STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on January 21, 2016

COMMISSIONERS PRESENT:

Audrey Zibelman, Chair
Patricia L. Acampora
Gregg C. Sayre
Diane X. Burman

CASE 13-E-0030 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.

CASE 13-G-0031 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Gas Service.

CASE 13-S-0032 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service.

ORDER ADOPTING STORM HARDENING AND RESILIENCY COLLABORATIVE PHASE THREE REPORT SUBJECT TO MODIFICATIONS

(Issued and Effective January 25, 2016)

BY THE COMMISSION:

INTRODUCTION

On October 29, 2012, Superstorm Sandy (Sandy) struck New York. Sandy brought historic flooding and sustained high-speed winds causing billions of dollars in property damage, including damage to Consolidated Edison Company of New York's (Con Edison or the Company) utility systems. This resulted in service outages to over one million of the Company's electric customers. Another 4,200 gas customers experienced gas outages

and one-third of steam customers lost service. In order to address the need for storm hardening and system resiliency, Con Edison filed requests in these proceedings for revenue requirement relief that included proposals for approximately $1 billion in capital investment between 2014 and 2016 to mitigate impacts of future extreme weather.

In a Joint Proposal to the Commission, the parties to these proceedings recommended that the best manner to address the need for storm hardening and resiliency of the Con Edison utility systems was to allow the parties to continue the Con Edison Storm Hardening and Resiliency Collaborative (Collaborative). The Collaborative would continue its work beyond the 11-month rate case time period to allow Con Edison time to analyze the potential impacts of climate change on its utility systems and service territory and to afford the parties the opportunity to provide input to the Company to assist in these efforts.

Pursuant to the 2014 Rate Order in these proceedings, the Commission adopted the parties' Phase One collaborative process, finding that the Collaborative had already provided a valuable focus for innovative approaches to the challenges facing Con Edison's utility systems.[1] As required by the 2014 Rate Order, Con Edison filed its Storm Hardening and Resiliency Collaborative Phase Two Report, which reflected the work product of the Collaborative process during 2014.[2]

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[1] Cases 13-E-0030, et al., Con Edison – Electric Rates, Order Approving Electric, Gas And Steam Rate Plans in Accord With Joint Proposal (issued February 21, 2014)(2014 Rate Order), at 67.

[2] 2014 Rate Order at 69, Ordering clause 8. An Amended Storm Hardening and Resiliency Collaborative Phase Two Report (Phase Two Report) was filed on November 14, 2014, which corrected errors and clarified certain text in the original report.

By Order issued February 5, 2015,[3] the Commission adopted Con Edison's electric, gas and steam systems storm hardening and resiliency plans for 2014 through 2015, subject to modifications.[4] In addition, the Commission directed the parties and Con Edison to work in a collaborative manner to address five issues and that the results of those collaborative discussions be reported on in the Company's report regarding Phase Three (Phase Three Report), as follows: 1) The Commission directed that Con Edison address its experience in performing the upgrades to the 13th Street substation and address whether the storm hardening and resiliency work could be completed prior to 2020; 2) Con Edison was directed to update the Commission as to the progress and status of work on eliminating the single customer limitation in the Company's offset tariff in the Reforming the Energy Vision (REV) proceeding[5]; 3) Regarding the use of natural gas to power backup generators, the Company was directed to report on the potential to convert the generators from liquid fuel to natural gas and the issues preventing such conversions; 4) The Commission directed that the Company and parties work collaboratively to analyze whether the City's risk assessment methodology and Con Edison's methodology used in its Storm-Hardening Risk Assessment Model (Risk Assessment Model)

[3] Cases 13-E-0030, et al., Order Adopting Storm Hardening and Resiliency Phase Two Report Subject to Modifications (issued February 5, 2015) (Phase Two Order).

[4] While the Phase Two Report also reported the Company's plans for 2016, the Commission stated in the Phase Two Order that it viewed the 2016 plans as informational only and expected the 2016 plans for electric to be addressed in the Company's then-current electric rate case (Case 15-E-0050) and in the Phase Three Report.

[5] Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision.

accurately state total societal impacts of outages. The Company was required to coordinate that review with the benefit cost analysis work expected to take place in the REV proceeding and to report the results of that work; and 5) Finally, the parties were to review and discuss in a collaborative manner the timeline for completion of the Comprehensive Climate Change and Vulnerability Study (Climate Change Study) and Con Edison was directed to report the results of these discussions and the proposed timeline for completion of the Climate Change Study.

Following collaborative discussions held during 2015, as required by the 2014 Rate Order, Con Edison filed the Phase Three Report on September 1, 2015. The Phase Three Report describes in detail the storm hardening and resiliency work Con Edison is currently performing pursuant to the Commission's directives in the 2014 Rate Order, the Phase Two Order and the work it plans to do during 2016. Con Edison requests that the Commission adopt all of the projects listed in the Phase Three Report for each of its utility businesses.[6]

BACKGROUND

Approximately $975 million is included in Con Edison's electric, gas and steam rate plans for storm hardening infrastructure investments between 2014 and 2016 (Appendix A). In its Phase Two Report, Con Edison forecasted an increase in overall capital spending to $1.01 billion due to refinement in work scope, engineering design, and contractor bid results related to the electric overhead distribution and substation projects (Appendix B). In its Phase Three Report, the final

[6] The Company notes that some of the work the Commission approved in the Phase Two Order for 2015 has slipped to 2016 and is part of Con Edison's forecast for 2016.

report and phase of the Collaborative, Con Edison now forecasts that its overall capital investment will be approximately $955 million. Con Edison states this forecasted reduction in capital spending is driven by focusing on its worst performing circuits under its overhead distribution projects, implementing cost reduction solutions that do not impact its compliance with its design and FEMA +3 standards, and by renegotiating bids received from contractors.

