

# STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE

THREE EMPIRE STATE PLAZA, ALBANY, NY 12223-1350

Internet Address: <http://www.dps.state.ny.us>

## PUBLIC SERVICE COMMISSION

PATRICIA L. ACAMPORA

*Chairwoman*

MAUREEN F. HARRIS

ROBERT E. CURRY JR.

CHERYL A. BULEY



PETER McGOWAN  
*Acting General Counsel*

JACLYN A. BRILLING  
*Secretary*

March 30, 2007

Hon. Jaclyn A. Brillling, Secretary  
State of New York Public Service Commission  
Three Empire State Plaza  
Albany, New York 12223-1350

Re: CASE 06-E-0894 – Proceeding on Motion of the Commission to Investigate the Electric Power Outage of Consolidated Edison Company of New York, Inc.'s Long Island City Electric Network.

Dear Secretary Brillling:

Staff of the Department of Public Service hereby files its reply comments in the matter of the Department of Public Service Staff Report on its Investigation of the July 2006 Equipment Failures and Power Outages in Con Edison's Long Island City Network in Queens County, New York.

Respectfully submitted,

Kimberly A. Harriman

Assistant Counsel

Guy R. Mazza

Assistant Counsel

cc: Hon. Eleanor Stein  
Active Parties

STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

CASE 06-E-0894 - Proceeding on Motion of the Commission to Investigate Electric Power Outages in Consolidated Edison Company of New York, Inc.'s Long Island City Electric Network.

**REPLY COMMENTS OF THE  
DEPARTMENT OF PUBLIC SERVICE STAFF**

Kimberly A. Harriman  
Guy R. Mazza  
Assistant Counsels

New York State  
Department of Public Service  
Three Empire State Plaza  
Albany, New York 12223-1350  
(518) 474-6513

March 30, 2007  
Albany, New York

STATE OF NEW YORK.....	3
PUBLIC SERVICE COMMISSION .....	3
<b>REPLY COMMENTS OF THE</b> .....	<b>3</b>
<b>DEPARTMENT OF PUBLIC SERVICE STAFF</b> .....	<b>3</b>
INTRODUCTION .....	3
DISCUSSION .....	4
1. Customer Damages & Prudence Proceeding .....	5
A. Customer Damages .....	5
B. Initiation of Prudence Proceeding.....	6
2. Washington Heights Recommendations.....	8
3. Consumer Service Improvements.....	9
A. Emergency Response Plan.....	10
B. LSE Customer Identification and Protection.....	10
C. Outreach and Education.....	12
Outreach.....	12
Education .....	14
D. Employee Training.....	15
E. Outage Identification .....	15
Telecommunication Carriers.....	15
STAR .....	16
SUNDAS.....	16
Remote Monitoring System .....	17
Reporting.....	17
4. Distribution System Improvements .....	18
A. Network Operation.....	18
B. Primary Feeder Cables.....	19
Separation of Cables .....	19
Testing of Cables .....	20
C. Transformers.....	21
Corrosion.....	21
Transformer Testing.....	21
Transformer Operation.....	22
D. Network Protectors .....	22
E. Technical – Other.....	23
Voltage Readings.....	23
Contractor Oversight.....	23
Ground & Testing Device.....	24
Substation Relay Settings .....	24
5. Performance Mechanisms.....	24
6. Financial Tracking .....	25
CONCLUSION.....	28

STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

CASE 06-E-0894 - Proceeding on Motion of the Commission to Investigate Electric Power Outages in Consolidated Edison Company of New York, Inc.'s Long Island City Electric Network.

**REPLY COMMENTS OF THE  
DEPARTMENT OF PUBLIC SERVICE STAFF**

INTRODUCTION

On February 9, 2007, Staff of the Department of Public Service (Staff) released the Department of Public Service Staff Report on its Investigation of the July 2006 Equipment Failures and Power Outages in Con Edison's Long Island City Network in Queens County, New York (Staff Report). By notice issued February 13, 2007 (notice), parties were invited to comment on the Staff Report. On March 2, 2007, the New York Attorney General's Office (AG), the New York State Consumer Protection Board (CPB), New York City (City), Assembly Corporations Committee (Assembly), Public Utility Law Project (PULP), Western Queens Power for the People Campaign (WQPFP), Utility Workers of America, AFL-CIO, Local 1-2 (Union), and TransGas Energy Systems, LLC (TransGas) filed comments.

The notice also invited parties to reply by March 16, 2007, to comments submitted on the Staff Report. Due to the volume and technical nature of parties' comments and recommendations, Staff subsequently sought an extension of the March 16, 2007 reply date. The Secretary to the Commission granted Staff's request and the reply date was extended to March 30, 2007. Staff hereby submits its reply comments.

Staff will not address party recommendations or comments regarding future proceedings, such as a prudence, an electric rate proceeding, or a proceeding to examine current Company tariffs.<sup>1</sup> Such recommendations or comments will be taken up by Staff in due course during each of the respective proceedings, and Staff does not wish at this time to assert a position on the scope of future proceedings.

Staff will also not reply to comments that it believes are consistent with or the same as recommendations contained in the Staff Report. Attachment C is a list of all party recommendations that are consistent with the recommendations in the Staff Report and includes a cross-reference from each party recommendation to the specific Staff Report recommendation.

In general, Staff supports many of the parties' recommendations and comments. Attachment D is a list of such recommendations. Staff will not provide reply comments on these recommendations as it believes that the proposing parties have provided sufficient basis to support them.

A few recommendations are highly technical in nature, and while Staff may be able to support them, it believes that further discussions between the proposing party and the Company are necessary. Attachment E is a list of party recommendations that should be held in abeyance until technical discussion can take place.

#### DISCUSSION

The comments and recommendations that Staff addresses here can be generally categorized as pertaining to (1) customer damages, (2) Washington Heights recommendations, (3) consumer service improvements, (4) distribution system improvements, (5) performance mechanisms, (6) financial tracking, and (7) other.

---

<sup>1</sup> Attachment B contains a list of all such recommendations or comments.

1. Customer Damages & Prudence Proceeding

A. Customer Damages

Several parties, including the Assembly and the AG, call for a prudence proceeding to determine the extent of customers' damages and the Company's liability in relation to those damages. Specifically, the Assembly and AG call for the prudence proceeding to determine a level of customer reimbursement for electrical equipment damage for residents and businesses.<sup>2</sup> The AG also seeks an increase in the customer compensation for losses associated with the Long Island City outage and retroactive application of any increase, while WQPFP seeks retroactive reimbursement for all categories of damages experienced by customers, individuals or businesses. Additionally, the AG would expand the pool of those eligible to receive reimbursement for losses associated with the outage to include any individual who suffered a loss, not exclusively the customer of record.

As stated above, Staff will not address the scope of future proceedings, including the prudence proceeding. However, it is important to articulate basic principles of the Commission's authority as it relates to the reimbursement of customer losses during an electric outage. This issue was initially addressed by the Commission in 1973.<sup>3</sup> In that proceeding, the Commission ordered Con Edison to amend its electric tariff by adding the provision requiring the Company to compensate customers for enumerated losses resulting from power failures attributable to malfunctions in the Company's local distribution system up to a maximum of \$100 for residential customers and up to a maximum of \$2,000 for commercial customers. The total

---

<sup>2</sup> The Assembly calls for a prudence proceeding to address both the Long Island City outage and the electric outages that took place in Westchester in 2006.

<sup>3</sup> Case 3729, Consolidated Edison Company of New York, Inc., Opinion No. 73-20, Opinion and Order Directing the Filing of Tariff Provisions by Consolidated Edison Company of New York, Inc. to provide Compensation For Losses Due to Distribution System Interruptions (issued July 10, 1973).

liability of the Company under the section was limited to \$1,000,000 per incident. These amounts were subsequently amended to reflect the compensation amounts in effect today.<sup>4</sup>

In accord with the tariff, customers served directly and customers served indirectly are eligible for reimbursement.

In issuing its initial Order establishing this tariff provision the Commission concluded that “ample authority exists under the broad powers granted under Sections 66(5) and 66(12) of the Public Service Law which confer on the Commission the authority to pass on the practices of a utility and to require such practices to be just and reasonable. *Cardone v. Consolidated Edison Co.*, 197 Misc. 188, aff’d 276 App. Div. 1068 (1949); *Liability Clauses in Rate Schedules of Gas and Electric Corporations* (Case 9439), 26 PUR (NS) 373 (1938).” Much interest has been expressed in examining this issue. In accord with its recommendation, Staff believes that the sufficiency and appropriateness of the tariff should be examined, with the types of the items to be reimbursed, the nature of the operational circumstances that would justify reimbursement, the amount of reimbursement, and limits on claims specifically addressed. With regard to the recommendation that losses should be retroactively reimbursed, there has been no showing that this would not contravene the general prohibition against “retroactive ratemaking.”

#### B. Initiation of Prudence Proceeding

The City believes that Staff has failed to fully support its determination that Con Edison should have shutdown the network during the Long Island City Network event. Staff’s recommendation, that the Commission commence a prudence investigation, is premised on the

---

<sup>4</sup> Case 99-E-0930 – Proceeding on Motion of the Commission to Investigate the July 6, 1999 Power Outage of Con Edison’s Washington Heights Network, Order Approving Tariff Amendments (issued June 22, 2000).

facts unearthed during our investigation.<sup>5</sup> Those facts, when taken together, raise serious and critical questions regarding the Company's operation of the Long Island City Network during the event.

The City is correct; Staff has not proffered all its evidence to support a determination that Con Edison acted imprudently in deciding to maintain the Long Island City Network during the event. Staff is not required to make such a proffer of evidence prior to the commencement of a prudence proceeding. The City seeks answers to the following questions and criticizes Staff for failing to resolve them: (1) was Con Edison's decision to maintain the network wrong,, (2) would shutdown of the network yielded better results, ,and (3) when should the decision to shutdown the network have been made. These are the very questions that Staff believes must be carefully considered and answered. The time for addressing these questions, however, lies in the context of a prudence proceeding.

Additionally, Staff's recommendation, that the Commission institute a prudence proceeding, was premised on both the imprudence of Con Edison's decision to maintain the Long Island City Network during the event and the Company's imprudent maintenance of the network leading up to the outage. Serious questions are presented, and even highlighted by the City's own report, concerning the Company maintenance of Long Island City Network equipment, including transformers and remote monitoring system devices.

