Before the
New York State Public Service Commission

In the Matter of

Consolidated Edison Company of New York, Inc.

Case 13-E-0030
Case 13-G-0031
Case 13-S-0032

May 2013

Prepared Direct Testimony of:

John D. Stewart

On Behalf of:

The City of New York

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is John D. Stewart. I am a Vice President employed by Concentric Energy Advisors, Inc. ("Concentric"), located at 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this direct testimony before the New York Public Service Commission ("PSC") on behalf of the City of New York ("City").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.

A. My background information, and information about Concentric, was provided as part of the direct testimony of the New York City Policy Panel.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony addresses the potential regulatory policy and ratemaking implications of the City's recommendations for additional infrastructure investments for the purpose of enhancing the resiliency of Consolidated Edison Company of New York, Inc.'s ("Con Edison" or the "Company") electric, gas and steam systems. I address: (a) the impacts of the City's recommendations on Con Edison's utility rates; (b) whether it is reasonable to levelize rates; (c) whether the Company's rate levelization methodology is optimal; and (d) the costs and benefits of the City's proposed investments based on a high level analysis.

Q. **ARE YOU RECOMMENDING THAT RATES BE INCREASED BY MORE THAN WHAT CON EDISON HAS REQUESTED?**

A. No. The purpose of my testimony is to illustrate the potential impacts of increased resiliency investments. To do that, I have estimated the incremental impact of the City's resiliency recommendations on Con Edison's base case, as filed. That does not mean, however, that the resiliency investments will yield rate increases in excess of what Con Edison has requested. To the contrary, I expect that there will be other revenue and expense adjustments in this case that will more than offset the impact of the City recommendations.

In addition, my analyses are done primarily for illustrative purposes and are based on conservative assumptions. For example, I have assumed that the incremental resiliency investment resulting from the City's recommendations would not be offset by other changes in Con Edison's capital program. In any event, the PSC must balance the benefits of the increased resiliency investments, which the City believes are demonstrable, against the rate impacts on customers when all revenues and costs are accounted for.

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR ANALYSIS AND SUMMARIZE YOUR CONCLUSIONS IN THIS PROCEEDING.

A. The New York City Electric Infrastructure Panel ("Electric Panel") proposes various modifications to Con Edison's capital spending plans during the next three years or more which could increase the Company's overall capital spending for its electric system. Similarly, the New York City Gas and Steam Infrastructure Panel ("Gas and Steam Panel") makes a number of recommendations related to the Company's gas and steam operations which similarly could increase the Company's capital spending for the gas and steam systems.

The Electric Panel does not precisely quantify its recommendations; the Gas and Steam Panel is able to quantify the value of one of its recommendations, related to an accelerated gas main replacement program, which is described in more detail in that Panel's testimony. The incremental capital expenditure associated with this program, which is expected to continue for about 20 years, is about $60 million and will likely increase by inflation over time. Because the two City Panels do not precisely quantify the impact of their other recommendations on the Company's overall capital spending during the next three years, I have conservatively assumed, after consulting with each Panel, that their recommendations could increase annual capital spending for electric, gas, and steam by approximately 6 percent, 15 percent, and 10 percent, respectively, with the gas increase being inclusive of the gas main replacement program. I make these assumptions only to illustrate how the impact of these potential capital spending increases might impact rates.

Exhibit __ [JDS-1] illustrates the effect of my conservative assumptions on the Company's overall capital expenditure levels for its electric, and steam operations. Again, I note that the approach I have employed with the 6 to 15 percent placeholders conservatively assumes that all incremental capital expenditures will not displace expenditures already in the Company's overall construction plan. This Exhibit also shows the impact of the additional expenditures recommended for gas operations discussed above.

I computed the incremental annual revenue requirements associated with the revised expenditure levels based on assumptions generally consistent with the Company's ratemaking treatment of similar investments. Overall, I conclude that, even assuming no displacement of otherwise scheduled capital expenditures, the impact of the City's recommendations for additional resiliency-related capital expenditures is modest and, based on typical rate case outcomes, likely would be fully offset by offsetting rate adjustments. Moreover, in considering the City's proposed spending increases, it is important to consider the relative costs of investing in utility plants today to provide greater resiliency versus the potential costs to society if such investments are not made. My analysis shows that the cost to Con Edison's ratepayers associated with greater resiliency is very small when compared to the potential costs if such investments are not made.

On the issue of how Con Edison's revenue requirement is levelized, I conclude that rather than levelizing the dollar amount of the rate increase each year, it is more reasonable to levelize the percentage increase in unit costs of delivery service each year. In my testimony below, I show the new price paths based on this approach before and after adjusting the Company's revenue requirement for the higher level of capital expenditures.

Q. HOW SHOULD THE ACTUAL AMOUNT OF CAPITAL EXPENDITURES FOR THE COMPANY FOR THE NEXT FEW YEARS BE DEVELOPED?

A. The interested parties could convene during this rate proceeding to mutually consider the City's conclusions and recommendations, use the City's model and proposed approach to identify and prioritize the resiliency projects to be undertaken during the rate year and thereafter, and develop an implementation schedule which generally limits rate impacts to levels that are deemed acceptable. Of course, the PSC has the ultimate approval on any plan.

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. The remainder of my testimony addresses the major lines of inquiry noted above and provides the details for the calculations relied upon to estimate a number of the longer range incremental rate impacts of the City's recommendations. It is organized into five additional sections, as follows:

III. The City's Capital Expenditure Recommendations

IV. Rate Levelization

V. Rate Impacts and Rate Mitigation: City Recommendations

VI. Overall Costs and Benefits

VII. Calculation of Rate Impacts

III. <u>THE CITY'S CAPITAL EXPENDITURE RECOMMENDATIONS</u>

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section of my testimony illustrates the potential impacts of additional capital expenditures by Con Edison related to making its electric, gas, and steam systems more resilient.

Q. PLEASE SUMMARIZE THE CITY'S OVERALL RECOMMENDATION FOR RESILIENCY-RELATED INVESTMENTS.

A. The City's Electric Panel and the Gas and Steam Panel have made a number of recommendations which could increase the Company's capital spending over the next three years or longer. As noted earlier, I have conservatively assumed for illustrative purposes that these recommendations will increase capital spending for each business during the next three years by about 6 to 15 percent per year.