In Phase Three of the Collaborative, the parties were to conduct a review of proposed storm hardening and resiliency projects for 2015 and 2016. The Phase Three Report presents detailed information regarding: Con Edison's planned storm hardening and resiliency work for 2015 and 2016, including project scope, rationale and forecast of costs; a presentation of the work performed from 2014 through 2015 (as of the date of filing) and actual costs for projects through 2014; a status report on Con Edison's ongoing Climate Change Study; a status report regarding its Risk Assessment Model and development of storm-hardening benefit/cost models; a status report on the ongoing project to develop technology to quantify methane emissions from Type 3 gas leaks in the Methane Collaborative established in the 2014 Rate Order; and, a status report on the single customer limitation in Con Edison's standby tariff applicable to distributed generation deployed in front of the meter.

The Phase Three Report presents changes in Con Edison's projects and forecast since its last report. The costs for some of the projects that the Commission approved in its Phase Two Order are now revised for both 2015 and 2016. The Phase Three Report includes the Company's final forecasted costs for its storm hardening and resiliency plan for each of its utility services. Consequently, Con Edison is now requesting

that the Commission approve all of the projects listed. Appendix A of this Order shows, in the aggregate, Con Edison's overall 2014 to 2016 expenditures reflected in the Company's current electric, gas, and steam rate plans. In accordance with rate plans currently in effect, to the extent actual expenditures for storm hardening result in net storm hardening plant balances above or below those reflected in the respective rate plans, the Company will defer carrying charges on those differences for future recovery or refund.

Con Edison invested $148.4 million in 2014 and now forecasts that it will invest $262.9 million in 2015 and $329.7 million in 2016 for electric system storm hardening and resiliency projects. The projects are related to the Company's coastal networks, overhead system, substations, transmission structures and electric generation. While the current forecast represents a $18.8 million reduction in overall spending when compared to Con Edison's projections in its Phase Two Report (Appendix B), overall electric storm hardening expenditures are still forecasted to be $17.4 million above the amount forecasted in the 2014 Rate Order and the Electric Rate Plan Extension Order[7] between 2014 and 2016 ($723.6 million) (Appendix A). This additional infrastructure investment is primarily due to revised projections associated with the Company's substations.

Regarding gas storm hardening and resiliency related projects, Con Edison invested $8.3 million in 2014 and now forecasts that it will invest $23.1 and $86.4 million in 2015 and 2016, respectively. The projects are related to main

[7] Cases 15-E-0050 and 13-E-0030, Con Edison- Electric Rates, Order Adopting Terms of Joint Proposal to Extend Electric Rate Plan (issued June 19, 2015) (Rate Plan Extension Order).

replacements in flood zones, vent line protector installations, regulator stations, remote operated valves, Liquefied Natural Gas (LNG) plant hardening, and tunnel hardening. Overall gas storm hardening expenditures are now forecasted to be $25.5 million below the amount forecasted in the gas rate plan for the three-year rate period 2014 through 2016 ($143.3 million) and projected in its Phase Two Report (Appendix B).

For its steam generating stations, Con Edison invested $8.1 million in 2014 and now forecasts that it will invest $25.4 and $35 million in 2015 and 2016, respectively. The steam generating projects are related to the Company's East River; 59th Street; 74th Street; 60th Street; and, Ravenswood A House steam generating stations. The Company invested $4.7 million in 2014 and forecasts that it will invest $5.7 million in 2015 for its steam distribution system. The steam distribution system projects are related to the installation of tie mains, isolation valves, remote operated valves, improved debris capture and removal in steam mains, remote monitoring systems, and expedited restoration. Overall steam storm hardening expenditures are now forecasted to be $13.1 million below the amount forecasted in the steam rate plan for the three-year rate period 2014 through 2016 ($92 million). This is a $12.2 million reduction in cost when compared to Con Edison's projections in its Phase Two Report (Appendix B).

Also, Con Edison forecasts that in 2015 and 2016 it will invest $5 million each year to harden its facilities.[8] This is equal to the amount allocated in the 2014 Rate Order and Rate Plan Extension Order and projected in its Phase Two Report

[8] The costs of these projects are allocated between the Company's electric and gas businesses. The steam business is charged interdepartmental rent.

(Appendices A and B). These projects focus on hardening the Company's service centers and other buildings used in common for electric, gas and steam operations that are most vulnerable to flooding.

Finally, Con Edison invested $1.3 million in 2014 and forecasts that it will invest $2.7 million and $2.6 million in 2015 and 2016, respectively for its telecommunication system.[9] This is also equal to the amount allocated in the 2014 Rate Order and Rate Plan Extension Order and projected in its Phase Two Report (Appendices A and B). These projects focus on hardening the Company's thirty-five (35) radio site facilities, hardening dispatch sites, extending the fiber optic corporate communication transmission network, and elevating communication huts.

NOTICE OF PROPOSED RULE MAKING

Pursuant to the State Administrative Procedure Act (SAPA) §202(1), a Notice of Proposed Rulemaking was published in the State Register on September 23, 2015 [SAPA No. 13-E-0030SP10]. The time for submission of comments pursuant to the Notice expired on November 9, 2015. Moreover, in a Notice Soliciting Comments, comments due on November 9, 2015 were solicited (Notice). On November 9, the City of New York (City or NYC), the Sabin Center for Climate Change Law (SCCCL), and Pace Energy and Climate Center (Pace) filed comments. On November 24, 2015, Con Edison filed comments responding to NYC, SCCCL, and Pace. On December 29, 2015, the City submitted reply

[9] The costs of these projects are allocated between the Company's electric and gas businesses. The steam business is charged interdepartmental rent for use of the Corporate Communications Transmission Network (CCTN).

comments to the comments filed by Con Edison on November 24, 2015.[10]

COMMENTS

The City of New York

In its comments, the City raises three primary issues: Con Edison should take measures to ensure that gas vent line protection (VLP) devices are correctly installed; natural gas should be the primary fuel for backup generators at the Company's substations and other critical facilities; and, Con Edison should incorporate a societal cost calculation that reflects its service territory in its risk assessment and prioritization model. The City states the high number of improperly installed VLP is very disconcerting and asserts that the Commission should investigate the improper installation of VLP devices, develop mandatory mitigation measures, determine if such a breakdown in contractor oversight extends to other work, and conduct its own inspections to ensure that the repairs were performed correctly. Furthermore, the City states that customers should not pay the costs for correcting the improperly installed VLPs.