The City's complaint that a prudence proceeding would distract Con Edison from implementing system improvements prior to this summer, a claim also made by the Company, is not persuasive. Staff is confident that the Company has been provided the resources necessary

---

<sup>5</sup> As the Staff Report articulates, the Company was unaware of the extensive damage to the secondary system as a result of the primary system failures. The Company's deficient and inadequate response to primary system failures and the resulting impact that had on the secondary system and customers warrants an examination of the its actions, that can only be properly done through the initiation of a prudence proceeding.

through the existing Electric Rate Plan to meet the deadlines for implementing of Staff's recommendations prior to this summer. Staff is diligently overseeing implementation of these recommendations and will continue to do so even if a prudence proceeding is initiated.

The initiation of a prudence proceeding is at the discretion of the Commission. Staff believes that ample information has been provided through its report to support our recommendation to initiate the proceeding. If and when such a proceeding is instituted, Staff is confident that the evidence it has amassed during its investigation, and the additional evidence that will be collected during the prudence proceeding, will prove that the Company acted in an imprudent manner in the operation, maintenance and oversight of the Long Island City Network.

## 2. Washington Heights Recommendations

Following a shutdown of the Washington Heights distribution network in 1999, Staff conducted an investigation into the causes of the shutdown and assessed the adequacy of the Company's actions leading up to and during the shutdown. Upon completion of this investigation, Staff issued a report containing many recommendations to improve the operation of the Company's distribution system, minimize the impact of electric outages on customers, and improve communications with its customers.

Several parties recommend that the Commission direct Con Edison to implement Staff's Washington Heights recommendations. CPB calls upon the Commission to determine if the Long Island City outage can be attributed to a failure to implement any of Staff's 44 Washington Heights recommendations. Along with CPB, the AG and the City recommend that the Company be immediately directed to implement all of the Washington Heights recommendations.<sup>6</sup>

---

<sup>6</sup> The AG also issued a report and recommendations following the Washington Heights outage. Staff believes that a majority of those recommendations are addressed in either Staff's or the Company's Washington Heights Reports.

Staff supports the recommendations of CPB, AG, and City, as summarized above. Failure of the Company to follow through on Staff's Washington Heights recommendations, while not necessarily the direct cause of the Long Island City outage, certainly contributed to the length and duration of the outage as well as to the severe impact the outage had on residents of the affected area. One need look no further for an example than the Washington Heights report recommendation that the Company improve monitoring of the secondary network.

Many of the parties question Staff's regulatory oversight of Con Edison and the apparent lack of Company and Staff follow through to ensure that the 44 Washington Heights recommendations were fully implemented. The full implementation of the 44 recommendations, including the one mentioned above, could have been enhanced if more stringent regulatory pressure had been applied to the Company. Staff continues to work diligently to ensure that each of the 44 Washington Heights recommendations is fully implemented. This work began when the Staff Report on the Washington Heights shutdown was issued and continues to this day. Attachment F shows the status of the Washington Heights recommendations and provides an indication of how the recommendations may have had an impact on the Long Island City outage.

### 3. Consumer Service Improvements

All parties agree that the Long Island City outage imposed a great hardship on the residents living in the affected area. Many parties provided recommendations for how the Company can minimize the impact on residents affected by an electric outage. Parties' recommendations addressed a variety of Company interactions with customers and residents, including how life sustaining equipment (LSE) customer identification can be improved, the type of information that should be provided to the public during an emergency, and the vehicle for providing such information. Staff concurs with most of the following recommendations and

offers support and additional information that should be considered when contemplating adoption of the recommendations.

A. Emergency Response Plan

The Assembly and AG recommend that the Commission amend 16 NYCRR §105 to clarify that it applies to emergencies in addition to those caused by storms. Both parties believe that the Company's emergency response plan should prepare the Company to respond to an emergency in an urban area with high-rise elevator buildings.

Part 105 regulations require utilities to file emergency plans to address storm and "other causes of electrical emergencies with storm-like characteristics." The regulation is intended to cover emergencies such as the Long Island City outage, and, in fact, the Company used its plan during the outage. Therefore, Part 105 need not be amended to clarify that the regulation applies to non-storm emergencies.

Staff agrees with the parties, that urban areas with high-rise elevator buildings present the Company with unique challenges during an emergency. Consequently, Staff Recommendation #18 calls for the creation of a task force to address these unique issues and to determine if any amendments to the Company's procedures and plans need to be developed to better respond to emergencies in urban areas.

B. LSE Customer Identification and Protection

The Assembly and AG recommend that the Company be required to better identify and communicate with LSE customers and critical care facilities. CPB also recommends that the Company better identify people who use LSE, including those people who are not the customer of record. As part of improved identification measures, CPB would mandate that the Company provide biannual, rather than annual, letters, bill inserts, and surveys of customers. CPB would

also require the Company to establish a dedicated telephone number, to be used by LSE customers, when seeking to inform the Company of their status and to obtain relevant information. PULP supports a Commission initiative to require additional protections for those LSE and medical emergency customers residing in buildings with submetered electric service.

As previously mentioned, Staff Recommendation #18 calls for the creation of a task force which would, in addition to addressing other issues, examine and develop additional ways to identify people who use LSE for the purpose of having accounts coded. This recommendation should be expanded to include identification of and communication with critical care facilities. While the Company has already begun implementing this recommendation, expansion of the recommendation to include critical care facilities should not present a significant amount of incremental work.

We support the intent of CPB's recommendations and believe that it is satisfied by the recommendations contained in the Staff Report. Specifically, Staff's recommendations will enhance the Company's present LSE identification efforts and increase customers' awareness of the LSE certification and recertification process and of the importance of identifying themselves to the Company as LSE customers. Once these recommendations are fully implemented, the Company will reach out with specific LSE information to individuals who are not direct customers and will increase the number of organizations that receive information about the LSE program. Because of the benefits anticipated from implementing the Report recommendations, Staff does not believe that biannual LSE notices and letters are necessary. Additionally, the recommendation that the Company have a dedicated telephone line is unnecessary because LSE customers already have a dedicated telephone number at the Company that they may call for assistance and to obtain relevant information.

Staff also believes that it is not necessary to have the Commission require additional LSE and medical emergency customer protections for residential customers residing in buildings with submetered electric service. The Home Energy Fair Practices Act (Public Service Law §§30-52) requires entities that are submetering electric service to provide certain consumer protections to their tenants. In providing these required protections, sub meterers would need to identify LSE and emergency customers.

### C. Outreach and Education

Many parties provided comments and recommendations concerning the nature and extent of Company communications with the public during emergency and non-emergency periods. Parties voiced concern with the level of information and type of information being provided to the public through various communication vehicles.

#### Outreach

WQPFP recommends that Con Edison conduct daily briefings with the residents and management of large multi-family dwellings in areas affected by an electric outage. WQPFP also recommends that the new liaison program proposed by Staff provide accurate and unbiased information to key stakeholders. CPB sought to increase customer communication by calling for the Company to identify a single person who would be responsible for dispatching and monitoring the outreach van during emergencies, to specify a list of functions the van would serve, and to inform the public of van locations. The City recommends that Con Edison incorporate available outage duration information by location in its call center messaging system.

Staff believes that the intent of WQPFP recommendation is to ensure that people affected by an electric outage receive timely and accurate information from the Company during the outage. We believe this intent is satisfied by the recommendations in the Staff Report. Staff

Recommendation #10 improves on this policy by requiring that the Company establish procedures to partner with public officials, community based organizations, and critical care/large facilities. Staff hopes that these community leaders will serve as liaisons between the Company and the Public to provide important information. In addition, Staff Recommendation #11 directs the Company to hold daily briefings for both the media and public officials during emergency events in order to keep these public officials and the media, whom the community relies on for timely and accurate information, fully aware of the Company's efforts to restore service and provide assistance during outages.

Staff concurs with WQFPF, that it is important that the new liaison program foster an environment where accurate and unbiased information is provided to key members of the community. As part of its compliance with Staff's recommendation, Con Edison must develop a new public liaison program that will include procedures to partner with public officials, community-based organizations, and critical care/large facilities willing to serve as liaisons between their constituents and Con Edison. The recommendation requires the Company to submit, before June 1, 2007, a report that includes a description of the program and information about its operation and recruitment of the liaisons. Staff will review the Company's report and will provide the Company with comments. Staff will also monitor implementation of the program in the event of a future outage.

Staff believes that implementation the CPB's recommendation would further promote efficient and effective use of the Company's outreach van and supports the recommendation. During the Long Island City outage, the Company publicly promoted the locations of the van. We support continued promotion by the Company of van locations when the van is dispatched

during emergencies. Further, it would help to ensure a unified and coordinated dispatch of this vehicle if a single point person were designated this responsibility.

Staff acknowledges the importance of the City's recommendation and believes that the Company should provide accurate, timely, and relevant outage messages for customers who contact the Call Center and the Company's Web site. Staff recommends adoption of the City's recommendation and expansion of that recommendation to include the Company's Web site. The Company should implement this recommendation, as expanded, by June 1, 2007.

#### Education

The AG recommends that Con Edison undertake a customer education program designed to inform customers about measures they can take to protect equipment during "power emergencies." The AG would also have Con Edison provide interest-free loans to customers who do not have the funds available to pay for the installation of such measures.

Staff supports in part the recommendation of the AG. It is vital that the public fully appreciate the impact electric emergencies may have on their equipment. These emergencies include periods of no service and low voltage. However, Staff cannot support a program which would require the Company to provide interest-free loans to pay for the installation of a customer's protective measures. The administrative of such a program would be extremely difficult and this may be inferred from the lack of detail accompanying the AG's proposal. Questions such as who would be eligible for such a program, who would determine the appropriate qualifying measures for the interest-free financing and who would pay for the cost of the program must be considered before this recommendation would have a reasonable basis for adoption.

#### D. Employee Training

The Union offers several good recommendations for improving the training and managing of customer service representatives. According to the Union, first and second line supervisors should be required to employ the same skill set as customer service representatives. Further, the Union would require the Company to increase representatives' major service outage related training to improve Company performance. Lastly, the Union seeks to improve the coordination between electric operations and customer service.

Staff generally supports all of the above recommendations. Staff shares the concerns of the Union that first and second line supervisors employ the same skills as the staff being supervised and believes that all personnel in the Call Center should be required to have the same training. Staff also concurs with the Union's recommendation that electric operations personnel and Call Center personnel have good lines of communication. It is crucial that customer service representatives receive as much accurate information as is available to enable them to effectively assist customers.