Consistent with the recommendations of the Electric Panel and Gas and Steam Panel, I expect that a process will be established in these proceedings to better define the components and cost associated with the City's recommendations.

Q. PLEASE PROVIDE AN ILLUSTRATION OF THE POTENTIAL TOTAL COST OF THE PROPOSED ELECTRIC CAPITAL EXPENDITURES.

A. Although the Company and City are testifying to a one-year rate case, I present information throughout my testimony for a three-year period to provide a better perspective of the costs. City Table JDS-1 provides the Company's proposed electric capital expenditures and the potential impact of the City's recommendations concerning improved electric system resiliency, which for illustrative purposes I assumed would increase the Company's overall capital spending by a conservative 6 percent per year.

JDS-1: Electric Additions: Con Edison Adjusted by NYC

	RY 1	RY 2	RY 3
Con Edison Proposed Capital Additions	2014	2015	2016
Electric Steam Production Asset Class	37	30	32
Electric Transmission And Distribution	1,195	1,227	1,197
Storm Hardening	154	321	201
Common Allocated to Electric	208	183	192
Total Proposed by Con Edison	1594	1761	1622
NYC Proposed Incremental Capital Additions	2014	2015	2016
Total Proposed by NYC	96	106	97
GRAND TOTAL	1,690	1,867	1,719

Thus, for illustrative purposes, I have estimated that the Company may spend a total of approximately $300 million more on electric capital expenditures related to system resilience during the next three years.

Q. PLEASE PROVIDE AN ILLUSTRATION OF THE POTENTIAL TOTAL COST OF THE GAS CAPITAL EXPENDITURES OVER THE TERM OF THE NEXT THREE YEARS.

A. Table JDS-2 provides the Company's proposed gas capital expenditures, as well as the conservative 15 percent illustrative, incremental increase in capital spending for resiliency, as I described earlier.

JDS-2: Gas Additions: Con Edison Adjusted by NYC			
	RY 1	RY 2	RY 3
Con Edison Proposed Capital Additions	2014	2015	2016
Electric Steam Production Asset Class	1	0	0
Electric Transmission And Distribution	477	492	512
Storm Hardening	5	36	57
Common Allocated to Electric	46	55	56
Total Proposed by Con Edison	529	583	625
NYC Proposed Incremental Capital Additions	2014	2015	2016
Total Proposed by NYC	79	87	94
GRAND TOTAL	608	670	719

Thus, for illustrative purposes, I have estimated that the Company may spend a total of approximately $260 million more on gas capital expenditures related to system resilience during the next three years.

Q. PLEASE PROVIDE AN ILLUSTRATION OF THE POTENTIAL TOTAL COST OF STEAM CAPITAL EXPENDITURES OVER THE TERM OF THE NEXT THREE YEARS.

A. Table JDS-3 provides the Company's proposed steam capital expenditures and reflects the conservative 10 percent illustrative, incremental increase in capital spending for resiliency, as I described earlier.

JDS-3: Steam Additions: Con Edison Adjusted by NYC			
	RY 1	RY 2	RY 3
Con Edison Proposed Capital Additions	2014	2015	2016
ERRP	1	0	0
Production Steam	37	41	44
Storm Hardening	27	31	35
Distribution Steam	30	28	27
Total Proposed by Con Edison	95	100	106
NYC Proposed Incremental Capital Additions	2014	2015	2016
Total Proposed by NYC	9.5	10	10.6
GRAND TOTAL	104.5	110	116.6
TOTAL ALL OPERATIONS	2,402	2,647	2,555

Thus, for illustrative purposes, I have estimated that the Company may spend a total of approximately $30 million more on steam capital expenditures related to system resilience during the next three years.

Q. WHAT IS THE SIGNIFICANCE OF THE SPENDING LEVELS PROPOSED BY THE CITY?

A. Con Edison proposed capital expenditures over the next three years totals about $7 billion or about $2.33 billion per year. After reflecting the City's recommendations at the assumed, illustrative levels, the total capital expenditures would be about $7.6 billion, or about $2.53 billion per year, all other things being equal. Chart JDS-1 shows Con Edison's capital spending for the period 2000 to

2012 based on cash flow statements from its annual 10-K reports and compares the results to the Company's planned capital expenditures going forward on a nominal and real (2012$) basis, inclusive of the potential impact of the City's recommendations.

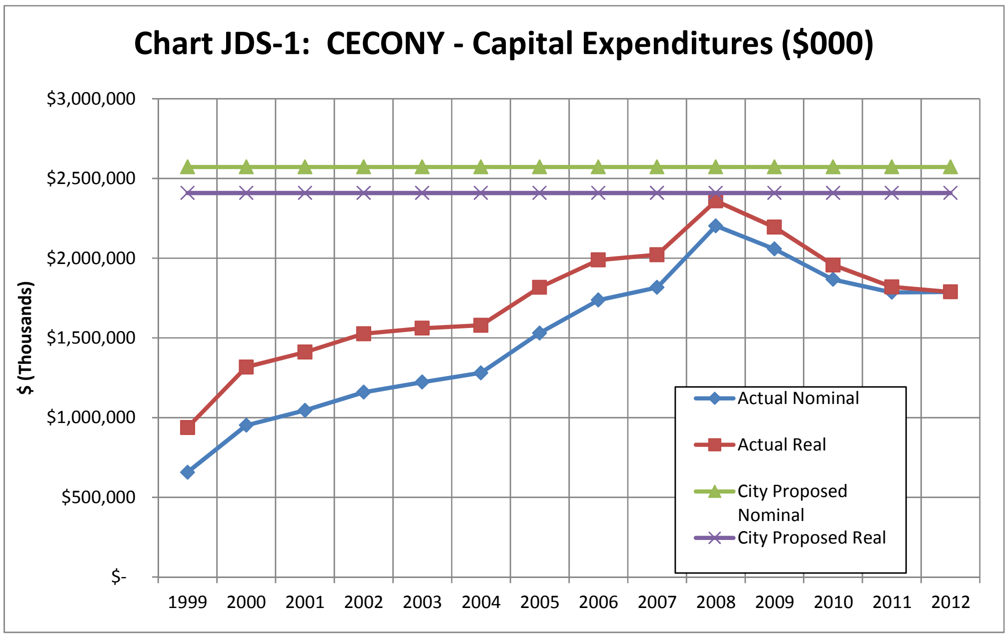

Exhibit __ [JDS-2] provides the underlying data for this chart.