The City supports the installation of dual-fueled back-up generators with the use of natural gas as the primary fuel in the Company's generation station and substations. According to the City, use of dual-fueled back-up generators would reduce harmful air emissions, reduce flooding-related outages, expedite system restoration, and allow for continuous operation of protective equipment even when power is out.

[10] While Con Edison and NYC reply comments were filed after the comment periods under SAPA and the Notice expired, they are accepted as they tend to improve the record before the Commission.

Relying on fuel trucks is a concern according to NYC because during Sandy there were significant access problems and weeks of disruption in fuel supply. Moreover, the cost of bringing natural gas supply to the backup generators pales in comparison to the benefits to public health, safety, and the ramifications to the local and national economy that would inure from the loss of fuel to the protective equipment if the Company must shut down operations. The additional capital expense to bring gas to these stations pales in comparison to what has already been spent by Con Edison on storm hardening and resiliency. In addition, the City is concerned that if there are multiple weather events in a short duration, the flood pumps may be required to run for extended periods of time. There could be damage or obstructions that prevent access to the storage tanks or there could be damage to the storage tanks or fuel handling equipment. The City requests that the Commission direct Con Edison to develop and implement a transition plan to convert its existing back-up generators to accept natural gas. In addition, the City requests that, for 2016 and thereafter, the Commission require that Con Edison use natural gas as the primary fuel for such equipment.

The City indicates it is pleased that, as the Commission directed in the Phase Two Order, Con Edison conducted an analysis comparing the economic impact methodology used by NYC to that used by the Company. The City generally agrees with the Company's conclusion in the Phase Three Report that both methods lead to similar prioritization of assets and projects for storm hardening purposes. However, it proposes that the model should be modified slightly to use a societal cost calculation that is based on survey data from customers in the Company's service territory, or to use another city in the Northeast. The City notes that the Company uses data from a

Lawrence Berkeley National Laboratory study that uses aggregated data from 28 studies conducted by utilities across a number of regions, but not the Northeast. As such, the City questions the applicability of the data to the Con Edison service territory and asks that the Commission direct the Company to modify its social cost calculation.

Finally, the City states that, going forward, planning for resiliency purposes should not be separate and distinct from the Company's regular planning activities. Such resiliency planning, to the extent it is not already, should be integrated into utility system planning and design in the same manner as reliability, load growth, safety, and other factors.

SCCCL and Pace

In their comments, SCCCL and Pace request that the Commission require that the Company provide supplemental status reports for the duration of the work on the Climate Change Vulnerability Study and the Methane Emissions Reduction Collaborative. They note that the proposed supplements would make it easier for parties to track milestones and completion of tasks related to these efforts. Specifically, SCCCL and Pace request that Con Edison be directed to provide status reports regarding these two efforts to indicate the status of a particular task, and if completion is delayed beyond the scheduled date, an estimate of the expected date of completion.

Reply Comments of Con Edison

Con Edison takes issue with the City's comments that the Commission should take actions against the Company for what NYC characterizes as deficient installation of VLPs. According to the Company, VLP installation was performed properly, but that brackets, which are not needed for proper operation of the VLPs, were not installed in some instances. The Company claims that the one incident where a customer's service had over-

pressurized in January 2015 was caused by a VLP that was found to be upside down due to a third party tampering with the device. Con Edison claims that had the bracket been installed, the VLP would not have been moved. According to the Company, it conducted a root cause investigation and created an expedited inspection and mitigation plan. It also revised its procedures to make it clear that the brackets must be installed with all VLPs. Therefore, Con Edison claims that there is no basis to deny the Company its incremental costs for installing the devices. However, in light of the controversy, the Company states it is willing to forego carrying charges on the incremental capital expenditures associated with the VLP inspection and mitigation plan, estimated to total approximately $1.18 million.

Turning to the City's comments regarding the use of diesel fuel for backup generators at its critical facilities, Con Edison explains that it is wrong for the City to assume that Con Edison will need to replenish its tanks during or immediately after a storm disruption and that perimeter substation walls will leak. Con Edison expects that there will be no or minimal water leakage through the perimeter walls and the on-site diesel tanks can provide sufficient amounts of fuel to the back-up generators. Con Edison points out that during Sandy, the worst storm in its history, the flooding lasted four to five hours. Should there be a power failure, the pumps have a minimum run time of 18 hours. The Company does not expect, even in instances where multiple storms hit the City within a short period of time, instances where water will intrude past the flood walls. Even if the flood waters do get through the walls and grid power is not available, diesel fuel trucks will be staged to refill the fuel tanks for the backup generation. According to the Company, it would be extremely unlikely that

the fuel trucks would be needed and even if they are, it was able to procure fuel due to its status as a provider of critical public services.

It is Con Edison's position that spending additional funds is not needed given the significant storm hardening protections already in place. Finally, according to Con Edison, the environmental benefits claimed by the City cannot be used as justification given the extremely low likelihood that it would ever be necessary to run these generators, the limited run time (if they were used), and that even with natural gas supply to the substations, diesel fuel is needed for the generators as they require either diesel fuel only or a mixture of both diesel and natural gas. They cannot run solely on natural gas.

Regarding the City's request that the Company's risk assessment and prioritization model incorporate a service territory societal cost calculation, Con Edison notes that the City concedes in its comments that the current model is sufficient to prioritize storm hardening projects. The Company notes that it is already including storm hardening as a consideration in its current capital prioritization process and, in addition, the Climate Change Vulnerability Study will further inform those efforts. Thus, the Company claims that it would be premature for the Commission to direct that it include a societal cost calculation in the model.

