and operation of the electricity markets. These changes include support for Distributed Energy Resources ("DER"), including Storage and other intermittent assets that can be modeled and dispatched on a network level. This requires changes to all of Energy Management's systems.

Q. I show you an eighteen-page document entitled, "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. – ELECTRICITY SUPPLY IT SYSTEM ENHANCEMENTS – CAPITAL" and ask whether it was prepared under your supervision and direction?

A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT(ES-4)

Q. Starting with the first System Enhancement, what is the nMarket Upgrade/Replacement Project?

A. The nMarket Upgrade/Replacement Project will upgrade or replace the software the Company uses to implement New York State's Reforming the Energy Vision ("REV")

Initiative and to carry out the Company’s physical wholesale supply responsibilities, which are:

- Electricity supply and Distributed Energy Resource (“DER”) purchase, scheduling, and invoicing
- Regulatory and Sarbanes-Oxley (“SOX”) compliance
- Interfacing with other internal systems

Q. Please describe why the nMarket Upgrade/Replacement Project is necessary.

A. The nMarket Upgrade/Replacement Project facilitates translation of the demand forecast provided by Metrix IDR to scheduling of electricity at the NYISO. As more DERs participate in the wholesale energy markets, and as the markets develop new products and services down to the distribution network level, it will become more challenging and complex for the Company to satisfy its physical wholesale business requirements. A robust and up to date nMarket System is a critical component of the Company’s efforts. Additional details associated with this capital project are shown in Exhibit(ES-4) pages 2-5.

Q. Please describe the next capital project.

A. The Transmission Owners Data Reporting System (“TODRS”) Next Generation project reconciles certain costs between the NYISO and Energy Service Companies (“ESCOs”). TODRS performs the Transmission Owner Energy Reconciliation and Load Forecast Tag reporting (“ICAP Tag”) functions required by the NYISO. Energy Reconciliation is the process Transmission Owners use to determine each customer’s hourly contribution to the actual metered zonal load recorded by the NYISO. ICAP Tag reporting determines each individual customer’s contribution to the forecasted annual electric peak. TODRS retrieves customer energy consumption data and supporting information from a number of sources, such as the NYISO posted zonal load, the Customer Information System, the Retail Access database, the Recharge New York database, the Load Profile Display Program, Meter Data Management, and the Enterprise Data Analytics Platform. TODRS then allocates consumption data through each hour during a month based on the customer’s meter type, service class, and consumption patterns. The Company uses the hourly data to calculate monthly reconciled energy consumption and ICAP tags for each ESCO and reports the information to the NYISO as per the Metering Authority requirements under the NYISO tariff.

Q. Please describe the proposed upgrade to TODRS.

A. The continuation of the TODRS Next Generation project proposes to implement business requirements resulting from REV and Advanced Metering Infrastructure (“AMI”) projects. For example, as the Company continues to deploy AMI meters, it will be required to upgrade TODRS so that it can handle the large volume of interval data. In addition, the Company will need to enhance TODRS to include the ability to reconcile and forecast energy consumption/generation data for electric networks, radial feeders, and DERs, which will be a key component to advance REV goals. Furthermore Generation attributes will need to be reported to NYSERDA. The New York Generation Attribute Tracking System (NYGATS) is a NYSERDA administered reporting system that keeps records of electricity generated, imported, and consumed within New York. The system is designed to ensure the integrity of the renewable energy certificates to support New York State's renewable energy initiatives. Con Edison is required to register VDER (Value of DER) assets for developers and report their behind the meter generation information to NYGATS for reconciliation. System enhancements and additional resources will be required to support these additional reporting responsibilities. In addition, this upgrade project proposes to develop new interfaces to the new Customer Information System (CIS) and retiring the TODRS interface to the legacy CIS.

Q. What will be resulting features of the TODRS Next Generation project?

A. TODRS Next Generation is expected to:

- Allow the Company to reconcile energy consumption data for 83 electric networks and 13 radial feeders,
- Implement REV program mechanisms so market participants can view and retrieve DER data and ICAP Tag information,
- Provide reporting to NYSERDA's NYGAT system

- Provide data and analysis for DERs at the electric network level,
- Enhance capability to process and store hourly billing data from AMI meters for energy consumption and ICAP Tag calculation, and
- Develop new interfaces to retrieve customer account and billing information from the new CIS.

Q. What are the other benefits and justification for this project?

A. As the internal and external data systems that TODRS is connected to change, the Company will need to update the interfaces between TODRS and these systems accordingly. The existing TODRS will not be able to support new programs that result from REV and AMI, nor will it be able to handle additional requests from market participants. Absent an upgrade, if a significant number of distribution network assets and or market materializes the Company will not be able to manage its ESCOs at the distribution level without a significant increase in manpower and resources to meet the new requirements manually.

Additional details associated with this capital project are shown in Exhibit(ES-4) pages 6-10.

Q. Regarding the MetrixIDR Upgrade, please describe the existing MetrixIDR system.

A. MetrixIDR performs the daily electric, gas, and steam hourly load forecasting that the Company’s System Operation Department relies on to plan daily operations and that the Company’s Electricity Supply Department uses to plan short term electric purchasing and generation scheduling.