Q. WHAT ARE THE REGULATORY POLICY AND RATEMAKING IMPLICATIONS ASSOCIATED WITH THE CITY'S RECOMMENDATIONS?

A. As a matter of regulatory policy, the PSC must determine whether it is important and worthwhile to protect Con Edison's utility systems against infrequent but very severe climatological events. There is a cost to harden Con Edison's infrastructure to minimize the impact of such events on the people of New York City, and the PSC must decide whether the benefits of hardening are worth the costs. Assuming that the PSC concludes that the benefits exceed the costs, and/or identifies offsetting rate moderators, and requires Con Edison to adopt some or all of the City's recommendations, the PSC also will have to ensure that there is adequate financial support for the Company to finance the incremental external capital requirements associated with these recommendations. From a ratemaking perspective, the critical question is: do the benefits of storm hardening offset the incremental impacts of those investments on electric, gas, and steam rates? In this testimony, I provide a cost/benefit analysis that I believe leads to the conclusion that strategic storm hardening investments make sense.

IV. <u>RATE LEVELIZATION</u>

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. The purpose of this section of my testimony is to provide context regarding the approximate percentage rate increases produced if delivery rates are established based on Con Edison's rate case filings, and to explain the Company's methodology for levelizing the impact of delivery rate increases for its electric, gas, and steam customers over a three year period that the Company provided for context. While I support the Company's decision to levelize rates and see no errors in its calculation, if the PSC adopts a multi-year rate plan I recommend an alternative methodology to levelize the rate increase percentage.

Q. WHY DO YOU FOCUS ON DELIVERY REVENUES AND RATES RATHER THAN OVERALL ELECTRIC, GAS, OR STEAM REVENUES IN YOUR ANALYSIS?

A. Delivery revenues are based on the costs required to deliver the commodities of electricity, gas, and steam to customers regardless of whether they are full service customers or take commodity service from another entity. Thus, delivery revenues reflect the costs associated with a utility company providing its monopoly service to its customers. In the case of steam, delivery revenues also reflect non-fuel production costs. Because utility revenues do not reflect commodity costs for customers taking commodity service from another entity, the use of overall utility revenues would provide an incomplete and inaccurate view of reality. Moreover, the PSC sets rates only for delivery service; commodity rates are based generally on market prices. It is also important to recognize that my definition of delivery revenues for electric service encompasses Con Edison residential, commercial, and industrial customers as well as customers such as the City, who are supplied energy by the New York Power Authority via Con Edison's facilities. As a result, the unit costs reflected in my analysis do not reflect the specific rates paid by any particular class of customers but rather an overall average rate. The same principle holds true for the gas and steam rate projections.

Q. WHAT DELIVERY RATE INCREASES ARE REFLECTED IN THE COMPANY'S RATE FILINGS?

A. Company witness Muccilo describes the price path proposed by Con Edison. Mr. Muccilo first presents the delivery revenue requirements based on the actual costs incurred by the Company for each year, assuming a three-year rate plan for each business, and adjusts the revenues to reflect the 50 basis point stayout premium requested by Con Edison. The delivery revenue increases as well as the percentage delivery increase for each year are presented in Table JDS-4. The supporting calculations are provided in Exhibit __ [JDS-3] and explained in detail in Section VII of this testimony.

Table JDS- 4: Summary of Proposed Rate Increases Prior to Levelization

	2014	2015	2016
Electric Delivery Rate Increase	$451,700	$194,606	$269,996
Percentage Increase in $/MWh	8.15%	3.23%	4.32%
Gas Delivery Increase	41,362	55,422	62,599
Percentage Increase in $/Mdts	3.70%	4.60%	4.83%
Steam Delivery Increase	-154	22,395	18,439
Percentage Increase in $/MMlbs	-0.03%	4.89%	3.88%

Q. DID THE COMPANY PROPOSE ANY MODIFICATIONS TO THE RATE INCREASES PRESENTED IN TABLE JDS-4?

A. Yes, it did. The pattern of rate increase across the various service types was very uneven. For example, the electric rate increase was front-loaded in 2014 with much lower increases thereafter. In contrast, the gas and steam rate increases were back-loaded with larger increases in 2015 and 2016 than 2014. As a result, Mr. Muccilo reasonably concluded that it was desirable to develop an alternative pattern of rate increases to reflect a constant dollar rate increase in each of the three years of the Company's proposed rate plans. These levelized dollar increases along with the percentage delivery rate increase for each year are provided in Table JDS-5. The supporting calculations are provided in Exhibit __ [JDS-4] and explained in detail in Section VII of this testimony.

Table JDS-5: Summary of Company Proposed Rate Increases With

	2014	2015	2016
Electric Delivery Rate Increase	$336,100	$336,100	$336,100
Percentage Increase in $/MWh	6.07%	5.69%	5.36%
Gas Delivery Increase	49,600	49,600	49,600
Percentage Increase in $/Mdts	4.43%	4.09%	3.82%
Steam Delivery Increase	10,400	10,400	10,400
Percentage Increase in $/MMlbs	2.33%	2.28%	2.25%

Q. DO YOU HAVE ANY COMMENTS ON THE METHODOLOGY EMPLOYED BY MR. MUCCILO TO LEVELIZE THE DOLLAR RATE IMPACT AMOUNT FOR EACH YEAR OF THE COMPANY'S PROPOSED RATE PLANS?