Finally, regarding the issues that SCCCL and Pace raise in their comments, Con Edison points out that the Climate Change Study status is discussed in the Phase Three Report and that a Request for Proposals (RFP) for the study is pending. While this particular milestone is some six months late, the Company indicates that it plans on meeting the March 2019 deadline. Once the RFP process is complete, it will update the project schedule and provide the schedule to the parties in the

collaborative. Similarly, regarding the Methane Collaborative, upon review of the analysis of data on three methane sensing technologies, it was determined that field testing of the sensing technologies would not produce useful data and that additional controlled testing was required. Con Edison indicates that it would work collaboratively with the parties to develop criteria for determining the success of the next round of controlled testing and then conduct the field testing of Type 3 leaks in the third quarter of 2016. It notes that the original scope of work contemplated the controlled testing would be completed in May 2015 and a report would be issued by September 2015. The revised scope of work has the controlled testing completed by May 2016 and the issuance of a report in August or September 2016. Con Edison states that this was discussed on a conference call with the collaborative parties on November 2, 2015 and no one objected to the slippage of this work.

Reply Comments of NYC

On December 29, 2015, the City filed reply comments in response to the reply comments filed by Con Edison. According to NYC, Con Edison's reply comments contain misstatements of fact and submit the reply comments to ensure that the Commission has a complete and accurate record. In these comments, the City raises three issues for the Commission's consideration. They are further comments and concerns regarding the Company's statements concerning the VLP installation, and claim a need for further analysis to determine if Con Edison has adequate onsite fuel to run backup generators, and express concerns regarding the basis for not incorporating a Con Edison service territory societal cost calculation in its risk assessment and prioritization model.

According to NYC, Con Edison's response to DPS-15 is inconsistent with Con Edison's reply comments claim that the VLP installation issues were primarily caused by the failure to install a bracket that was not essential for proper operation. NYC states that its gas safety experts disagree with Con Edison's characterization, and states that the reasons stated by the Company in its response to DPS-15 for the incorrect installations, including the bracket placement, are operational and potential safety concerns. According to NYC, if the VLP are installed upside down, precipitation and moisture can enter and clog vent lines. Liquids could migrate into the regulator, which can adversely affect its operation. In addition, the City claims that missing support brackets could result in unacceptable loading of support components and threaded connections without pipe dope or Teflon tape can also allow for water intrusion. Incorrect installation may also be a violation of construction standards, a violation of the gas safety code and a violation of Con Edison's operations and maintenance procedures.

The City asks that the Commission investigate these issues and to require the Company to provide a statement verifying the facts and circumstances surrounding the VLP installations, along with all supporting documents. Furthermore, to the extent that the Company continues to claim that the installation errors are non-operational issues, the Commission should require Con Edison to provide the evidence supporting its claim. The Commission should then investigate to ensure that neither the general public nor individual customers are at risk.

Regarding the onsite fuel for backup generators, NYC claims that the Phase Three Report does not provide sufficient analysis as to the design basis and use for the generators, and

whether such equipment will be needed to run for other unexpected or concurrent events that may last for extended periods of time. In order to determine whether natural gas is needed at substations as a constant fuel source, NYC requests that the Commission require the Company to perform an analysis that examines the necessary fuel run-time at each facility under different event scenarios and provide calculations for assumptions used, such as load, event type, and leakage rate. According to the City, the analysis should also consider onsite fuel adequacy under a full fuel supply shortage and interruption scenario, similar to what was experienced during Superstorm Sandy.

Finally, NYC states that its recommendations in its initial comments in these proceedings concerned the future applications of the Company's risk assessment and prioritization model, how the model may be applied in the future under different scenarios, and its comments regarding its support for the model was applied to Superstorm Sandy, only. Those results do not imply that the model would yield similar results and impacts, especially if the model were applied to a different event, such as a large-scale blackout.

Given the significant policy changes resulting from REV, the City claims that the only way to capture such changes is through the use of local data that is pertinent to New York City customers. NYC also states that Con Edison is wrong that including a Con Edison or Northeast societal cost calculation is not necessary in light of the methane leak study and the climate change vulnerability study. NYC claims that these studies are irrelevant because neither have any bearing on a societal cost calculation. NYC states that the Company's argument that performing a societal cost calculation would be costly should be rejected because the Company has not provided any cost estimates

or other basis for its contention. The City asserts that because the Company would be surveying its own customers, it is questionable that the cost would be material. Therefore, the City requests that the Commission require the Company to provide supporting cost estimates for developing a societal cost calculation based on the Company's customers or survey data from a Northeast service territory.

DISCUSSION

The Commission again commends the participants in the Phase Three portion of the Collaborative for their efforts in considering Con Edison's storm hardening and resiliency measures and related recommendations. The fact that only the City commented on the Phase Three Report with alternate recommendations on a few issues and SCCCL/Pace comments concern a request for more detailed status reports from the Company is testament to the efforts the parties made during the Collaborative. Subject to the modifications discussed below, the Phase Three Report is adopted.

The following discussion addresses the five issues identified by the Commission in the Phase Two Order (listed above) that were to be addressed in the Phase Three Report. In addition, the Commission addresses concerns regarding increased substation storm hardening and resiliency costs compared to the Company's previous estimates, the installation of over 2,200 gas VLP devices, and the replacement of cast iron and bare steel pipe in flood zones.