#### E. Outage Identification

Company identification of customers without electric service during the Long Island City outage was abysmal. The Staff Report contained many recommendations to address and improve the Company's performance in identifying customer outages. Parties also provided a number of recommendations with this same goal in mind.

#### Telecommunication Carriers

CPB recommends a directive to the Company to implement other techniques be added to Staff's recommendation that the Company explore techniques to identify customer outages, including coordinating with telecommunication carriers. While Staff supports the intent of

CPB's recommendation, it is important to note that the technologies available to increase the Company's ability to identify customer outages have not been developed and tested to the point where they can be implemented without further analysis. It is for this reason that Staff recommended that the Company explore such techniques.

### STAR

CPB recommends that the Commission specify the date by which Con Edison must implement the STAR program in the Brooklyn/Queens Operating Area. In accord with Staff Recommendation #1, Con Edison is required to implement STAR in this operating area on June 1, 2007.

### SUNDAS

The City provides technical recommendations for the deployment of a system known as the "Secondary Underground Network Distribution Automation System" (SUNDAS). This system was developed to increase the capability of a network operator to monitor the secondary system.

The Company's attempt to deploy and use SUNDAS as a secondary monitoring tool was unsuccessful. SUNDAS had the potential to be a useful tool for the Company because it provided existing RMS functionality plus voltages, phase angles, relay status and diagnostic information, as well as the capability for remote relay setting changes and remote operation of the protector. Unfortunately, a problem arose within the Power Line Carrier (PLC) phase of the installation, which enabled two way communication. AT&T and Verizon have discontinued providing the necessary support service for SUNDAS. This leaves Con Edison with obsolete modem hardware in the concentrator and incompatible software that no longer will operate to collect data.

### Remote Monitoring System

The City recommends that Con Edison use voltage readings from the remote monitoring system and customer service points to develop a method for identifying customer outages through detection of customer load decreases. The City also recommends that the Company accelerate installation of remote monitoring capability for high-tension customers.

The combined use of the System Trouble Analysis and Response program, the modified Power Outage Response Team system, and the Network Trouble Indicator program will provide a better estimate of the number of customers without service. The combined use of these three programs will provide Con Edison with a real time understanding of damage to the system, information from the Remote Monitoring System, and customer outage information. These programs gather information about the electric system from different sources and therefore also serve as check and balance for each other.

The Company is currently testing demand response metering for high tension customers. This type of metering capability would obviate the need to install remote monitoring devices for these customers as the meter has the capability to signal the Company when service is lost. Therefore, acceleration of remote monitoring devices would be illogical at this stage.

### Reporting

The Long Island City outage highlighted that Con Edison does not include in its outage count customers who experience low voltage. WQFPF recommends that the Commission revise guidelines for determining outage count to require Con Edison to identify (1) total number of customers fully without service, (2) total number of low-voltage customers functionally without service, and (3) total number of the population affected. This information, once obtained by the

Company, would then be provided to emergency agencies. CPB also wants the Company to define a threshold for low voltage and to provide studies supporting the threshold.

Staff supports WQFPF's recommendation and would expand that recommendation to ensure that the above information is also concurrently provided to relevant Staff. Staff Recommendation #6, which calls for the Company to report on how it will ensure that outages and low-voltage conditions are estimated accurately, is complemented by the WQFPF's recommendation and accordingly the report called for in Staff's recommendation should include the above information.

Staff supports CPB's recommendation and believes that it will be addressed by the Company when it responds to Staff Recommendation #6. The Company should be on notice that when it submits its report, as required by Staff Recommendation #6, it should include a threshold for low-voltage and any materials supporting that threshold.

#### 4. Distribution System Improvements

Parties voiced concerns regarding the current reliability of the Long Island City Network specifically and the Con Edison distribution networks generally. Party recommendations addressed issues ranging from the primary feeder processing to transformer equipment testing and monitoring. Some party recommendations were highly technical, and as mentioned above, should be discussed in a collaborative environment (See Attachment E). Staff, in examining these recommendations, has identified several for which it can provide additional information, and several that it cannot support.

##### A. Network Operation

The AG expresses concern that Con Edison networks with similar characteristics to the Long Island City network could be at risk for overloading or developing the same deficiencies as

Long Island City. The AG identifies the characteristics as (1) long primary cables, (2) large geographical area, (3) large or increasing demand, and (4) comparatively large number of primary feeder contingencies during the period 1999-2006.

Staff is working on a plan to address this concern. Staff is currently drafting procedures that would require Con Edison to provide technical information pertaining to specific networks that either have similar characteristics to the LIC Network or are considered to be networks to watch and/or monitor. These procedures are still in the review process.

The AG also recommends that Con Edison consider “compartmentalizing” its network as a means for reducing the potential of multiple losses of feeders that serve the same specific part of a network. Con Edison is currently evaluating this option and others in the context of its planning for the LIC network. Staff is monitoring the company’s progress and has made recommendations resulting from the outage and specific to the Long Island City Network.

## B. Primary Feeder Cables

### Separation of Cables

The AG asserts that Con Edison should examine separating primary feeder cables. Separating these cables, according to the AG, would minimize the likelihood that events, such as secondary system fires, would result in the loss of more than the initially affected cable.

Con Edison currently limits the maximum number of primary feeders in adjacent duct banks to two for the reasons addressed by the AG. Adopting the AG’s recommendation for any additional separation of primary feeder cables would require significant redesign of Con Edison’s distribution network and could be costly. Although a fire in a secondary system cable wooden duct bank spread to and affected two primary feeder cables during the outage, that fire, as discussed in the Staff Report, was not the principle cause of the Long Island City outage.

Therefore, the AG's recommendation to examine additional separation of primary feeder cables should not be adopted.

The City recommends that Con Edison use three existing vacant feeder positions at the North Queens substation for three additional feeders, which would supply the Long Island City Network and increase reliability for the network. Con Edison installed two additional primary feeders within the Long Island City Network following the outage. The addition of three more feeders for the Long Island City Network may not be supported when the incremental benefit of such an addition is examined in light of the cost and operational needs of the Company.

#### Testing of Cables

The City makes several recommendations pertaining to the type of and manner in which Con Edison should test primary feeder cables. Generally the City supports use of low frequency testing, and more specifically, the City recommends that the Company should apply low frequency testing to 50% of the Long Island City Network cables prior to summer of 2007. The City's recommendation is generally addressed by Staff Recommendation #37. Staff will be monitoring the Company's use and application of low frequency testing in order to help produce the best testing procedure possible.

The City would also require the Company to re-examine the criteria for determining which feeders should be evaluated using the Hi-Pot testing method and when such testing provides sufficient results. Additionally, the Company, according to the City, should be required to Hi-Pot test the three worst performing Long Island City Network feeders each year until the network is divided. Staff believes that these recommendations are captured by Staff Recommendation #37, and therefore, the Commission need not adopt these recommendations.

## C. Transformers

### Corrosion

The Assembly expresses concern that a great number of Con Edison's transformers operating in its distribution system are corroded. This concern leads the Assembly to propose an emergency transformer replacement program.

A large scale emergency replacement of transformers in the Con Edison distribution system is not practical at this time. Additionally there is insufficient data to determine that a larger scale replacement of distribution transformers is warranted. The Company has taken several steps to enhance corrosion resistance and corrosion detection on all transformers. Staff is currently monitoring the measures being implemented by the Company mitigate transformer corrosion and its adherence to related operational procedures. Should Staff determine that additional actions should they be required it will proceed to effect the needed actions. Therefore, the Assembly recommendation should not be adopted.

### Transformer Testing

The City makes several technical recommendations with respect to the testing that Con Edison should conduct for transformers. Specifically, the City recommends that an internal static pressure study be done under certain load conditions for several transformers. Additionally, the City would require Con Edison to study the likelihood that stress corrosion of some transformers is being caused by a high concentration of chlorides. Lastly, the City specifies that Con Edison should amend its impulse test on reconditioned transformers to include a dielectric test while the transformer operates at elevated temperatures.

Con Edison has already completed extensive transformer autopsies on all 13 transformers that failed during the Long Island City outage. There is no industry standard for the testing

proposed by the City. Additionally, the City fails to provide sufficient support to warrant such testing in the absence of an industry standard. Therefore, any additional transformer analysis is not warranted at this time. The above recommendations, and those similar in nature, should not be adopted by the Commission.

The City also recommends that prior to summer of 2007 Con Edison should inspect all network transformers in the Long Island City network that were overloaded during the event. The City's recommendation is moot as the Company has already completed, under standard operating procedures and transformer specifications, the necessary inspection of Long Island City Network transformers.

For transformer units that have experienced significant accelerated loss of life or accumulated loss of life, the City recommends that Con Edison perform a gas in oil analysis. This recommendation is valid and has already been adopted by the Company as part of its update and improvement for system-wide transformer inspection procedures.

#### Transformer Operation

The City recommends that before cooling a transformer through a method known as "flooding", the Company verify that the transformer is "leak free". This recommendation is consistent with existing Company practice. Con Edison procedures require all inspection records for a transformer to be reviewed and an on-site physical inspection be conducted of the transformer before the unit is flooded.

#### D. Network Protectors

The City recommends that Con Edison test each Long Island City Network feeder before summer of 2007 in a manner that will trigger network protector relays. Such testing, according to the City, will help to identify non-responsive units and will minimize the potential for the

occurrence of “Alive on Back Feed”. Additionally, the City would require Con Edison to perform such testing for feeders in the network at least once biannually.

Staff is reviewing the Company’s current inspection and testing procedures for network protectors and associated transformers in order to possibly modify these procedures to incorporate additional network protector and associated relay testing to help minimize the potential for the alive on back feed condition referred to above.

E. Technical – Other

Voltage Readings

The City contends, among other things, that issues associated with back feeding would be easier to address if the Company could consider voltage readings from non-transformer associated points in the network. This type of information, according to the City, would be best provided through a visualization tool.

With the proposed programs and implementation of other technologies such as enhanced RMS, AMI, and low voltage thresholds, Staff believes the Company’s resources would be more efficiently directed at these current initiatives rather than adding additional requirements that would result in similar results.

Contractor Oversight

The City recommends that Con Edison examine and strengthen its contractor oversight process at every stage of contractor work within substations. We agree with the City’s recommendation. Staff will be following up with the Company on issues pertaining to contractor oversight and procedures that are currently in place.