A. Yes. While I agree with the underlying calculations employed by Mr. Muccilo to estimate the levelized dollar rate impacts, there is a better way to levelize the rate impacts associated with any multi-year rate plan that may be adopted. Mr. Muccilo's calculation levelizes the dollar value of the delivery rate increase for each year. In doing so, it does not take into consideration the impact of increasing sales over the terms of the rate plans or the fact that the base over which the rate increase is spread grows by the amount of each year's increase. As a result, the percentage rate increase on a unit cost basis, whether $/MWh, $/Mdts, or $/MMlbs, is greatest in year 1 and least in year 3 due to growth in sales and the overall revenue base. The results in Table JDS-5 indicate this produces a rate increase in 2014 that is as much as 0.7 percent greater than the 2016 rate increase.

Q. DO YOU RECOMMEND THAT THE LEVELIZATION APPROACH BE MODIFIED?

A. Yes, I do. I recommend that if the PSC decides to adopt a three-year rate plan for any or all of the three businesses, the rates should be levelized in a way that produces the same percentage increase in delivery rates for each year. Thus, I would adjust Mr. Muccilo's electric, gas, and steam price paths to produce a constant percentage rate increase for each year. Table JDS-6 provides an illustration of the results of this adjustment, with supporting calculations are provided in Exhibit __ [JDS-4] and explained in detail in Section VII of this testimony. The annual levelized unit cost percentage increases in delivery rates over the term of the rate plan are 5.83 percent for electric, 4.20 percent for gas, and 2.24 percent for steam based on if the Company receives the full revenue requirement which it has requested.

Table JDS-6: Summary of Levelized Percentage Delivery Increases			
	2014	2015	2016
Electric Delivery Rate Increase	$322,759	$343,122	$364,850
Percentage Increase in $/MWh	5.83%	5.83%	5.83%
Gas Delivery Increase	47,001	50,866	54,532
Percentage Increase in $/Mdts	4.20%	4.20%	4.20%
Steam Delivery Increase	10,255	10,485	10,621
Percentage Increase in $/MMlbs	2.24%	2.24%	2.24%

Q. TO BE CLEAR, IS THE CITY ADVOCATING FOR A THREE-YEAR RATE PLAN FOR ANY OF THE ELECTRIC, GAS, OR STEAM BUSINESSES?

A. No. The City is not doing so, nor is it in any way advocating that Con Edison be granted full rate relief. However, the City recognizes that improving the resiliency of Con Edison's infrastructure will take years to complete, and that it should be integral to the Company's planning, design standards, and construction and operations practices. Therefore, for illustrative purposes it is useful to provide a larger perspective than simply the one-year impacts of the City's recommendations. At the same time, the City acknowledges the possibility that the parties may agree upon terms for multi-year rate plans in these proceedings, and the information I present will help inform the parties' discussions.

V. RATE IMPACTS AND RATE MITIGATION: CITY RECOMMENDATIONS

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section of my testimony utilizes conservative assumptions to illustrate the potential rate impact of the City's resiliency-related recommendations on electric, gas, and steam delivery rates over the next three years based on the adjusted capital expenditure tables presented earlier in this testimony and summarized in Exhibit __ [JDS-1]. I first identify the potential incremental rate impact of the City's recommendations. Then, for illustrative purposes only, I have layered these potential impacts on top of the Company's as-filed revenue requirements to provide the overall rate increase for each utility service. Next, I levelize the percentage rate increases for each year using the same methodology I just discussed.

Q. YOU LAYER YOUR ANALYSIS ON TOP OF THE RATE INCREASES REFLECTED IN THE COMPANY'S RATE PLAN PROPOSALS. IS IT REASONABLE TO ASSUME THAT THE PSC WILL AUTHORIZE THE FULL INCREASE REQUESTED BY THE COMPANY FOR ELECTRIC, GAS, AND STEAM RATES?

A. No, based on past experience, it is not realistic to assume that the PSC will approve the full delivery rate increases requested by the Company. Moreover, as noted earlier, I fully expect that other adjustments to the as-filed revenue requirements in these proceedings will more than offset the impact of the increased resiliency investments. Nonetheless, I have used the Company's filings solely as a reference point to illustrate the incremental impact of the City's capital expenditure recommendations on the level of rates ultimately established by the PSC in this proceeding.

Q. CAN YOU ILLUSTRATE THE POTENTIAL INCREMENTAL INCREASE IN CON EDISON'S DELIVERY REVENUE REQUIREMENTS IF THE CITY'S RECOMMENDATIONS ARE ADOPTED?

A. Yes. The incremental annual revenue requirements and percentage delivery rate increases associated with the City's recommendations are provided in Table JDS-7. The calculations supporting the revenue requirement amounts are provided in Exhibit __ [JDS-5], and explained in detail in Section VII of this testimony. The incremental annual and cumulative rate increase percentages are calculated as the differences in the rate increase percentages before and after reflecting the City's recommendations. The underlying rate increase percentage statistics are found in Exhibit __ [JDS-6].

Table JDS-7: Summary of Annual Incremental Rate Impacts for			
	2014	2015	2016
Electric Delivery Rate Increase	$18.3	$20.8	$18.7
Annual Percentage Increase in	0.33%	0.34%	0.30%
Cumulative Percentage Increase in $/MWh	0.33%	0.68%	0.98%
Gas Delivery Increase	$15.2	$17.2	$18.0
Annual Percentage Increase in	1.36%	1.41%	1.35%
Cumulative Percentage Increase in $/Mdts	1.36%	2.79%	4.18%
Steam Delivery Increase	$1.8	$2.0	$2.0
Annual Percentage Increase in	0.40%	0.43%	0.42%
Cumulative Percentage Increase in	0.40%	0.83%	1.26%

Q. HOW DOES ADOPTION OF THE CITY'S RECOMMENDATIONS IMPACT THE COMPANY'S OVERALL DELIVERY REVENUE REQUIREMENTS?

A. Table JDS-8 depicts the incremental impact of the City's recommendations on Con Edison's revenue requirements for the next three years, once again using the Company's rate filing as a reference point for illustrative purposes. As I state throughout this testimony, I do expect that the actual change in the Company's electric, gas, and steam rates will be less than the percentages reflected in Table JDS-8. Supporting calculations for this Table are provided in Exhibit __ [JDS-6], and explained in detail in Section VII of this testimony.