Increased Substation Storm Hardening and Resiliency Costs

In the 2013 electric rate case, Case 13-E-0030, the Company presented plans to develop storm hardening measures at 14 substations for an estimated cost of $210 million. Storm hardening measures include reinforcing perimeter walls,

installing gates and floodwalls, and raising critical equipment. With the Commission's acceptance of the FEMA +3 design criteria in the Phase One Report, work at three of the 14 substations was no longer required (59th Pier, West 49th Street, and Academy), and five substations were added (Farragut, Rainey, Vernon, Leonard Street, and Avenue A). The cost to harden the 16 substations was projected by the Company in the Phase Two Report to be $235.4 million from 2014 through 2016 and $67.6 million for work after 2016. Con Edison indicated the principal drivers for this increase includes the availability of more detailed project design information and added work due to the revised definition of the Bulk Electric System approved by the Federal Energy Regulatory Commission (FERC) on March 20, 2014.[11]

In the Phase Three Report, the Company projects further increases to the substation storm hardening cost to $277.7 million for calendar years 2014 through 2016.[12] This is an increase of $67.8 million from the original projection in the 2013 electric rate case of $210 million (an increase of $42.35 million from the Phase Two Report). For substation projects that the Company plans to perform after 2016, the costs have been updated to $69.5 million. Con Edison states the increase in substation cost is mainly due to further development of engineering and design details, higher than expected contractor bids, and a compressed work schedule due to delays.

[11] 146 FERC ¶ 61, 199, Order Approving Revised Definition, issued on March 20, 2014, effectively redefines the Bulk Electric System to include any facilities that are operated at or above 100kV, which now captures many Con Edison 138kV transmission substation facilities like the East 13th St.

[12] The $277.7 million cost does not include the $19 million for natural gas back-up generators.

According to Con Edison, competitive contractor bids for storm hardening construction work originally came in 30% to 300% higher than the Company expected. Con Edison engaged in negotiations and re-bid efforts to reduce project costs; however, the revised bids were still higher than Con Edison's initial expectations. Delays resulting from going through the re-bidding process and receipt of construction permit approvals from the City's Department of Buildings (DOB), shortens the work schedule and leads to further increases in cost. According to the Company, previously it was able to obtain permits in less than a week. However, after applying for permits for the 2014 storm hardening work, the approvals took from three to seven months, delaying the start of construction for many of the planned 2014 and 2015 projects. The delay in receiving DOB approvals are primarily attributed to meeting the new DOB's requirements on Flood-Resistant Construction, DOB receiving a large number of projects for review within a short period of time, and the need to address clarifying questions across multiple DOB examiners. In 2015, the Company, with assistance from DOB, have streamlined its approach to obtaining permits and is pursuing certain certification to reduce filing time.

The Commission understands that the Company has implemented many measures to complete work on schedule with minimal cost increases. The Commission approves the increased substation cost; however, Con Edison should continue to take measures to complete work within the approved allowances.

13th Street Substation Work Schedule

Con Edison estimated in its Phase Two Report that the storm hardening and resiliency measures at the East 13th Street substation will not be completed until 2020 due to feeder outage

scheduling.[13] In the Phase Two Order, the Company was directed to address in its Phase Three Report whether work can be completed prior to 2020.[14] As a result, in the Phase Three Report, the Company has reduced the scheduled completion of the work at East 13th Street from 2020 to 2019. Furthermore, Con Edison indicates that its actual experience in conducting feeder work at East 13th Street during this upcoming winter period will inform the Company as to whether further efficiencies may be gained to allow the completing of the work at the substation sooner. In light of the foregoing, the Commission accepts Con Edison's proposed 2019 completion schedule and continues to expect the Company to use all reasonable and cost effective measures to complete the work earlier.

Use of Natural Gas for Backup Generators

In complying with the Commission's directive in the Phase Two Order that it and the parties further review supplying natural gas to all of its backup generators, Con Edison has determined that it would cost approximately $19 million to have dual-fueled back-up generators at its six substations and two generation stations in flood prone areas.[15] The estimated cost includes the installation of high pressure gas mains, interference related work, installation of dual-fuel conversion kit,[16] and work to allow the substations or generating stations

[13] Phase Two Report at 41, fn ***.

[14] Phase Two Order at p.16

[15] Phase Two Order at 20.

[16] Con Edison would need to retrofit the previously purchased diesel fuel generators to accept natural gas. This retrofit would create back-up generators that can run on either diesel or both diesel and natural gas. The generators would not be able to only run on natural gas.

and back-up generator units to accept a high pressure natural gas line. The Company states these back-up generators would be used for emergency needs such as power for flood pumps during an electrical outage. The flood pumps' main source of power is the electric grid. If there is a power outage, on-site diesel fuel reserves are sufficient to operate the generators for at least 12 hours. The Company believes extended run-time would not be necessary given the expected duration of storm surges. In light of this and considering the cost and measures already put into place to minimize storm impact, Con Edison does not recommend adding dual-fueled capability to these generators.

Instead, the Company explains in response to Staff interrogatory request DPS-24 to procure and stage diesel fuel trucks in advance of coastal flooding forecasted to occur in its service territory by the National Weather Service. The use of diesel fuel trucks would be incorporated in Con Edison's Corporate Coastal Storm Plan and planning for use of these trucks will begin at approximately 72 hours before the storm. If diesel fuel trucks are not available due to an unforeseen emergency, the Company would first use the on-site fuel storage for generators. In addition, Con Edison states that it can use diesel fuel stored at the Company's various fuel facilities used for its fleet of diesel vehicles.

The Commission agrees with Con Edison's position that storm hardening and resiliency work already completed or to be implemented should be considered. However, the City's concerns regarding extended outages and fuel source issues have merit. Furthermore, it is not enough to use past storm experiences to limit reasonable resiliency efforts. Therefore, Con Edison is directed to have dual-fuel back-up generators at stations whose loss would have the greatest impact to customers -- the two generation stations (74th Street and Ravenswood stations) and the

two transmission stations (East 13th Street and Fresh Kills). Based on Con Edison's projections, this work is estimated to cost $8.3 million and could be completed by 2018. The funding spent in 2016 towards this effort will be subject to reconciliation under Con Edison's current rate plan. Funding required beyond 2016 should be reflected in the Company's next electric and gas rate cases. In addition, Con Edison is directed to immediately incorporate in its emergency procedures a process for procuring and staging diesel fuel trucks for stations and that its fuel facilities are fully refilled in advance of need. This revision should be included in Con Edison's final 2016 emergency plan that is filed with the Commission as required by Public Service Law Section 66(21) and 16 NYCRR Part 105.