### Ground & Testing Device

The City would require that Con Edison complete testing of the ground and test devices at the North Queens substation to ensure that, when necessary, the Company can implement expedited feeder processing. This testing, according to the City, should be completed before summer of 2007. These devices have already been installed by the Company at the North Queens sub station.

### Substation Relay Settings

According to the City, raising the relay settings will not result in equipment damage, but will prevent the occurrence of cut in open autos. Staff has analyzed this issue, to the extent that information and data has been provided by the Company. We have serious concerns about raising the relay settings. Staff has just recently received backup data and studies from the Company supporting its adjusted relay settings. We, however, have yet to examine this data. Therefore, we cannot accept the City's recommendation until our full analysis of the information is complete.

### 5. Performance Mechanisms

Several parties recommend that various performance mechanisms contained in Con Edison's current electric rate plan should be amended and expanded. Specifically, PULP recommends that the Commission adopt specific voltage and power quality performance standards. Additionally, PULP seeks revision to the Company's reliability performance mechanism to eliminate undercounting of outages in sub metered and master metered buildings, while the AG seeks revision to the mechanism to ensure that single-metered multiple dwellings are taken into account.

PULP and the AG are free to raise these recommendations in the Company's next electric rate case. Staff generally supports both parties' recommendations and will work in the Company's next rate case to promote revisions to the reliability performance mechanisms, and other related mechanisms, to ensure that customer counts are appropriate and accurate. Additionally, Staff believes that the concern with voltage reduction and power quality underlying PULP's first recommendation is preliminarily addressed by Staff Recommendation #6, which requires Con Edison to report as to what low voltage thresholds are appropriate in order to classify as an outage event. Once classified as an outage event, the outage would become a factor in calculating the Company's performance under its reliability performance mechanism, and would thereby reduce the potential for "undercounting".

6. Financial Tracking

WQPFP recommends that the Company begin budgeting by electric network beginning in 2008. Additionally, they are concerned that the Company may misidentify service repairs as routine or low voltage related expenses. Lastly, WQPFP contends that the Company may inappropriately charge customers for expenses related to bringing low voltage customers back to full service.

The Company indicated that implementation of tracking expenses by network starting in 2008 is not feasible due to information system limitations. The Company must determine what systematic changes are necessary in order to implement Staff's recommendations and report to Staff by June 1, 2007. Staff agrees with WQPFP, and will push to have the network level budgeting and actual data as soon as practicable.

Staff has not found evidence to support WQPFP's contention that costs associated with restoring low voltage customers to full service were treated differently than any other event

related costs. The Company's Controller assured Staff that the Company issued no such guidance and that to his knowledge, all costs, low voltage related or otherwise, were charged to Long Island City Network work orders. Staff sees no reason to treat low voltage related costs differently than any other Long Island City outage related cost.

7. Other

CPB recommends that the Commission include in this Report a brief explanation of the issues addresses in Case 06-M-1078, Proceeding on Motion of the Commission to Audit the Performance of Consolidated Edison Company of New York, Inc. in Response to Outage Emergencies, confirm that all relevant issues regarding the Long Island City outage are addressed in at least one of these proceedings, and identify any overlap between the two proceedings.

The Audit proceeding was instituted by the Commission in response to concerns regarding Con Edison's slow response to storm related and other outages, poor communications, and lack of information provided to customers. The Commission determined that an independent audit of the Company's system-wide operations, practices, and procedures as they relate to emergency planning, response to outages, and restoration of service was necessary.

The audit will include an examination of:

- the Company's planning efforts for electric emergency outages, incorporating a review of the policies and procedures that form the framework for the Company's response to electric emergency outages;
- the Company's ability to mobilize adequate resources, establish critical priorities, effectively execute plans with the agility needed to quickly make adjustments in response

to changing circumstances and the effectiveness of the Company's communications with customers, other responders and stakeholders; and

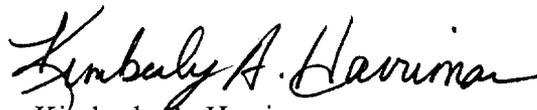
- a comparison of the Company's electric emergency outage planning and restoration activities to industry "best practices" appropriate to the Company's operating environment and identification of "best practices" that the Company is or should consider employing in the area of electric emergency response, as well as opportunities for improvement.

The audit will take into consideration the information, findings, and recommendations resulting from the LIC investigation. It is expected that the Audit will result in recommendations for actions that the company should take to improve its emergency outage planning, preparation, management, outreach and public communication, and restoration efforts throughout its service area. All issues relevant to the LIC outage will be thus addressed and there will be no overlap between the two proceedings.

CONCLUSION

The party recommendations should be accorded the treatment set forth herein.

Respectfully submitted



Kimberly A. Harriman  
Assistant Counsel



Guy R. Mazza  
Assistant Counsel

New York State  
Department of Public Service  
Three Empire State Plaza  
Albany, New York 12223-1350  
(518) 474-6513

Albany, New York  
March 30, 2007

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Prudence	The Commission must immediately institute the prudence proceeding called for by the Prudence Petition in September of 2006 to determine the full extent of Con Edison's mismanagement and the remedies needed to prevent another network power emergency. Ratepayers should not bear the burden of Con Edison's failures.	Assembly Corporations Committee
Prudence (Reactive power supply)	If the Commission initiates the prudence investigation proposed in the Staff Report, one of the issues to be explored should be the adequacy of reactive power supply in the LIC Network and surrounding networks and whether Con Edison should have taken steps to correct any deficiencies prior to the July 17, 2007 secondary cable fire. Suitable confidentiality protections should be ordered so that the material data can be thoroughly examined.	TransGas Energy Systems
Prudence	The Commission should examine the prudence of Con Edison's system operation.	PULP
Prudence	The PSC should investigate the prudence of the Company's actions.	CPB
Prudence	The PSC should call for a prudence hearing to determine appropriate punitive and corrective actions and appropriate compensation for our community.	PFP
Prudence	The Commission should institute a prudence proceeding immediately to determine the full extent of Con Edison's mismanagement and the remedies needed to prevent another network power emergency. Ratepayers should not bear the burden of Con Edison's failures.	AG
Claims	The Commission must, in the context of a prudence proceeding, order increased compensation to the affected residents of Long Island City and Westchester, which should include reimbursement for residents' and businesses' damaged electrical equipment.	Assembly Corporations Committee
Claims	The Commission must begin the necessary proceeding(s) to require Con Edison to change the existing tariff(s) limiting reimbursement for outage related damages to reflect the actual losses suffered.	Assembly Corporations Committee

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Claims (Expand reimbursement tariff)	Changes to the reimbursement tariff provision should be completed before the summer of 2007. At a minimum, the dollar amounts of the reimbursement limits should be revised to reflect inflation in the seven years since those limits were established. In addition, serious consideration should be given, either this year or in the next rate case, to expanding coverage to include damaged electrical equipment including computers and air conditioners, particularly from low voltage situation. Consideration should also be given to tying reimbursement to the duration of an outage.	CPB
Claims (Expand reimbursement)	The Commission should move quickly to open a proceeding to provide increased compensation for losses caused by the LIC network outages, including retroactive reimbursement and reimbursement for damaged electrical equipment. Such restitution should be provided even if the individual who suffered the loss was not a direct Con Edison customer but was an affected resident or business within the LIC network.	AG
Claims (Revise tariff to reflect outage duration)	The Commission should require Con Edison to amend its reimbursement tariff to provide enhanced reimbursement to reflect the duration of a particular outage.	AG
Claims (Reimbursement increase)	Con Edison should be required to increase the current payments for distribution system failures of twelve or more hours in a 24-hour period to reflect, at a minimum, the rate of inflation from 2000 to 2007.	CITY
Claims (Residential reimbursement increase)	a. Increase the compensation for losses due to spoilage of food or other perishables for lack of refrigeration for residential users from \$350 to \$450 per incident.	CITY
Claims ( Non-residential reimbursement increase)	b. Increase the compensation for losses due to spoilage of perishable merchandise for lack of refrigeration for non-residential customers from \$7,000 to \$9,000.	CITY
Claims (Increase total liability level)	c. Increase the liability per incident to a total of \$15,000,000.	CITY
Claims (Automatic reimbursement increase per rate of inflation)	d. Provide for automatic increases equal to the rate of inflation each time that a new electric rate case is approved or every five years, which ever comes first.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Claims (Expand allowable reimbursement items)	Con Edison should be required to provide compensation to customers for verifiable damages to their appliance motors, electronic equipment, and other voltage sensitive property.	CITY
Emergency Plan (Applicability)	The Commission must revisit the regulations relating to comprehensive emergency response plans to clarify that such regulations do extend to emergencies not caused by storms.	Assembly Corporations Committee
Emergency Plan (High rise buildings)	The Commission must require Con Edison to immediately establish a comprehensive emergency response plan that addresses the unique issues arising from dense concentrations of high-rise buildings served by elevators.	Assembly Corporations Committee
Emergency Plan (Labor)	Con Edison should develop a procedure for when and what minimum level of mutual assistance and contactor assistance should be used for each event level identified in its underground emergency plans and guidelines, similar to what is specified for an emergency overhead event.	Local 1-2
Emergency Plan (Update as necessary)	Con Edison should evaluate its emergency procedures in light of lessons learned from the July 2006 outages and modify these procedures as necessary.	CITY
Planning, Operations, Maintenance and Oversight (LIC recommendations)	The Commission must impose concrete deadlines for Con Edison's compliance with its recommendations in the Long Island City and Westchester reports, and it must exert far more strenuous vigilance of Con Edison's compliance with its legal duties under the public service law.	Assembly Corporations Committee
Planning, Operations, Maintenance and Oversight (Washington Heights recommendations)	The Commission must require Con Edison to implement the as yet unimplemented recommendations of the 1999 Attorney General's and DPS Staff's reports, without delay.	Assembly Corporations Committee
Planning, Operations, Maintenance and Oversight (Inspections for failure potential)	The Commission must require Con Edison to conduct inspection of its Long Island City network to identify wherever possible weakened elements resulting from the July 2006 outage, and any as yet unidentified vulnerabilities in the system that could lead to another such outage.	Assembly Corporations Committee