Table JDS-8: Summary of Con Ed Rate Request with Incremental Impacts

	2014	2015	2016
Electric Delivery Rate Increase	$470.0	$215.4	$288.7
Percentage Increase in $/MWh	8.48%	3.57%	4.59%
Gas Delivery Increase	$55.0	$72.6	$80.6
Percentage Increase in $/Mdts	4.91%	5.96%	6.06%
Steam Delivery Increase	$1.7	$24.4	$20.5
Percentage Increase in $/MMlbs	0.36%	5.30%	4.27%

Q. HAVE YOU COMPUTED LEVELIZED DELIVERY RATE INCREASES FOR CON EDISON'S ELECTRIC, GAS AND STEAM OPERATIONS BASED ON THE CITY'S RECOMMENDATIONS?

A. Yes. Table JDS-9 below reflects levelized percentage increases in delivery rates from year to year for electric, gas, and steam operations based on the City's position and using the Company's initial position as a reference point for illustrative purposes. Supporting calculations for this Table are provided in Exhibit__ [JDS-7], and explained in detail in Section VII of this testimony. The levelized percentage increases over a three-year term are 6.14 percent for electric, 5.47 percent for gas, and 2.64 percent for steam.

Table JDS-9: Summary of Levelized Con Ed Rate Request with Incremental Impacts			
	2014	2015	2016
Electric Delivery Rate Increase	$340.5	$363.0	$387.2
Percentage Increase in $/MWh	6.14%	6.14%	6.14%
Gas Delivery Increase	$61.2	$67.1	$72.8
Percentage Increase in $/Mdts	5.47%	5.47%	5.47%
Steam Delivery Increase	$12.1	$12.4	$12.6
Percentage Increase in $/MMlbs	2.64%	2.64%	2.64%

Q. WHAT IS THE LEVELIZED INCREMENTAL IMPACT OF THE CITY'S CAPITAL EXPENDITURE RECOMMENDATIONS ON UTILITY RATES?

A. All other things being equal, a comparison of the levelized rate increases quantified in Table JDS-9 and Table JDS-6 indicates that: (1) the incremental levelized electric rate increase percentage is 0.31; (ii) the incremental levelized gas rate increase percentage is 1.27 percent; and (iii) the incremental levelized steam rate increase percentage is 0.40.

Q. HOW WOULD YOU CHARACTERIZE THE INCREMENTAL LEVELIZED PERCENTAGE AND MONETARY DELIVERY RATE INCREASES ASSOCIATED WITH THE CITY'S PROPOSALS GIVEN YOUR ASSUMPTION THAT SUCH PROPOSALS MAY INCREASE CAPITAL EXPENDITURES EACH YEAR?

A. The additional rate increases I discuss are the product of a conservative assumption that the additional investments to improve system resiliency will on average increase Con Edison's capital expenditures by 6 to 15 percent each year. These assumptions are scalable and the revenue requirements and rate impacts can easily be adjusted for higher or lower levels of incremental adjustments. As I noted earlier, I expect that the City's recommendations will be reviewed and refined over the course of these proceedings, well before the PSC acts to set new rates. I addition, I believe that the incremental impacts shown above will be offset by other adjustments to the Company's revenue requirements. In any event, given the fact that the City's recommendations provide for the highest priority projects to be addressed first, in my view the benefits provided by strengthening the resilience of the Company's electric, gas, and steam systems, discussed below, justify the City's storm hardening recommendations. .

VI. OVERALL COSTS AND BENEFITS

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section of my testimony addresses the overall costs and benefits associated with the capital investments proposed by the City to improve system resiliency from a high level perspective. I provide a big picture perspective, which should not be confused with the cost-benefit analyses recommended by the Electric Panel and Gas and Steam Panels for individual capital projects. Using the conservative assumptions I set forth earlier, my analysis compares the overall costs to Con

Edison ratepayers associated with the City's recommendations with the benefits to the general public of a resilient utility system with a greater ability to withstand and quickly recover from extreme events, including the costs to the public of not making such investments in a timely manner.

Q. HOW ARE THE BENEFITS OF RELIABLE UTILITY SERVICE TYPICALLY MEASURED AND HOW DOES THIS RELATE TO THE BENEFITS PRODUCED BY THE CITY'S RECOMMENDATIONS?

A. The benefits of reliable utility service are typically measured by the costs to society that are avoided by virtue of reliable service. In the case of the investments recommended by the City in these proceedings, the associated benefits would be the costs or economic harm that society avoids in the future by virtue of investments which are specifically intended to address more extreme conditions in the future. According to a June 2009 report by Lawrence Berkeley National Laboratory, entitled "Estimated Value of Service Reliability for Electric Utility Customers in the United States," these benefits may be quantified on the basis of both customer characteristics and outage characteristics, and it is possible to develop matrices of costs based on the classes of customers and durations of the outages.

Q. WHAT HAVE YOU DONE TO ESTIMATE AVOIDED HARM FOR CON EDISON CUSTOMERS BASED ON AN APPROACH WHICH EMPLOYS

AVOIDED COST ESTIMATES BASED ON CUSTOMER AND OUTAGE CHARACTERISTICS?

A. I employed a high level analysis which focuses on the costs to Con Edison customers associated with the City's recommendations and the total value of New York City's Gross City Product ("GCP"). The analysis puts the rate increases associated with the City's position within that overall context. I specifically reflect ratepayer costs in terms of lost hours and days of GCP over both a year and an extended time period. As discussed by the City's Policy Panel, the City is developing a model which statistically assesses the probability of severe events on the Company's electric system and develops estimates of lost GCP based on the areas most likely impacted. Because the model is still in development, I have not used it in my analysis.

Q. PLEASE EXPLAIN WHY YOU EMPLOYED A HIGH LEVEL APPROACH.

A. The City's recommendations are intended to help assure that severe events in the future do not have the same or even greater impacts on the provision of utility service as Hurricane Sandy. The recommendations are made with recognition of the latest information relating to flood plains and rising ocean levels, and the recommendations reflect the concern that weather events may become more severe and more frequent in the future. Because it is the City's position that its proposed investments will decrease the potential for service outages from severe conditions, one way of assessing the cost to ratepayers is expressing that cost in terms of lost GCP. While the City's model makes that assessment on a very localized basis, my analysis considers this topic from a higher level perspective.