Elimination of the Single Customer Limitation in the Offset Tariff

Pursuant to the 2014 Rate Order, Con Edison was to collaborate with interested parties to consider elimination of the single customer limitation in Con Edison's offset tariff to expand its availability.[17] The project is to be informed by New York State Energy Research and Development Authority's (NYSERDA) report on microgrids. On January 6, 2015, NYSERDA issued its report, approximately eight months after the originally proposed completion date. After which, Con Edison requested and the Commission granted an extension to January 6, 2016 for Con Edison to file its proposed implementation plan. This extension was granted to allow Con Edison to incorporate the delayed NYSERDA report in its plans and outcomes from the REV proceedings that can impact stand-by rates, microgrids, and market design. On January 6, 2016, Con Edison filed a proposed

[17] 2014 Rate Order at 70.

microgrid implementation plan. The Commission will review and take action on the proposed amendments at a future Commission Session.

Con Edison Risk Assessment Model

In the Phase Two Order the Company was directed to include in its Phase Three Report a detailed discussion regarding whether its risk assessment model[18] should incorporate the economic impact methodology used by the City including the extent to which the two competing methodologies may overstate or understate actual societal impacts. The Company addressed this directive in its Phase Three Report by describing the City's Risk Assessment and Economic Impact Model, comparing the differences between the City's and Con Edison's economic impact estimation methodologies, and discussing the potential use of Con Edison's cost-benefit model in future initiatives.

According to the comments received, there is agreement between New York City and Con Edison that a locally-oriented measure of societal cost – more precisely, a locally-oriented measure of the benefit from reductions in the frequency and duration of outages – would result in more accurate net benefit calculations. The Commission is concerned that the costs of obtaining the information, as the City proposes, might be greater than the benefits of better data accuracy. Also, not having this information at present does not cause delays in implementing storm hardening projects since storm hardening projects are being prioritized and implemented. The Commission is not comfortable at this time in directing that such a study be performed without knowing the costs involved, especially in

[18] Risk assessment model quantifies and ranks the reduction in risk associated with each of the storm hardening projects related to the company's transmission, substation, coastal network, and overhead distribution systems.

light of the fact that, as noted in the Phase Three Report, Con Edison already includes storm hardening as a consideration in its current capital prioritization process and the benefits of obtaining increased accuracy is not evident to the Commission. As stated in the City's reply comments, however, this information could be useful in future endeavors. Therefore, the Company is directed to make inquiries regarding the cost involved in obtaining a more precise New York City and Westchester measure of the societal cost associated with outages so that the Commission can better assess if Con Edison should perform such an outage cost study. Con Edison is directed to report in its next rate case filing the detailed cost estimates for obtaining this information and cost for incorporating it in the Company's models.

Comprehensive Climate Change and Vulnerability Study

Con Edison was directed by the Commission to complete a climate change study that will aid in the ongoing review of the Company's design standards and development of a risk mitigation plan.[19] In the Phase Two Order, the Commission also expressed its expectation that the Company finalize the Climate Change and Vulnerability Study as soon as possible, but make it available for the Commission's use no later than March 2019.[20]

On April 16, 2015, Con Edison filed with the Commission a five-year timeline for completion of the study in the fourth quarter of 2018. In the filing, Con Edison proposes that the report include five chapters and that each chapter be released upon completion. The five chapters would cover the impact of temperature, temperature variable and humidity,

[19] 2014 Rate Order at 71.

[20] Phase Two Order at 22.

precipitation and inland flooding, extreme events, and sea level rise and coastal storm surge on Con Edison's energy delivery systems. To accomplish this, certain weather information will need to be obtained that is currently not available or not in a format that is of use to the Company. This weather information includes daily and hourly summer temperature and humidity projections, wind speed and duration projections, and the forecast of precipitation by type (e.g. rain, show, and ice) and the frequency of such events. At the present time, the cost of the Comprehensive Climate Change and Vulnerability Study is unknown. The Company states that it expects to have cost information once it receives responses to its RFP towards the end of 2015. The RFP covers work to be done by various engineering, communication, and project consultants.

The Commission continues to support, in general, the need for this study. However, the Commission needs to ensure that costs are aligned with benefits received. Therefore, the final approval of costs related to this study is to be addressed in Con Edison's next rate cases. This will allow the Company more time to obtain more definitive cost information. In addition, Con Edison is directed to seek alternative source of funding for this study and present this information in its next rate case. The Commission agrees with SCCCL and Pace's comments regarding the need to have a progress report plan in place for this multi-year study and this should be handled along with the cost of the study in the next rate cases.

Vent-Line Protection Devices

As part of its review of Con Edison's Phase Three Report, the reason for the $800,000 cost increase related to the VLP device installations between the Phase Two and Phase Three Reports was investigated. Con Edison indicates that due to an incident on January 6, 2015 where a customer's service had over-

pressurized due to an improperly installed VLP, the Company initiated a program to re-inspect all VLP installations. Con Edison states in response to interrogatory requests DPS-15 and DPS-27 that it improperly installed a large majority of its VLP devices. According to the Company, 1,837 of 2,204 VLP installations (over 80 percent) were improperly installed and the cost of re-inspection and remediating the non-compliant VLP installations is approximately $1.18 million.