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b>CATEGORY</b>	<b>RECOMMENDATION</b>	<b>PARTY</b>
Planning, Operations, Maintenance and Oversight (Prior system conditions)	The Commission should initiate an independent investigation of outages, grid conditions, disturbances and unusual events that may have affected Con Edison system reliability, reactive power supply or increased temperatures prior to the first feeder failure on July 17, 2006.	PULP
Planning, Operations, Maintenance and Oversight (Service performance standards)	The Commission should adopt service performance standards to reduce N-2 feeder outage incidents and their duration and to reduce the incidence of secondary system fires and explosions.	PULP
Planning, Operations, Maintenance and Oversight (Reactive power)	The Commission should commence a review whether Con Edison has the ability to measure and manage reactive power needed to maintain network voltage and stability.	PULP
Planning, Operations, Maintenance and Oversight (Modeling)	The Commission should further investigate the July 12, 2006 outage of Con Edison's load flow management program, "AutoWolf", and should require Con Edison to archive load flow program records.	PULP
Planning, Operations, Maintenance and Oversight (Performance standards)	The Commission should adopt voltage and other power quality performance standards.	PULP
Planning, Operations, Maintenance and Oversight (SAIFI/CAIDI)	The Commission should revise SAIFI/CAIDI outage standards to stop undercounting of Con Edison outages in submetered and master metered buildings.	PULP
Planning, Operations, Maintenance and Oversight (Sanctions)	The Commission should implement performance sanctions promptly, rather than defer them until future rate cases, and should apply service performance financial measures to benefit LIC Network customers, rather than using service performance sanction revenues to benefit customers in areas unaffected by the LIC network service quality deficiencies.	PULP
Planning, Operations, Maintenance and Oversight (Positive rather than punitive recommendations)	The Commission should ensure that the recommendations it adopts from the Staff Report are corrective rather than punitive in nature. All recommendations to be adopted by the Commission should be designed for positive, effective and safe implementation to improve electric service while not placing the utility at severe financial risk.	Local 1-2

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Planning, Operations, Maintenance and Oversight (Staff and CPB recommendations)	The Commission should direct the Company to adopt each of the Staff's recommendations along with several critical additional requirements put forth by CPB.	CPB
Planning, Operations, Maintenance and Oversight (LIC recommendations)	The Commission must establish a firm deadline for the Company to fully implement each recommendation, as well as an open and transparent process for the parties and the public to keep apprised of the Company's progress.	CPB
Planning, Operations, Maintenance and Oversight (O & M expenses)	The PSC should immediately increase its oversight of Con Edison's expenditures substantially to ensure that necessary expenditures, particularly operations and maintenance expenses which underlie the company's rates, are undertaken.	CPB
Planning, Operations, Maintenance and Oversight (Status reports)	Status Reports should be provided to interested parties by Con Edison, not just to Staff.	CPB
Planning, Operations, Maintenance and Oversight (Company compliance)	The Commission should review at a public session, no later than the end of May 2007, the Company's compliance with each Commission directive in this case.	CPB
Planning, Operations, Maintenance and Oversight (Audit)	The Commission should include in this proceeding a brief explanation of the issues addressed in the Audit proceeding, confirm that all relevant issues regarding the LIC outage are addressed in either that or this proceeding, and identify any overlap between the two proceedings.	CPB
Planning, Operations, Maintenance and Oversight (Washington Heights recommendations)	THE PSC should determine the extent to which the 36 Washington Heights recommendations had been completed in the LIC network. The Commission should also investigate the extent to which the LIC outages were attributable to incomplete implementation of those 36 directives.	CPB
Planning, Operations, Maintenance and Oversight (Washington Heights recommendations)	The PSC should review assertions that other directives from the Washington Heights incident were completed satisfactorily, given that the Staff Report seems to provide evidence of Company actions or inactions that seem to contradict that statement.	CPB

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Planning, Operations, Maintenance and Oversight (Washington Heights recommendations)	The PSC should enforce its order in the Washington Heights case.	CPB
Planning, Operations, Maintenance and Oversight (Compliance tracking)	The PSC should adopt an open and transparent system of compliance tracking in this and other proceedings.	CPB
Planning, Operations, Maintenance and Oversight (Construction program planning)	The PSC should initiate an audit in 2008 of Con Edison, pursuant to PSL 66(19), focusing on the construction program planning.	CPB
Planning, Operations, Maintenance and Oversight (Customer count)	The PSC should mandate that Con Edison provide complete numbers for how many customers experienced low voltage conditions of whatever degree during an outage.	PFP
Planning, Operations, Maintenance and Oversight (Health impact study)	The PSC should engage a neutral third party, such as an appropriate non-profit or academic institution, to conduct a comprehensive public health impact study of the power outage on the community. Con Edison should be required to pay for all the related costs of this assessment.	PFP
Planning, Operations, Maintenance and Oversight (Economic impact study)	The PSC should conduct an appropriate survey of the economic impact of the outage on the community for the purpose of assessing appropriate compensation for damages. Con Edison should be required to pay for a comprehensive economic impact study of the July 2006 power outage on the community, to be undertaken by a neutral third party, such as an appropriate non-profit or academic institution.	PFP
Planning Operations, Maintenance and Oversight (Economic impact study)	The PSC should conduct an appropriate survey of residential and business customers to obtain estimates of economic damages.	PFP (in text)

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b>CATEGORY</b>	<b>RECOMMENDATION</b>	<b>PARTY</b>
Planning, Operations, Maintenance and Oversight (Revise Commission Regulations)	The Commission should revise its regulations for electric utility emergency plants, 16 NYCRR Part 105, to incorporate provisions that specifically address emergencies not caused by storms. In particular, the regulations should address power emergencies affecting urban areas with concentrations of buildings with elevators and should provide for active and ongoing Commission participation in evaluating specific utility emergency plans and follow-up to problems identified during exercises and actual power emergencies.	AG
Planning, Operations, Maintenance and Oversight (LIC recommendations / compliance)	The Commission must take up its statutory role as Con Edison's regulator and must hold Con Edison to each of the recommendations made in its Staff Report and the recommendations made here. The Commission should impose deadlines for compliance, as well as for progress reports, and should be looking over Con Edison's shoulder every step of the way. The people of the State of New York deserve no less.	AG
Planning, Operations, Maintenance and Oversight (Load reduction)	The Commission should ensure that Con Edison moves quickly and vigorously to implement and expand as necessary a targeted program to use the full potential for energy efficiency and clean distributed generation to relieve the load on constrained networks, including the LIC network.	AG
Planning, Operations, Maintenance and Oversight (Washington Heights recommendations)	Con Edison must comply on a system-wide basis with the remaining recommendations made by the Commission in its report on the Washington Heights outage in an expedited fashion and the Commission must ensure timely and diligent compliance. These recommendations include: developing and implementing the most technologically up-to-date, accurate, and reliable network monitoring and modeling in real-time; replacement of paper-insulated lead-covered cables and joints; replacement of hi-pot testing with more advanced means of testing feeder cables; and developing and implementing modern secondary system monitoring and modeling capability.	AG
Planning, Operations, Maintenance and Oversight (Washington Heights recommendations)	Con Edison must comply with the recommendations set forth in the Office of the Attorney General's Washington Heights report and the Commission must ensure timely and diligent compliance.	AG

**ATTACHMENT A**  
**LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>
Planning, Operations, Maintenance and Oversight (Washington Heights recommendations)	Con Edison should be required to fully implement all of the Washington Heights recommendations or explain why it cannot do so.	CITY
Customer Operations (LSE and Critical Care)	The Commission must require Con Edison to implement a better and more accurate method of identifying and communicating with individuals who depend upon life support equipment, and for identifying and communicating with critical care facilities.	Assembly Corporations Committee
Customer Operations (LSE/Medical Emergency Customers)	The Commission should require additional life support and medical emergency customer protections for residential customers in multiple dwellings where the Commission has allowed submetering of electric service by non-utilities.	PULP
Customer Operations (Training of Customer Service Representatives)	Training of Customer Service Representatives regarding the handling of major service outages to improve performance should be increased.	Local 1-2
Customer Operations (Labor)	First and second line supervisors should be required to employ the same skills and empathy required of the workers they are supervising.	Local 1-2
Customer Operations (Labor)	Improvement in the liaison between Electrical Operations and the Customer Service Center is needed. Management should provide more information that has greater accuracy during an emergency than what was provided to the Customer Service Representatives during the LIC outage.	Local 1-2
Customer Operations (Outreach Van)	The Company, in coordination with a public liaison program, should identify a point person in charge of dispatching and monitoring the outreach van during emergencies and provide a detailed list of van functions during emergency and non-emergency periods, including informing the public where the van will be stationed.	CPB

**ATTACHMENT A  
LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>
Customer Operations (LSE Customers)	The PSC should expand Con Edison's efforts to identify life-support customers by reaching out to these entities, requiring Con Edison to implement new measures to identify consumers requiring life-support equipment who are not customers of record, consider mandating that Con Edison send letters, bill inserts and surveys to customers on a biannual rather than annual basis. In addition, it should direct Con Edison to establish a dedicated telephone line that life-support customers may use to inform the Company of their life-support status and obtain and relate relevant information, both in emergency and non-emergency situations.	CPB
Customer Operations (Public Liaison Program)	The PSC should ensure that the new liaison program recommended by Staff have sufficient authority, resources and independence to provide accurate and unbiased information to key stakeholders and fulfill other mandated responsibilities, without undue influence or limitations.	
Customer Operations (Public information)	Con Edison should provide heat wave/outage emergency preparedness information to all customer every summer as part of an ongoing public education program.	PFP
Customer Operations (Public Information)	Con Edison should send information pertaining to outage-related consumer issues, including where/how to get information, how to report service problems, what to do in an emergency, locations of cooling centers, where to get dry ice, etc, to customers at the beginning of each summer as a matter of course.	PFP (in text)
Customer Operations (Daily briefings)	Con Edison should hold regular daily briefings with the residents of the communities affected by a power outage, as well as with the management of large, multi-family dwellings with elevators.	PFP (in text)
Customer Operations (LSE customers)	Con Edison must do a better job of identifying vulnerable individuals that specific power outages would affect. In particular, the Company must do a better job of identifying individuals who depend on electrically-operated life support equipment such as breathing apparatus, the elderly and other mobility impaired who depend on elevators, and those vulnerable to overheating.	AG