Q. WHAT IS THE AVERAGE ANNUAL COST TO RATEPAYERS ASSOCIATED WITH THE CITY'S RECOMMENDATIONS IN THIS PROCEEDING?

A. The combined electric, gas, and steam total cost by year is presented in Exhibit __ [JDS-8]. This exhibit also translates these payment streams into a single levelized payment, akin to a mortgage based on the 2.1 percent discount rate employed in the rate levelization calculations I previously discussed. The levelized total cost to ratepayers of the City's recommendations for all three utility systems is about $188 million per year for the next 43 years. A comparison of this annual cost and its potential benefits to a measure of the City's economic activity such as the GCP provides important context to this overall inquiry.

Q. WHAT IS THE NEW YORK CITY GCP?

A. The New York City GCP measures the value of all goods and services produced in New York City over a specified time period. Whereas the Gross Domestic Product ("GDP") measures the value of goods and services produced within a country, the GCP measures this value for a specific city. The New York City

Office of Management and Budget estimates the GCP on a real and nominal basis. Estimates of GCP are available for the period 1995 to 2010 and are presented in Exhibit __ [JDS-9]. In 2010, the nominal GCP was $643 billion.

Q. HOW DID YOU FORECAST THE NEW YORK CITY GCP FOR THE FUTURE?

A. I developed a forecast of the future GCP through the escalation of the nominal 2010 New York City GCP by a long-term growth rate based on an average real GCP growth rate of 2.77 percent from 1995 through 2010, adjusted to reflect an expected long-term inflation rate of 2.16 percent. The 2.16 percent rate of inflation is based on three measures, the first two of which are from Bloomberg Professional and the third is from the Macroeconomic Indicators set forth in the Energy Information Administration's ("EIA"), 2012 Annual Energy Outlook, Table A20: (1) the 2.55 percent rate of long-term inflation implied by the yield spread between 30-year Treasury Bonds and 30-year Treasury Inflation Protected Securities ("TIPS") over 30 trading days ending on March 28, 2013; (2) the compound annual growth rate in CPI of 2.12 percent as projected by the EIA for 2022-35; and (3) the GDP price index for 2023-2035 of 1.81 percent, also projected by the EIA. I then employed an overall future growth rate of 5.00 percent to project the New York City GCP into the future. The results of this analysis are provided in Exhibit__ [JDS-10]. Thus, my long-term growth rate considers the historical long-term growth in GCP related to analyst, investor, and government projections of future economic conditions, as measured through the growth rate in the CPI and the GDP price index and investor expectations as measured through TIPS spreads.

Q. PLEASE DESCRIBE THE RESULTS OF THE GCP FORECAST.

A. I forecast the New York City GCP for 43 years into the future, which is a period that is based on an approximate average depreciation life of the investments recommended by the City over the next three years. Table JDS-10 below, among other things, summarizes the value of the GCP at various points in time over the forecast period. Exhibit __ [JDS-10] also shows that on a levelized basis the annual New York City GCP over the next 43 years is about $2.2 trillion or about $251 million per hour.

Table JDS-10: GCP Statistics (millions)				
	Annual	Daily	Hourly	Per Minute
2010	$643,200	$1,762.2	$73.4	$1.2
2014	$781,692	$2,141.6	$89.2	$1.5
2020	$1,047,298	$2,869.3	$119.6	$2.0
2030	$1,705,276	$4,672.0	$194.7	$3.2
2040	$2,776,637	$7,607.2	$317.0	$5.3
2050	$4,521,094	$12,386.6	$516.1	$8.6

Q. WHAT IS THE SIGNIFICANCE OF THE FORECAST GCP RESULTS?

A. The GCP results indicate that the New York City economy is massive and will grow over time. However, a very significant implication of the 2010 and 2050 hourly information is that, for example, the illustrative incremental investment of $600 million for resilience-related projects that I utilized in this testimony represents between roughly 8.2 hours (600/73.4) and 1.2 hours (600/516.1) of GCP over the next 43 years. Put another way, the total capital outlay represents about 2.4 hours of levelized New York City GCP over the 43 year period. This information indicates that unless one believes that the City's proposed investments will **not** prevent on average about 2.4 hours of total system outages, or the equivalent loss of GCP, over the next 43 years, the investments should be pursued. Given the known and forecasted information regarding flood plains and ocean levels, and incorporating the economic damage associated with system outages, in my view the increased investments recommended by the City for improving system reliance and avoiding the loss of GCP in the future constitute a reasonable course of action.

Q. HAVE YOU PERFORMED ANY ANALYSIS FOCUSING ON DIRECT RATEPAYER COSTS?

A. Yes, as noted above, the levelized annual New York City GCP over the next 43 years is about $2.2 trillion. Exhibit __ [JDS-8] shows that the annual levelized cost to ratepayers of the City's recommendations over the same period is about $188 million per year. This amount represents 0.0084 percent of the levelized GCP cost and is the equivalent of about 46 minutes per year of New York City

GCP. Thus, this information indicates that unless one believes that the City's proposed investments will **<u>not</u>** prevent on average about 46 minutes of total system outages, or the equivalent loss of GCP, each year over the next 43 years, the investments should be pursued. This provides an alternative way of viewing the costs and potential benefits that again, in my view, supports the City's proposal to make additional investments to improve system resilience.

Q. DOES YOUR ANALYSIS CONSIDER ALL THE POTENTIAL COSTS ASSOCIATED WITH A PROLONGED OUTAGE?

A. No. My analysis considers only lost New York City GCP as the result of an outage. There are other costs which are not considered in my analysis. These costs include, but are not limited to, out-of-pocket expenses by businesses to restart operations, repair damaged equipment, relocate functions, replace inventory, and obtain backup service. Businesses also face costs that are difficult to quantify, such as costs associated with lost opportunities and idle employees. For residential customers, my analysis does not include food and medical supply spoilage and the cost associated with any backup service. There are additional unquantifiable costs for residential customers as well, including lost opportunities, discomfort due to weather conditions, and general lifestyle inconvenience.