In its reply comments, the City claims that Con Edison has provided inconsistent information regarding the installation of VLP devices. The City, therefore, recommends that the Commission investigate the Company's VLP device installation failure for root causes, develop mandatory mitigation measures, determine if such a breakdown in contractor oversight extends to other work, and conduct its own inspections to ensure that the repairs were performed correctly. The Commission agrees with the City's comments that proper bracket placement is necessary for continued safe operation of the Company's VLP devices. The City further states that issues relating to the violation of construction standard for the service regulator, violation of the gas safety code, and violations of Con Edison's operations and maintenance procedures should be investigated. After the incident on January 6, 2015, Gas Safety Staff conducted an investigation into gas safety issues surrounding the installation of the VLP devices. The findings are documented in Staff's 2015 gas safety record audit report of Con Edison. Since Con Edison failed to properly install the VLP devices initially, and as correctly noted by the City, customers should not be responsible for the cost associated with correcting the non-compliant installations. In its response to the City's comments, Con Edison states its intent to permanently exclude the carrying charges on the incremental capital expenditures

associated with the Company's VLP inspection and mitigation plan. To ensure that customers do not pay these carrying charges, the Commission directs the Company to permanently exclude these carrying charges.

Replacement of Cast Iron and Bare Steel Pipe in Flood Zones

For the combined gas system and tunnel projects, Con Edison is forecasting storm hardening costs of $117.8 million during the period of 2014 through 2016 ($25.5 million below the rate case established level). A significant portion of the $25.5 million is due to reduced cost estimates for leak prone pipe replacement in flood prone areas. The Company states that costs are lower than initially projected because there were opportunities to remove leak prone pipe in conjunction with other work performed on existing underground facilities. This process required less funding or a sharing of the cost for restoration. Furthermore, work outside of Manhattan was performed at a lower unit cost than Con Edison originally forecasted.

Since a significant portion of funding is still available and the Commission continues to increase our leak prone pipe removal goals, the Commission finds that it is best to increase the amount of leak prone pipe to be replaced in flood zones to the extent feasible using the $25.5 million. Based on the average cost of pipe replacement, an additional 5.5 miles of leak prone pipe in flood zones may be achieved using the prioritization model. Priority should be given to Manhattan to the extent possible compared to other locations for this purpose, consistent with the replacement targets established in the gas rate plan. Priority is given to Manhattan because Con Edison was required to replace at least nine miles of leak-prone pipe in the FEMA 100-year flood plains during 2014 to 2016, with the majority (a minimum of six miles) of pipe to be replaced in

Manhattan. The Commission also directs Con Edison to include the incremental feet of leak prone pipe replaced in 2016, the cost of the incremental pipe replaced, and the location of the pipes replaced in its Gas Capital Expenditures Report, which is currently filed with the Secretary every six months. Including this additional work for 2016, overall gas storm hardening expenditures are now forecasted to equal the amount forecasted in the gas rate case for the period 2014 through 2016. In accordance with the gas rate plan, to the extent actual expenditures for gas storm hardening result in net gas storm hardening plant balances above or below those reflected in the rate plan, the Company will defer carrying charges on those differences for future recovery or refund.

CONCLUSION

The Phase Three Report and the storm hardening and resiliency plans contained therein are adopted, subject to the modifications and directives contained in this Order. The Commission expects that Con Edison will continue its ongoing efforts to ensure that its utility systems are hardened and resilient in light of the most current data and analysis it has available to it. It is also expected that Con Edison will integrate those considerations into its system planning and construction forecasts and budgets, particularly in its anticipated filings seeking electric, gas and steam revenue requirement relief.

The Commission orders:

1. The Storm Hardening and Resiliency Collaborative Phase Three Report filed on September 1, 2015 by Consolidated Edison Company of New York, Inc. is adopted, subject to the modifications, clarifications and directives contained in the body of this Order.

2. In the Secretary's sole discretion, the deadlines set forth in this order may be extended. Any request for an extension must be in writing, must include a justification for the extension, and must be filed at least one day prior to the affected deadline.

3. These proceedings are continued.

By the Commission,

(SIGNED) KATHLEEN H. BURGESS
Secretary

Consolidated Edison Company of New York
Storm Hardening & Resiliency Phase Three Report
Rate Plan vs. Current Company Forecast
($ Millions)

Electric

	2014			2015			2016			Total 2014 -2016		
Electric Storm Hardening	Rate Plan	Actual	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan
Coastal Networks	$65.0	$31.7	($33.3)	$55.0	$36.6	($18.4)	$52.0	$38.5	($13.5)	$172.0	$106.8	($65.2)
Submersible Transformers	12.5	45.3	32.8	11.3	30.0	18.7	11.4	27.6	16.2	35.2	102.9	67.7
Overhead Distribution	15.0	42.1	27.1	115.0	94.5	(20.5)	112.0	80.1	(31.9)	242.0	216.7	(25.3)
Electric Transmission	4.9	3.5	(1.4)	2.0	3.1	1.1	2.0	2.0	0.0	8.9	8.6	(0.3)
Substations	60.0	24.0	(36.0)	70.0	92.8	22.8	80.0	151.5	71.5	210.0	268.3	58.3
Electric Generation	14.0	1.8	(12.2)	21.0	5.9	(15.1)	20.5	30.0	9.5	55.5	37.7	(17.8)
Total Electric Storm Hardening	**$171.4**	**$148.4**	**($23.0)**	**$274.3**	**$262.9**	**($11.4)**	**$277.9**	**$329.7**	**$51.8**	**$723.6**	**$741.0**	**$17.4**

Gas

	2014			2015			2016			Total 2014 -2016		
Gas Storm Hardening	Rate Plan	Actual	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan
Main Replacement in Flood Zones	$18.0	$5.3	($12.7)	$26.0	$16.1	($9.9)	$35.0	$20.0	($15.0)	$79.0	$41.4	($37.6)
VLP Installation	4.8	2.2	(2.6)	0.0	1.0	1.0	0.0	0.0	0.0	4.8	3.2	(1.6)
Reg Station & ROVs Hardening	0.0	0.0	0.0	0.0	1.7	1.7	0.0	1.4	1.4	0.0	3.1	3.1
LNG Hardening	0.0	0.5	0.5	0.0	2.3	2.3	0.0	13.6	13.6	0.0	16.4	16.4
Tunnel Hardening	0.0	0.3	0.3	19.5	2.0	(17.5)	40.0	51.4	11.4	59.5	53.7	(5.8)
Total Gas Storm Hardening	**$22.8**	**$8.3**	**($14.5)**	**$45.5**	**$23.1**	**($22.4)**	**$75.0**	**$86.4**	**$11.4**	**$143.3**	**$117.8**	**($25.5)**