Q. Please describe why upgrades are needed.

A. During the current rate plan, the Company upgraded MetrixIDR to the current version supported by the vendor (ITRON). A fully-functioning MetrixIDR is important to the Company’s daily forecasting. If the system ceases to work or fails to meet the Company’s stringent forecasting accuracy standard, there will be a risk to reliability and the potential for increased supply costs and hence higher customer bills.

Q. Please describe the new enhancements needed.

A. To assist in meeting the requirements of the DSIP (Distribution System Implementation Plan) as ordered by the Commission, additional upgrades to MetrixIDR are necessary to enable hourly load forecasts for each of the Company’s 83 distribution load area networks and 13 radial feeders. The system enhancements will implement more detailed forecasting models, make use of AMI data, and install the functionality needed to provide hourly load forecasts for the Company’s distribution areas/networks and radial feeders that do not exist today. This will also enable the Company to forecast by network/load area on a daily basis. In this capital project, MetrixIDR will further REV goals by developing forecasting models for the distribution areas/networks and feeders, implementing interfaces to feed data into the MetrixIDR system necessary for the forecasts, and creating associated reports and reporting mechanisms. This will enable the Company to effectively provide forecasts by providing hourly load forecasts for the distribution areas/networks and radial feeders on a daily basis to support any distribution network market.

Q. What will be the resulting benefits and features of upgrading MetrixIDR?

A. The Company will need to meet more demanding forecasting requirements. Forecasting accuracy is affected by the uncertainty in the evolving electric markets and energy industry. Forecasting accuracy leads to improved system operation efficiencies and lower energy supply costs. The Company expects that the upgrade will effectively meet or exceed the more demanding forecasting requirements and associated reliability, enable distribution area and network hourly forecasting, and further REV goals. If a forecast is too high, the Company will procure more energy than needed. If a forecast is too low, the Company may be forced to procure energy at a premium, and there may be negative consequences to local distribution system reliability. In addition, the Company expects that an upgraded MetrixIDR Load Forecasting System will add the following new and enhanced features:

- Build 83 electric network hourly forecasts and 13 radial feeder hourly forecasts

- Provide a mechanism to forecast DERs' contribution to the WAPs on a system wide basis and by electric networks, and to provide forecast for future DERs
- Provide Distribution Control Centers and Substation Operators with access to the MetrixIDR Load Forecasting System
- Development of five minute interval forecasting models as the need arises
- Integration of multiple weather forecasts to feed the model
- Implementation of various automated reports such as model performance, network and feeder load summaries and statistics
- Enhanced details for network forecasts both current and future, affected by the Distributed System Implementation Plan (i.e. 8,760 hour forecast, etc.)

Additional details associated with this capital project are shown in Exhibit(ES-4) pages 11-14.

Q. What is the final capital project listed?

A. The final capital project is the Business Analytics for AMI.

Q. Please describe the project.

A The Commission approved AMI project will provide detailed interval meter data for the company’s electric customers. This data is loaded into the Company’s Enterprise Data Analytics Platform (“EDAP”). The hourly interval data will allow the Energy Management department to use advanced analytic tools such as C3 to develop predictive forecasts and reports that will improve forecasts and better understand customer usage patterns.

Q. Are there other benefits?

A. Yes, the project will:

- Integrate AMI data into the existing forecasting process, which will allow for more accurate representation of load growth, better visibilities into impacts and participation in energy efficiency programs and in customer energy usage behaviors at more granular levels

- Use state-of-the-art software to assist Energy Management in managing approximately $1.5 billion in wholesale energy transactions
- Prepare the Company to address future needs that arise from REV
- Utilize advanced software, automation tools, and advanced analytics to move away from time-consuming manual processes

Additional details associated with this capital project are shown in Exhibit(ES-4) pages 15-18.

Q. I show you a five-page document entitled, “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. – Staffing Support for REV and Energy Policy Programs – O&M” and ask whether it was prepared under your supervision and direction?

A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT(ES-5)

Q. Are there additional O&M expenses associated with these IT system enhancement projects?

A. Yes. As the Company implements AMI and incorporates REV initiatives including enhanced storage and DER requirements, additional staffing is needed to support these systems and added forecasting requirements. The portion of staffing needed to support nMarket will be an increase of $100,000 in 2020 and an additional $100,000 in 2022, after the upgrade. This incremental support is for two additional full time employees in the Electricity Supply Department needed to monitor and schedule power, taking into account DER requirements including Storage. In addition, the Company will incur incrementl IT support, and vendor maintenance and licensing costs of approximately $150,000 annually beginning in 2022 to ensure the nMarket system is kept up to date. For TODRS Next Generation, MetrixIDR Upgrade, AMI Business Analytics, and their related functions, as well as other REV requirements/initiatives, there is an incremental O&M need of $100,000 in 2020, $200,000 in 2021, and $100,000 in 2022 and beyond. This is primarily for the three additional full time employees in the Forecasting Services Section and incremental IT support person related to the TODRS Next Generation, MetrixIDR Upgrade, and AMI Business Analytics enhancements as well as support for the DSIP, New CIS/DCX efforts, reporting of behind the meter VDER asset generation in NYGATS, and how all of these tie to the ESCO reconciliation process. In addition, REV requirements will necessitate two additional full time employees for the Electric Forecasting Section attributing to $100,000 in 2020 and $100,000 in 2021 of incremental O&M. Finally, support for REV Demonstration Projects in the study and integration of energy storage technologies on the bulk power system will require one additional full time employee for the Resource Analysis Section attributing to $100,000 in 2021 of incremental O&M.