Q. WHAT ARE THE IMPLICATIONS OF THESE ADDITIONAL COSTS WHICH YOU IDENTIFIED?

A. These additional unquantifiable cost considerations provide another reason for supporting the City's recommendations.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE LONGER TERM COSTS AND POTENTIAL BENEFITS ASSOCIATED WITH THE CITY'S RECOMMENDATIONS IN THIS PROCEEDING.

A. The costs associated with not making the proposed investments and potentially subjecting the City to a greater probability of an outage due to risks associated with more severe future weather conditions are significant. The quantitative analysis and qualitative consideration of other factors presented here support the City's recommendations to make strategic, cost-effective investments focusing on improving system resilience. As a result, it is my conclusion that such investments are in the public interest and should be pursued.

VII. CALCULATION OF RATE IMPACTS

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This portion of my testimony explains how I performed various calculations supporting the analyses of delivery rate increases presented in Sections IV, V, and VI of this testimony. I discuss how (a) delivery revenues and unit costs were calculated from the Company's presentation; (b) incremental delivery revenues and unit costs were calculated based on the City's recommendations, (c) overall rate delivery revenues and unit costs were calculated to combine the effects of the

Company and City capital expenditure proposals, and (d) the unit cost delivery rate increase was levelized.

1. Delivery Revenues and Unit Costs

Q. PLEASE DESCRIBE THE METHODOLOGY YOU EMPLOYED TO ESTIMATE ELECTRIC DELIVERY REVENUES AND UNIT COSTS BASED UPON THE COMPANY'S INITIAL FILING.

A. The details of my calculation are provided in Exhibit __ [JDS-2]. The starting point for my electric analysis was the identification of delivery revenues in 2014 prior to the implementation of the rate increase. This information is reported in Con Edison's Electric Exhibit__[RM-2], Schedule 2 as T&D revenues. I grossed this amount up for revenue taxes at a 2.9 percent rate. Next, I next identified the Company's expected electric sales for each year. These amounts are found in Con Edison's Electric Exhibit__[FR-7] and reported as the total sales volume to Con Edison and NYPA customers. Adding in the projected 2014 electric rate increase of $451.7 million, I calculated the unit cost of electric service before and after the rate increase. This then formed the basis for my estimate of the percentage increase in the unit cost of electricity for 2014. For 2015, I calculated the delivery revenues prior to the rate increase as the product of the 2014 unit cost after the rate increase and projected 2015 sales from Con Edison's Electric Exhibit__[FR-7]. By adding in the rate increase amount of $194.6 million, I calculated the unit costs before and after the rate increase and the resultant percentage increase. I performed the same calculation for 2016 as I did in 2015.

Q. PLEASE DESCRIBE THE METHODOLOGY YOU EMPLOYED TO ESTIMATE GAS DELIVERY REVENUES AND UNIT COSTS BASED UPON THE COMPANY'S INITIAL FILING.

A. I identified the amount of gas revenues prior to the rate increase. This amount taken from Con Edison's Gas Exhibit __[AP-9], Schedule 1, which reflected all gas sales and included commodity costs. To exclude commodity costs, I identified the amount of purchased gas projected for 2014 and reduced the revenues by that amount to develop an estimate of delivery revenues. The purchased gas amount was also taken from Con Edison's Gas Exhibit __[AP-9], Schedule 1. Next, I added the proposed delivery increase including the stayout premium and associated taxes from Con Edison's Gas Exhibit__[RM-2], Schedule 2 of $41.4 million (composed of a rate increase component and a revenue tax component) to the initial delivery revenue amount to develop delivery revenues after the rate increase. I then divided that amount by sales, which were taken from Con Edison's Gas Exhibit__[GFP-4]. This formed the basis for my estimate of the percentage increase in the unit cost of gas for 2014. For 2015, I calculated the delivery revenues prior to the rate increase as the product of the 2014 unit cost after the rate increase and projected gas 2015 sales from Con

Edison's Gas Exhibit__[GFP-5]. By adding in the rate increase amount of $55.4 million, I was then able to calculate the unit costs before and after the rate increase and the resultant percentage increase. I performed the same calculation for 2016 as I did in 2015 using sales from Con Edison's Gas Exhibit__[GFP-6].

Q. PLEASE DESCRIBE THE METHODOLOGY YOU EMPLOYED TO ESTIMATE STEAM DELIVERY REVENUES AND UNIT COSTS BASED UPON THE COMPANY'S INITIAL FILING.

A. I began with delivery revenues for 2014 from Con Edison's Steam Exhibit__[RM-2], Schedule 2. I next reflected the proposed increase with the stayout premium and applicable taxes from the same source. Sales levels were taken from Con Edison's Steam Exhibits__[SFP-1], __[SFP-2], and __[SFP-3]. I then followed the same process as I did for electric and gas by employing the rate increases and applicable taxes shown in Con Edison's Steam Exhibit__[RM-2], Schedule 2.

Q. WHY DID YOU EMPLOY DIFFERENT APPROACHES AND DATA TO CALCULATE THE RATE INCREASES FOR EACH BUSINESS?

A. It was not possible to follow a uniform approach for all three businesses. The pertinent information is provided in slightly different formats for each business and as such required a slightly different approach to determining the delivery percentage increases.

Q. YOUR UNIT COST ESTIMATES FOR EACH TYPE OF UTILITY SERVICE DO NOT APPEAR TO MATCH THE AMOUNTS ACTUALLY CHARGED IN CON EDISON'S TARIFFS. WHY?

A. As I previously explained, my analysis combined revenues and sales for all delivery services provided by the Company. Thus the unit costs for electric, gas, and steam service will not necessarily match the amounts designated in tariffs.

2. Incremental Delivery Rate And Unit Costs

Q. PLEASE DESCRIBE THE METHODOLOGY YOU EMPLOYED TO ESTIMATE THE INCREMENTAL RATE IMPACT ASSOCIATED WITH IMPLEMENTING THE CITY'S RECOMMENDATIONS.