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Customer Operations (Public Information and Interest Free Loans)	Con Edison should undertake a program to educate customers about what they can do to protect their equipment from damage during power emergencies and offer interest-free loans to customers unable to install such protection.	AG
Customer Operations (Customer information)	Con Edison should incorporate available outage duration information for specific locations into its call center messaging system so that customers are given the best and most recent information on their specific situation.	CITY
Customer Operations (Call Center reporting)	Con Edison must review its entire Call Center reporting process to ensure that all potential bottlenecks are eliminated so that customers can report their service problems to them in a rapid, simple, user-friendly manner under all emergency conditions.	CITY
Other (Labor)	Internal staffing levels should be increased.	Local 1-2
Other (Labor)	No workers should be required to put in more than 12 hours of effort during a crisis.	Local 1-2
Other (Labor)	Con Edison should not be encouraged to replace qualified in-house labor with contract labor and certainly should not be rewarded for doing so.	Local 1-2
Other (EO-4031-2)	The PSC's investigation should include finding out why EO-4031-2 was replaced and what role, if any DPS staff or the Commission had in that decision.	CPB
Other (Reliability Performance Mechanism)	The Staff recommendation concerning re-examination of the RPM in the next rate case should be modified to provide a more meaningful incentive, in the range of \$20 million, to minimize the duration of outages on its network system.	CPB
Other (Eliminate disincentive for network shutdown)	The Staff recommendation should be modified to eliminate the disincentive to shut networks down.	CPB
Other (Service quality standards)	Service quality standards for voltage reductions should be established in the next rate case.	CPB

**ATTACHMENT A  
LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC**

<b>CATEGORY</b>	<b>RECOMMENDATION</b>	<b>PARTY</b>
Other (Labor)	The PSC should ensure that secure jobs of utility workers in the event Con Edison installs fixed network, advanced metering in the Long Island City network.	PFP
Other (Performance standard measurements)	The Commission should change Con Edison's performance standard measurements to count each household that loses service, not just each customer, to address the issue of single-metered multiple dwellings.	AG
Other (Load reduction)	Con Edison must revise its voluntary load reduction procedure so that the Company can effectively communicate with the large customers that can provide the most significant load relief during a power emergency.	AG
Other (Demand reduction)	Con Edison must vigorously promote participation in its demand reduction programs in all parts of the Company's distribution network.	AG
Other (Con Ed should upgrade network reliability)	Con Edison should pay more attention to demand increases within specific networks and other factors indicating that a network is particularly vulnerable to a power emergency and should take steps to upgrade reliability in such networks.	AG
Other (Con Ed should identify and remedy network deficiencies)	Con Edison should identify other networks with characteristics similar to the LIC network, such as those with long primary cables, large geographical size, large or increasing demand, and a comparatively large number of primary feeder contingencies in the period from 1999 - 2006, and should develop programs to analyze any deficiencies or potential for overload and action plans to correct such problems.	AG
Other (Con Ed should increase monitoring and communication capabilities)	Con Edison should develop and apply programs and technologies to increase its monitoring and communications capability with respects to all aspects of its system.	AG
Other (Con Ed should correct deficiencies identified in emergency drills)	Con Edison must quickly implement solutions to deficiencies identified during Company emergency drills.	AG

**ATTACHMENT A  
LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>
Other (Real time information collection for real time decision making)	Con Edison should have studies conducted on how to collect real-time information supporting the real-time decision making on rapid directed load control. A combination of monitoring systems and deterministic and knowledge-based modeling methodologies should be considered.	CITY
Other (Contractor oversight)	Con Edison should examine and strengthen their contractor oversight processes from initial design, to on-site inspection, and through acceptance testing to insure that proper controls are being exercised over contractor work within its substations.	CITY
Other (Ground & test device availability)	a. Con Edison should complete the required testing of the G&T devices at the North Queens substation to insure that they will be available to expedite the feeder processing effort before summer 2007.	CITY
Other (Information provided to control center operators)	Con Edison should improve the way in which critical information is accumulated and presented to the control center operators especially with regard to secondary network events and customer service problems (e.g., outages, side out, low voltage, etc.).	CITY
Other (Information provided to control center operators)	a. Con Edison should expand the use of visualization tools to combine multiple information reporting systems and improve the way that critical operating information is presented to the control center operators.	CITY
Other (Improve collection and dissemination of critical information to control center operators)	Con Edison should improve the way in which critical information is accumulated and presented to its control center operators especially with regard to secondary network events and customer service problems (e.g., outages, side out, low voltage).	CITY
Other (Improve collection and dissemination of critical information to control center operators)	a. Con Edison should immediately take steps to improve the way in which critical information is visually presented to the Brooklyn/Queens Control Center personnel through the installation of a large screen projector display system similar to what is installed within the other regional control centers compatible with the space limitations at this location.	CITY
Other (Improve collection and dissemination of critical information to control center operators)	b. Con Ed should expand the use of visualization tools at its control centers to combine multiple information reporting systems and improve the way that critical operating information is presented to the control center operators.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Other (Keep procedures, specs, other up to date and reflective of current conditions)	Con Edison must keep its library of procedures, specifications, and other directives up-to-date and reflective of current conditions.	CITY
Identification of Outages (Customer Count)	The Commission must require Con Edison to establish immediately the necessary systems to accurately count customer and/or household outages, rather than the current metric that is far less precise.	Assembly Corporations Committee
Identification of Outages (Monitoring techniques)	Staff's recommendation to explore other monitoring techniques, including coordination between it and telecommunication carriers, to use the carriers' status monitoring capability to detect and evaluate the extent of power outages, should be strengthened to require the Company to implement and not just "explore" other monitoring techniques.	CPB
Identification of Outages (Communication with telecommunication providers)	The PSC should direct that constant communication with telecommunications companies occur between Con Edison and telecommunications service providers during these types of events, even if it requires the Commission to serve as a de facto liaison.	CPB
Identification of Outages (STAR)	The PSC should enhance Staff's recommendation that the STAR program be made available to all operating regions by June 1, 2007. The PSC should add a date by which the Company's regions must "implement" the STAR program.	CPB
Identification of Outages (Customer count)	The PSC should mandate improved techniques to adequately assess numbers of customers as well as numbers of people affected by an outage.	PFP
Identification of Outages (STAR)	The Star program should be implement in all service areas by June 1, 2007.	PFP
Identification of Outages (Customer/person counts)	The PSC should revise its guidelines to require that during an electrical outage Con Edison fully and accurately estimate" total number of customers fully without service; total number of low-voltage customers functionally without service; and total number of the population affected. All three figures must be available for both Con Edison and City emergency agencies to take appropriate actions.	PFP (in text)

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Identification of Outages (Customer/individual outage count)	Con Edison must look behind the "customer" to the number of individual affected by any power emergency and develop emergency responses that take into consideration the fact that losing power at a 100-unit apartment building served through a single meter affects more than a single household.	AG
Identification of Outages (Customer outage reporting)	It is recommended that Con Edison develop another way to either replace or augment the customer interruption reporting process as a means of more accurately estimating the number of customers without service.	CITY
Identification of Outages (SUNDAS)	Con Edison should begin the deployment of the Secondary Underground Network Distribution automation System (SUNDAS) in a uniform manner with sufficient representation of these units throughout all of the networks so that sensors will provide data on the condition of the secondary network, including three-phase voltage information.	CITY
Identification of Outages (SUNDAS)	a. These sensors, located in manholes and service boxes, should be used to develop a voltage profile of the network. Any problems relating to blown limiters, burned out cables, and faults would be displayed in an entire network voltage profile.	CITY
Identification of Outages (AMR)	b. Con Edison should study a means to utilize automatic meter reading ("AMR") to all or selected locations at customer premises to know when there are disruptions in service.	CITY
Identification of Outages (Advanced Metering Infrastructure projects)	c. Con Edison should actively participate in the Department of Energy's Grid 2030, an "Advanced Metering Infrastructure" project ("AMI"). This project could assist the company in deciding how it will collect and analyze data in the future.	CITY
Identification of Outages (Identification of outage or low voltage on a real time basis)	Con Edison should develop and implement appropriate technology and /or systems to identify network distribution customers that are out of service (one or more phases) or are being provided inadequate voltage on a real-time basis.	CITY
Identification of Outages (Identification of outage with help of cable/telephone providers)	a. Investigate the possibility of having the cable and/or telephone service providers provide data on the loss of service from their remote devices located within customer's premises.	CITY
Identification of Outages (Identification of outage through automated meter reading)	b. Investigate the implementation of an Automated meter Reading system including the capability of automatic detection of customers without power.	CITY

**ATTACHMENT A  
LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC**

<b>CATEGORY</b>	<b>RECOMMENDATION</b>	<b>PARTY</b>
Identification of Outages (Identification of low voltage level to constitute outage)	c. Establish, along with Department of Public Service Staff, a value of service voltage that would be considered inadequate and therefore would be counted as a service outage.	CITY
Identification of Outages (Identification of outage using RMS system and customer service points)	Con Edison should utilize the voltage readings obtained from the RMS system and from the customer service points to develop an appropriate system algorithm to identify lost customer load as an indicator of customers out of service.	CITY
Technical Issues (Transformer Corrosion)	The Commission must examine whether Con Edison's corroded transformers pose such a significant problem that emergency replacement should be considered.	Assembly Corporations Committee
Technical Issues (Low Voltage)	The PSC should require the Company to define a threshold for what constitutes low voltage and to provide supporting studies.	CPB
Technical Issues (Heat Storm Mobilization Guidelines)	The PSC should ensure that its comprehensive investigation of the LIC outages addresses the reason for the modification of the Heat Storm Mobilization Guidelines as well as any impact it may have had on Con Edison's response to the multiple feeder outages and transformer failures of July 18 and 19.	CPB
Technical Issues (Expedited feeder processing scheme)	The PSC should determine whether the Company, prior to the LIC event, had ever used or tested the expedited feeder processing scheme it used during the LIC network event and, if so, whether it was effective in those instances.	CPB
Technical Issues (Transformer corrosion)	Con Edison should as quickly as possible examine all its transformers system-wide for evidence of corrosion and other defects.	AG
Technical Issues (Inspections for failure potential)	Con Edison should give priority to examining its substations system-wide for as yet unidentified vulnerabilities that could knock out several primary feeders or even an entire substation at the same time.	AG
Technical Issues (Compartmentalize network)	Con Edison should consider compartmentalizing its networks so that faults in one portion of a network can be isolated and prevented from harming the remainder of a network.	AG