Q. Is there anything else that should be noted about this incremental O&M?

A. The addition of these FTEs will allow Energy Management to continue to support the objectives of Customer Energy Solutions with our expertise in energy markets, load forecasting, and statistical analysis. Our additional employees will support Customer Energy

Solutions' four key objectives:

i. Enhanced Customer Experience

ii. Integrating Clean Energy Resources and Empowering our customers to manage their energy usage

iii. Optimizing our systems, infrastructure, and our business to ensure safety and excellence in the management of the energy system

iv. Fostering innovation and new business models

We direct you to the Customer Energy Solutions Panel for reference to the evolving programs, projects, and policies that justify the foregoing incremental capital and O&M. Additional details associated with this O&M expense is shown in Exhibit (ES-5).

TARIFF CHANGES

Q. Is the Company proposing any tariff changes?

A. Yes. We are proposing that the Adjustment Factor – MSC II cost/benefits of hedging include all costs associated with the procurement of energy and capacity hedges and supplies for Customers including auction platform licensing fees, maintenance fees, customization fees, and related costs.

Q. Why is there a need to change the tariff to capture these costs?

A. As discussed previously in our testimony, these costs in the past were incorporated into the sellers' supply prices. The tariff needs to be amended to allow for recovery of these costs because with the implementation of the on-line auction platform they will no longer be incorporated into any seller's price.

Q. Does this conclude your testimony?

A. Yes.

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 (4^{th} 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.)

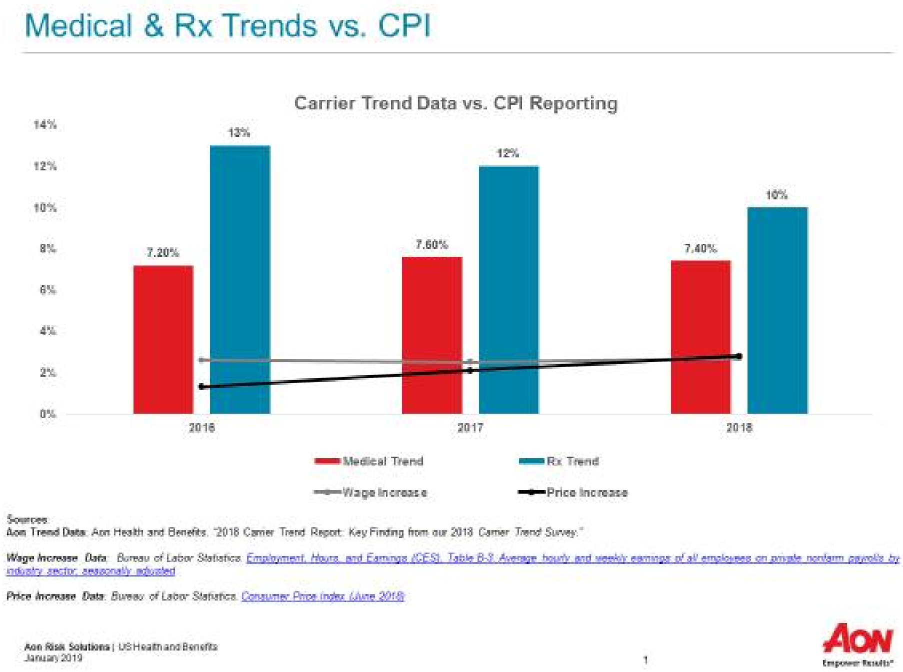
Q. Are there other items that a general inflation factor fails to include?

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. <u>Gowanus Canal</u> – 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.

- <u>Seeking Permit Flexibility</u> - 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.

- <u>Forensic Analysis and Background Level Determinations</u> - 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.

- <u>Insurance Cost Recovery</u> - 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.

- <u>Claims for Indemnification</u> – 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.

- <u>Identification of Other Potentially Responsible Parties (“PRPs”)</u> - 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.

<u>Consultants/Contractors and Internal Staffing</u>

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:

- The Company’s ongoing reviews of its cybersecurity program with Department of Public Service Staff
- The Commission’s recommendations, in Case 13-M-0178, for utilities to handle, protect, and dispose of customer PII
- Revisions, and additions to NERC’s Critical Infrastructure Protection standards, which contain federally enforceable cybersecurity rules for the bulk electric system
- National Institute of Standards and Technology (“NIST”) Cybersecurity framework, which contains a voluntary framework for cybersecurity standards, and
- 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:

- consolidate and modernize business systems
- change its application support model to tiered application support
- 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.