A. The revenue requirement calculations for electric, gas, and steam operations are provided in Exhibit __ [JDS-5]. The development of these revenue estimates required the following inputs: (a) assumptions about the timing and costs of the projects; (b) the depreciation rates for the projects, (c) the tax life of the projects, (d) the rate of return on the projects, (e) the Company's effective blended income tax rate and (f) the property tax rate for the projects. Once these values were established, the incremental revenue requirements were determined as the annual sum of depreciation, property taxes, income taxes, and return on rate base.

Q. HOW WERE THE COSTS AND TIMING OF THE PROJECTS IN THE CITY'S RECOMMENDATIONS ESTIMATED?

A. As I noted previously, it was necessary to assume that the City's recommendations would increase capital expenditures by 6 to 15 percent each year for the next three years, with additional capital investments thereafter related to the gas main replacement program. For the purpose of computing the revenue requirements, I conservatively assumed that (a) all investments would be in-service at the beginning of each calendar year and (b) capital expenditures would match actual additions to rate base for each year. While these assumptions will tend to overstate the actual revenue requirement impact for any year, they fully capture the costs associated with the City's recommendations and provide an upper bound for the rate impact estimates.

Q. WHAT AVERAGE SERVICE LIVES DID YOU ASSUME FOR THE PURPOSE OF DETERMINING BOOK DEPRECIATION?

A. Overall, I concluded that a depreciation rate of 2.5 percent reasonably reflects the average expected life of the assets.

Q. WHAT IS THE BASIS FOR THIS ASSUMPTION?

A. I relied on information from three sources. First the recommendations of the Electric Panel and the Gas and Steam Panel generally refer to long lived assets. Second, I relied on the Company's responses to NYC IRs-518, 519, and 520 which indicate that the tax depreciation life for most assets which the Company constructs to transmit and distribute utility service have a tax depreciation rate based on a 20-year period. This is the longest period available for tax depreciation on property other than real estate and it is indicative of a service life exceeding 25 years. Finally I reviewed the projects reflected in the City's recommendations and I consulted the depreciation schedules reflecting the life for similar transmission and distribution assets. My assumption of a 40-year life is generally consistent with that information. Attached as Exhibit __ [JDS-11] is a compilation of the discovery responses from Con Edison that I relied upon in preparing my testimony.

Q. DID YOU REFLECT NET SALVAGE IN YOUR DETERMINATION OF THE DEPRECIATION RATE?

A. No.

Q. HOW WOULD YOUR CALCULATIONS CHANGE IF YOU WERE TO CONSIDER NET SALVAGE?

A. Based on my review of the Company's depreciation schedules for transmission and distribution equipment, the depreciation rate for gas capital additions would be about 0.5 percent lower and the rate for electric capital additions would be about 0.5 percent higher.

Q. WHAT TAX DEPRECIATION RATES DID YOU ASSUME IN YOUR ANALYSIS?

A. Based on the Company's responses to NYC IRs-518, 519, and 520 I assumed tax depreciation based on the Modified Accelerated Cost Recovery System rates for a 20-year period.

Q. WHAT WAS THE BASIS FOR YOUR ASSUMPTIONS REGARDING THE PROPERTY TAX RATE?

A. I assumed property tax rates based on the ratio of property taxes to net utility plant for the 2014 rate year. This produced property tax rates equal in the 6.5 percent to 6.8 percent range for the three businesses.

Q. WHAT RETURN ON RATE BASE DID YOU ASSUME?

A. I assumed a 7.94 percent rate of return on rate base based on the Company's filed position in the rate case adjusted to reflect the 50 basis point stayout premium which it requested. To the extent that the PSC adopts a lower result, the overall rate impact associated with the City's recommendations will decline. I addressed the reason why I reflected the Company's filed position to estimate rate impacts earlier in this testimony.

Q. TO BE CLEAR, ARE YOU SUPPORTING THE COMPANY'S REQUESTED RATE OF RETURN?

A. No. I offer no opinion here on its request.

Q. SIMILARLY, ARE YOU OFFERING ANY OPINION ON ITS REQUESTED STAYOUT PREMIUM IF THERE IS A MULTI-YEAR RATE PLAN?

A. No.

Q. WHAT EFFECTIVE INCOME TAX RATE DID YOU ASSUME?

A. I assume a 40.61 percent effective income tax rate. This rate is based on the calculations presented by Con Edison's Accounting Panel in Exhibits__[AP-2] for each of its electric, gas, and steam operations.

3. <u>Overall Rate Impacts</u>

Q. HOW DID YOU CALCULATE THE OVERALL RATE IMPACTS TO CON EDISON CUSTOMERS ASSOCIATED WITH THE RATE INCREASES PROPOSED BY THE COMPANY AND THE CITY'S RECOMMENDATIONS?

A. I layered the estimated annual revenue requirements and unit cost information associated with the City's recommendations on top of the Con Edison revenue requirement and unit cost information. As previously noted, I did not attempt to reflect the impact of any rate case adjustments on the Company's revenue requirement and unit cost data in order to provide an absolute upper bound for the overall rate effect of the City's proposals.

4. <u>Rate Levelization</u>

Q. PLEASE EXPLAIN HOW YOU LEVELIZED RATES.

A. As I noted previously, while the Company levelized the annual monetary increase in rates, my preference was to levelize the annual percentage increase in the unit cost of delivery service. Exhibit __ [JDS-4] provides the details of my rate levelization methodology. I first calculated the accumulated amount of revenues over a three-year period. Thus, the rate increase for 2014 was counted three times, the rate increase in 2015 was counted twice and the rate increase in 2016 was counted once. Like the Company, I assumed the average interest rate for the purpose of levelization was the 2.1 percent return on other customer provided capital. Based on this rate, I computed the present value of the Company's accumulated rate increases over the three years. I then used the Excel Solver function to determine the percentage increase in delivery service unit costs, based on the Company's sales forecasts, which when applied for three years to the previous year's unit cost would produce accumulated revenues with a present value equal to the present value of the accumulated rate increases originally requested by the Company. This result reflects the rate increase percentage which if applied over the next three years will have the same present value as that of the revenues which the Company initially presented on a cost of service basis prior to any rate sculpting.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.