**ATTACHMENT A  
LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>
Technical Issues (Separate primary feeder cables)	Con Edison should consider separating primary feeder cables to reduce the likelihood that a single malfunction, such as the secondary system fire that initiated the LIC network emergency, would knock out both feeders serving a particular part of a network.	AG
Technical Issues (Improve process for collection of failed system components)	For network contingencies where greater than two feeders are out of service during a heat storm, Con Edison should institute an improved process for the collection of failed cable, joint, and termination components for examination and analysis, including a detailed chain of custody. This should include both primary and secondary samples.	CITY
Technical Issues (Accelerate PILC and associated replacement)	Con Edison should accelerate its programs to eliminate the PILC primary cables and the associated targeted stop joints from the electric distribution system as rapidly as reasonably practicable given cost and other factors.	CITY
Technical Issues See Above	a. Con Edison should accelerate the programs to eliminate poor performing targeted stop joints and the associated PILC primary cable from the electric distribution system supplying the Long Island City network as rapidly as practicable.	CITY
Technical Issues (Ensure that removal of the most failure prone system components receive priority)	b. Through the autopsy and examination of both failed and removed before failure components, Con Edison should work to improve the prioritization methodology to ensure that the most failure sensitive components are being removed first.	CITY
Technical Issues (Reconsider use of flame resistant construction concepts)	Con Edison should reconsider incorporation of flame resistant construction concepts for insulation and jackets into secondary cables employed for future use in ducts.	CITY
Technical Issues (Use of more modern secondary cable)	Con Edison should consider use of more modern secondary cable constructions on their system for new constructions (i.e., self-sealing cables).	CITY
Technical Issues (Feeder testing)	Very Low Frequency testing technology should be applied to 50% of the Long Island City network feeders prior to the 2007 summer load period. The feeders that are selected for Very Low Frequency testing should not have DC Hipot testing applied to those tested feeders for a minimum of three years after Very Low Frequency testing is performed. The remaining feeders within the Long Island City network should receive a DC Hipot prior to the 2007 summer load period.	CITY
Technical Issues (Feeder testing)	a. Additionally, Con Edison should plan to Hipot test the three worst performing Long Island City feeders each year until the Long Island City network is split into two networks.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Feeder testing)	Con Edison should continue to examine the use of Very Low Frequency testing and its associated procedures and develop results and conclusions.	CITY
Technical Issues (Feeder testing)	a. Con Edison should apply Very Low Frequency testing to 5% of the second tier of worst performing system feeders (those between the worst 5% and 10% of the worst performing feeders) on their system and not apply DC Hipot testing to those tested feeders for a minimum of three years after Very Low Frequency testing is performed.	CITY
Technical Issues (Feeder testing)	Con Edison should increase the number and effectiveness of its system wide feeder testing program on both a post failure and a planned basis.	CITY
Technical Issues (Feeder testing)	a. The planned feeder Hipot selection criteria should be evaluated to verify that it is properly prioritizing all of the potential candidates.	CITY
Technical Issues (Feeder testing)	b. Feeders selected for High potential proof tests (Hipots) should be tested until they pass at the designated test level so that incipient faults are not left on the partially tested feeders.	CITY
Technical Issues (Feeder testing)	Con Edison should promptly schedule Feeder 1Q13 for a DC Hipot test to determine whether a strongly indicated incipient fault exists on this feeders.	CITY
Technical Issues (Evaluation of predictive diagnostic tools)	Con Edison should initiate an aggressive plan to evaluate commercially available predictive diagnostic tools to analyze the current state of installed cables, joints, terminations and associated equipment.	CITY
Technical Issues (Transformer testing)	It is recommended that Con Edison conduct a study to determine the internal static pressure that would be developed under the loading conditions to which some transformers (S/N F124281 and S/N F124624) were subjected. If the results of this study demonstrate that pressures exceed the design limits of these transformers, steps should be taken to restrict loading on transformers of similar design or to modify the design to tolerate the expected level of internally developed pressure without tank weld rupture.	CITY
Technical Issues (Potential transformer failure)	One transformer (S/N M105273) reportedly failed due to a weld leak resulting from stress corrosion. The presumed source of the stress corrosion was exposure to a high concentration of chlorides. It is recommended that a study be made to determine the likelihood of this problem occurring on other units of similar design.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Transformer testing)	During the course of the Long Island City network event, many network transformers were exposed to high ambient temperatures and loadings well in excess of nameplate ratings for significant time intervals. Con Edison should implement, prior to the 2007 summer load period, an inspection and test program for all network transformers in the Long Island City network that were overloaded during the event.	CITY
Technical Issues (Transformer testing)	Con Edison has indicated that its policy is to impulse test (BIL test) reconditioned transformers before returning them to service. As an added aspect of this test, it is recommended that Con Edison consider conduction dielectric testing while the transformer is at elevated temperatures.	CITY
Technical Issues (Transformer maintenance)	It is recommended that Con Edison evaluate the use of condition-based maintenance, where the service life and service conditions of transformers are used in a more prominent role in the determination as to when maintenance is required.	CITY
Technical Issues (Transformer life expectancy)	A review of several Con Edison Specifications reveals that there is a relatively complex method of characterizing the capability of a transformer under various operating conditions. In spite of this relatively complex system, there is no apparent consideration given to loss of life per event or cumulative aging of the transformer insulation. The major determinant of transformer life expectancy is the combined effect of the hottest spot temperature in the transformer insulation system and the duration of that exposure. Loss of life is cumulative and non-reversible. Thus, it is recommended that Con Edison determine the cumulative loss of life as a result of normal or emergency operation.	CITY
Technical Issues (Transformer design)	Transformer manufacturers today have the computer design capability to maximize KVA of transformation while respecting physical limitations on unit size. Thus, one could possibly design a 550 or 600 KVA unit that could physically fit into the vault that is currently occupied by a 500 KVA rated transformer. It is recommended that this issue be reviewed with manufacturers to determine whether or not and to what degree this could be accomplished.	CITY
Technical Issues (Transformer testing criteria)	Con Edison's specifications state that the top oil temperature is the criterion that is to be used in determining whether supplemental cooling of the unit is required. The use of top oil temperature to solely determine whether or not to use supplemental cooling is not recommended. The time constant for the transformer oil is much greater than the time constant of the winding. Therefore, the winding hottest spot temperature could be at severely elevated levels while the oil has yet to reach its ultimate value as a result of step increases in load. It is recommended that Con Edison consider changing their criteria to hottest spot temperature.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Transformer relay settings)	It is recommended that an analysis of the relay targets associated with suspected transformer inrush issues be made to determine if relay settings changes would have the potential of affecting the likelihood of tank rupture by changing the I <sup>2</sup> t energy released in the transformer tank during an internal fault.	CITY
Technical Issues (Flooding vaults/spraying transformers)	It is recommended that prior to flooding vaults or spraying transformers as a means of reducing their oil temperatures, the units should be verified as leak free.	CITY
Technical Issues (Transformer gas in oil analysis)	It is recommended that gas in oil analysis also be performed for those units that have experienced significant accelerated loss of life or have reached a significant accumulated loss of life.	CITY
Technical Issues (Network protector relay testing)	Con Edison should complete a testing program for each feeder within the Long Island City network prior to the 2007 summer load period that will exercise all network protector relays (including all other electrical and mechanical components) and identify non-responsive units for correction and re-test to insure improvement in the performance of these network feeders with regard to them staying improperly Alive on Back Feed when removed from service due to a fault or by operator action.	CITY
Technical Issues (Network protector relay exercise annually)	a. In addition, Con Edison should implement a system-wide testing program to insure the operation of each feeder at least once biannually to exercise all network protector relays as well as other electrical and mechanical components and identify non-responsive units for correction and re-test.	CITY
Technical Issues (EMTP analysis and utilization of results)	During the analysis of the Long Island City power outages, Con Edison hired a consultant to perform an Electro Magnetic Transient Pulse ("EMTP") analysis to measure transients for the Long Island City event. Because it is suspected that several network protector microprocessor relays failed during the event as a result of transients, Con Edison should ensure that this study includes transients on the secondary system and share the results of the EMTP study with the network protector microprocessor relay manufacturers. Con Edison should work with the microprocessor relay manufacturers to conduct a design review of the relay and implement any design changes that may be required as a result of the study's findings.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Network protector and transformer reporting)	Con Edison should develop a more detailed reporting form for their network protector and transformer inspections. The form that is completed by the field personnel should be entered into a field computer and then downloaded into a database that has the ability to be accessed to produce individual equipment reports and summary reports. From this database equipment failure trends could be discerned or developed.	CITY
Technical Issues (Position of network protector on failed transformers)	a. In addition, Con Edison should modify its protocol to include the "as found" position on all network protectors associated with failed transformers.	CITY
Technical Issues (Transformer inspection reporting)	b. In reviewing inspection reports (CINDE records) on the 13 transformers that failed, it was found that transformer reporting was inconsistent and sometimes incomplete. It is recommended that completed transformer reports be subjected to a random sample audit to ensure that the database is relatively complete and up to date.	CITY
Technical Issues (Remote Monitoring System)	Con Edison should complete an appropriate inspection and maintenance program to improve the reporting rate of its Remote Monitoring System within the Long Island City network up to, at a minimum, its designated 95% reporting level before the beginning of the 2007 summer load period.	CITY
Technical Issues (Remote Monitoring System)	Con Edison should engage in a program to improve the reporting rate of its Remote Monitoring System, system wide, up to, at a minimum, its designated 95% reporting level within a reasonable amount of time.	CITY
Technical Issues (Transformer voltage reporting capability)	a. Additionally, the Company should expand the number of network transformers equipped with voltage reporting capability so that an improved voltage picture is available to the control center operators.	CITY
Technical Issues (RMS transmitters)	b. Con Edison should expand the capability of the RMS transmitters by deploying the next generation transmitters that can provide information on the transformer operating temperature, the transformer pressure, the transformer oil level, as well as providing a voltage reporting capability.	CITY
Technical Issues (High tension remote monitoring capability)	c. Moreover, the Company should examine accelerating the planned installation of a remote monitoring capability for high-tension customer installations.	CITY
Technical Issues (RMS system)	d. Con Edison should continue to improve the RMS system with increased consideration to the following:	CITY
Technical Issues (RMS system)	i. Aggressively pursue technology enhancements that will allow for an increased success rate of network protector information being available for stuck network protectors.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (RMS system)	ii. Ensure that all new RMS transmitters have the capability to provide voltage readings. This becomes increasingly valuable as a tool to clear ABF conditions as information regarding stuck network protectors becomes more available.	CITY
Technical Issues (RMS system)	iii. Provide a link from NetRMS to the network protector relay information contained within the equipment database so that operators can have a quick way to determine what type of relay is installed at any location of interest.	CITY
Technical Issues (Expand voltage reading locations)	In order to provide voltage information to further issues backfeeding network protectors, Con Edison should consider a system to obtain voltage readings in the network at points other than the transformers (at service boxes, lamp posts, customer premises, etc.). An automatic system with data being fed to a visualization tool would be best. However, in the interim, a program to obtain manual readings during events would provide information on the potential for network protectors to remain closed and thus become a source of backfeed.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	Con Edison should modify its procedures for operating the distribution system under contingencies to provide guidance for operator actions under severe contingency levels with potential low voltage conditions within the network of concern.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	a. This should include guidance on the application of three phase grounds to clear backfeeding network protectors.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	b. This should include detailed guidance on the criteria for cooling of network transformers.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	c. This procedure should establish a clearly defined protocol to incorporate observations made by responsible outsiders as well as its own employees regarding conditions in the field.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	d. This should include guidance on the application of Rapid Restoration procedures applicable to the distribution system while operating networks under multiple contingency conditions.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	e. This should include criteria for evaluating the secondary network cable system, manhole events, customer outages, and the level of secondary voltage supply to their customers. Improved guidance needs to be provided to determining when a network load area should be de-energized.	CITY
Technical Issues (Evaluation of secondary network during multiple feeder contingencies)	Con Edison should consider the creation of a dedicated engineering team directed towards the evaluation of the secondary network cable system during multiple feeder contingencies to ensure that appropriate attention, evaluation, and planning is applied to this area while immediate efforts are directed towards the restoration of the primary feeders.	CITY
Technical Issues (Network protector closing requirement)	Con Edison should reevaluate the requirement that network protector relays prevent the network protector from closing if the network voltage is between 60 volts and 13 volts. They should also modify their procedures for operating the distribution system under contingencies to ensure that operating personnel are aware of this requirement.	CITY
Technical Issues (Network detector malfunction results and detection)	Con Edison should review Alive on Back Feed occurrences which are one of the causes for feeder restoration delays and are often caused by a network protector that does not operate properly. An approach that would make it easier to locate the malfunctioning network protector is use of a local remote secure radio control device built directly into the network protector relays.	CITY
Technical Issues (Alive on Backfeed effect on transformer useful life)	a. All Alive on Backfeed events should be reviewed to determine the amount of backfeed and the duration of that backfeed and that the transformer's condition be noted with respect to any accelerated loss of life.	CITY
Technical issues (Substation PQNodes)	Con Edison should expedite the installation of substation PQNodes on a system-wide basis to insure that all of their substations are completed prior to summer 2007. Additionally, testing and tuning of the PQNode should be completed to insure that the Reactance-to-Fault application is functional for all of their networks prior to summer 2007.	CITY
Technical Issues (Relay protection design setting review and corrective action)	Con Edison should review the design settings for all relay protection schemes on its distribution feeders to insure that they have been kept up-to-date and reflect the increased load growth (transformers) being supplied. A schedule for this review and any identified corrective actions should be completed before the summer of 2007.	CITY
Technical Issues (Relay protection design setting review and corrective action)	a. Con Edison should establish a periodic review process that validates the settings for all relay protection schemes on its distribution feeders to insure that they have been kept up-to-date and will operate properly when called upon.	CITY