Steam

	2014			2015			2016			Total 2014 -2016		
Steam Storm Hardening	Rate Plan	Actual	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan
East River	$2.5	$0.3	($2.2)	$4.5	$3.4	($1.1)	$7.0	$9.4	$2.4	$14.0	$13.1	($0.9)
59th Street	10.0	3.2	(6.8)	12.0	9.4	(2.6)	14.0	12.1	(1.9)	36.0	24.7	(11.3)
74th Street	10.0	3.3	(6.7)	12.0	9.8	(2.2)	14.0	12.0	(2.0)	36.0	25.1	(10.9)
60th Street	2.0	1.1	(0.9)	1.0	1.4	0.4	0.0	0.5	0.5	3.0	3.0	0.0
Ravenswood A House	2.0	0.2	(1.8)	1.0	1.4	0.4	0.0	1.0	1.0	3.0	2.6	(0.4)
Tie Main	0.0	0.8	0.8	0.0	1.3	1.3	0.0	0.0	0.0	0.0	2.1	2.1
Isolation Valves	0.0	0.1	0.1	0.0	1.1	1.1	0.0	0.0	0.0	0.0	1.2	1.2
Remote Operated Valves	0.0	0.5	0.5	0.0	1.2	1.2	0.0	0.0	0.0	0.0	1.7	1.7
Hardening REMS	0.0	3.3	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3
Reinforce System in Flood Zones	0.0	0.0	0.0	0.0	2.1	2.1	0.0	0.0	0.0	0.0	2.1	2.1
Total Steam Storm Hardening	**$26.5**	**$12.8**	**($13.7)**	**$30.5**	**$31.1**	**$0.6**	**$35.0**	**$35.0**	**$0.0**	**$92.0**	**$78.9**	**($13.1)**

Facilities

	2014			2015			2016			Total 2014 -2016		
Facilities Storm Hardening	Rate Plan	Actual	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan
Hardening Service Centers	**$0.0**	**$0.0**	**$0.0**	**$5.0**	**$5.0**	**$0.0**	**$5.0**	**$5.0**	**$0.0**	**$10.0**	**$10.0**	**$0.0**

Telecom System

	2014			2015			2016			Total 2014 -2016		
Telecom System Hardening	Rate Plan	Actual	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan	Rate Plan	Current Forecast	Variance from Rate Plan
Radio Site Hardening	$0.0	$0.1	$0.0	$0.1	$0.1	$0.0	$0.1	$0.1	$0.0	$0.2	$0.2	$0.0
Generators	0.1	0.1	(0.1)	0.2	0.2	0.0	0.1	0.1	0.0	0.4	0.3	(0.1)
CCTN Extension	1.1	1.2	0.1	2.2	2.2	(0.0)	1.7	1.7	0.0	5.1	5.1	0.1
Communication Huts	0.0	0.0	0.0	0.3	0.3	0.0	0.8	0.8	0.0	1.0	1.0	0.0
Total Telecom System Hardening	**$1.3**	**$1.3**	**$0.0**	**$2.7**	**$2.7**	**($0.0)**	**$2.6**	**$2.6**	**$0.0**	**$6.6**	**$6.6**	**($0.0)**

Total Company Forecast	**$222.0**	**$170.8**	**($51.2)**	**$358.0**	**$324.8**	**($33.2)**	**$395.5**	**$458.7**	**$63.2**	**$975.5**	**$954.3**	**($21.2)**

Consolidated Edison Company of New York
Storm Hardening & Resiliency Phase Three Report
Phase Two to Phase Three Report
Change in Storm Hardening Investment
($ Millions)

Electric Storm Hardening	**Phase Two Report 2014 - 2016 Forecast**	**Phase Three Report 2014 - 2016 Forecast**	**Change in Storm Hardening Investment**
Coastal Networks	$131.2	$106.8	($24.4)
Submersible Transformers	35.2	102.9	67.7
Overhead Distribution	290.4	216.7	(73.7)
Electric Transmission	12.1	8.6	(3.5)
Substations	235.4	268.3	33.0
Electric Generation	55.5	37.7	(17.8)
Total Electric Storm Hardening	**759.8**	**741.0**	**(18.8)**
Gas Storm Hardening			
Main Replacement in Flood Zones	79.0	41.4	(37.6)
VLP Installation	2.4	3.2	0.8
Reg Station & ROVs Hardening	12.4	3.1	(9.3)
LNG Hardening	7.9	16.4	8.6
Tunnel Hardening	41.6	53.7	12.1
Total Gas Storm Hardening	**143.3**	**117.8**	**(25.5)**
Steam Storm Hardening			
East River	7.4	13.1	5.7
59th Street	33.9	24.7	(9.2)
74th Street	34.9	25.1	(9.8)
60th Street	3.0	3.0	0.0
Ravenswood A House	3.0	2.6	(0.4)
Tie Main	1.8	2.1	0.3
Isolation Valves	1.8	1.2	(0.6)
Remote Operated Valves	1.6	1.7	0.1
Hardening REMS	0.2	3.3	3.1
Reinforce System in Flood Zones	2.0	2.1	0.1
Expedited Restoration	1.5	0.0	(1.5)
Total Steam Storm Hardening	**91.1**	**78.9**	**(12.2)**
Facilities Storm Hardening			
Hardening Service Centers	**10.0**	**10.0**	**0.0**
Telecom System Hardening			
Radio Site Hardening	0.2	0.2	0.0
Generators	0.4	0.3	(0.1)
CCTN Extension	5.1	5.1	0.1
Communication Huts	1.0	1.0	0.0
Total Telecom System Hardening	**6.6**	**6.6**	**(0.0)**
Total Company Forecast	**$1,010.7**	**$954.3**	**($56.4)**