**ATTACHMENT A  
LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>
Technical Issues (Voltage reduction effectiveness)	If Con Edison plans to continue using voltage reduction for unloading distribution circuits, which should mean reduction of current, the Company should perform studies to determine the conditions under which the voltage reduction would be effective for this specific objective, if at all.	CITY
Technical Issues (Voltage reduction effectiveness)	a. Con Edison should perform a thorough field and empirical analysis to determine the effects of voltage reduction on actual voltage and current in the network under severe contingencies.	CITY
Technical Issues (Voltage reduction effectiveness and procedures for utilization)	b. After the aforementioned analyses are completed, con Edison should develop a set of specific operating procedures and specifications to provide clear rules for the use of voltage reduction in response to distribution system contingencies. Such procedures should take into account the effect of voltage reduction on all system components as well as customers that may already be experiencing sub-standard voltage due to a multiple contingency.	CITY
Technical Issues (Accelerate network split and isolate MTA and LIRR from network shutdown)	Con Edison should accelerate from its current target date of 2015 the planned split of the Long Island city network into two networks to establish the new Sunnyside network from the new Newton substation. Con Edison should study designing these networks so that service to critical customers, specifically the MTA and LIRR, is not interrupted during the shutdown of either network.	CITY
Technical issues (Utilize vacant feeder positions to improve network reliability)	Before summer 2007, Con Edison should utilize the three existing vacant feeder positions at the North Queens substation to create three additional 27 kV feeders providing supply to the Long Island city network in order to increase the overall reliability of service.	CITY
Technical Issues (Design temperature variable calculation)	Con Edison should review its method for calculating its design temperature variable. A statistical analysis of weather conditions that has existed over an extended period of time (e.g., 50 - 100 years) should be performed. The analysis should consider the weather conditions of all days, and not just the maximum annual temperature variable, to gain a true measure of the expected frequency that weather conditions will exceed the system's design conditions.	CITY
Technical Issues (Temperature variable criteria)	a. The company should determine whether a more stringent criterion is appropriate for its distribution system such that it is exceeded less frequently (e.g., once every five or ten years rather than the current three).	CITY
Technical Issues (Secondary network load flow models)	Con Edison should accelerate its ongoing efforts to improve the accuracy of its secondary network load flow models by insuring that all system configuration changes are rapidly reflected in the mapping database that is then frequently extracted into an updated secondary load flow model.	CITY

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (reflecting know open mains in WOLF)	a. Con Edison should investigate the feasibility of reflecting the known open-mains in the WOLF load model similar to what is currently being done at the transformer level with the banks-off information.	CITY
Technical Issues (Modeling)	b. Con Edison must ensure that customer load data is matched and modeled to the actual service points to insure that the secondary network cable flows are accurate and that the load flow model converges under multiple contingency conditions beyond design.	CITY
Technical Issues (Collection of failed components)	Con Edison must review its entire Call Center reporting process to ensure that all potential bottlenecks are eliminated so that customers can report their service problems to them in a rapid, simple, user-friendly manner under all emergency conditions.	CITY
Financial Issues (Earnings sharing mechanism)	The Commission should revise the Con Edison earnings sharing mechanism to assure that costs incurred by Con Edison due to any imprudent operation and maintenance are disregarded in the calculation of earnings to be shared with customers.	PULP
Financial (Reliability performance incentives)	The Con Ed rate plan should be modified to remove the retail migration incentive and replace it with incentives that are targeted to service reliability.	CPB
Financial (Reliability performance incentives)	The PSC should immediately convene a proceeding to revise the financial incentives in Con Edison's current rate plan as described above. A complete, comprehensive redesign of all incentives should be conducted as part of the next rate case.	CPB
Financial (Retroactive reimbursement)	The PSC should require retroactive reimbursement to all customers, individuals, or businesses, for all categories of damages suffered as a result of the outage.	PFP
Financial (Budgeting by electrical network)	Con Edison should begin budgeting by electrical network from 2008 moving forward.	PFP
Financial (No recovery of certain expenses)	The PSC should protect consumer from outage-related expenses misidentified as routine or related to low-voltage customer service repairs.	PFP
Financial (No recovery of certain expenses)	The PSC should protect consumers from being charged by Con Ed for expenses involved in bringing low voltage customers back into full service.	PFP (in text)
Financial (Customer credit)	Customers that complied with Con Edison's request to leave a light on for its survey should not be charged for any resulting electrical consumption and should be issued a credit for that usage.	PFP (in text)

<b>ATTACHMENT A</b>		
<b>LISTING OF PARTIES' RECOMMENDATIONS BY GENERAL TOPIC</b>		
<b>CATEGORY</b>	<b>RECOMMENDATION</b>	<b>PARTY</b>
Financial (Compensation for additional damages)	PFPP calls for compensation for additional damages, such as lost wages and medical expenses, that resulted from the outage.	PFPP (in text)
Training (Follow up and network shutdown)	The Company, in addition to ensuring that the problems it identifies during training exercises are corrected in a timely manner, should conduct additional training exercises that focus on the types of circumstances that arose in the summer of 2006 (focus on key decisions such as whether to shut down a network). Staff should attend these exercises, and the Company should provide a report to Staff summarizing these exercises, the problems identified, and how each of them have been corrected.	CPB
Training (Operator training)	Con Edison should examine its training and testing program for Substation Operators and District Operators to insure that operators are properly instructed, with particular emphasis on actions during stressful emergency conditions.	CITY
Training (Operator training) (Feeder restoration process not to be impacted by operator error)	a. Improvements need to be made to these processes to insure that the operator errors do not impact the overall feeder restoration process by decisions being made on incomplete or incorrect data.	CITY
Training (Operator training)	b. Improvements need to be made to insure that the operators understand what the desired results of their actions are, as well as what undesirable consequences can result, so that they can make informed decisions that will not negatively impact the overall feeder restoration process or cause additional damage.	CITY

**ATTACHMENT B  
RECOMMENDATIONS FOR FUTURE PROCEEDINGS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>	<u>PROCEEDING</u>
Prudence (Reactive power supply)	If the Commission initiates the prudence investigation proposed in the Staff Report, one of the issues to be explored should be the adequacy of reactive power supply in the LIC Network and surrounding networks and whether Con Edison should have taken steps to correct any deficiencies prior to the July 17, 2007 secondary cable fire. Suitable confidentiality protections should be ordered so that the material data can be thoroughly examined.	TransGas Energy Systems	Prudence Case
Claims	The Commission must begin the necessary proceeding(s) to require Con Edison to change the existing tariff(s) limiting reimbursement for outage related damages to reflect the actual losses suffered.	Assembly Corp. Committee	Electric Rate Case or Proceeding to Examine Tariff
Claims (Expand reimbursement tariff)	Changes to the reimbursement tariff provision should be completed before the summer of 2007. At a minimum, the dollar amounts of the reimbursement limits should be revised to reflect inflation in the seven years since those limits were established. In addition, serious consideration should be given, either this year or in the next rate case, to expanding coverage to include damaged electrical equipment including computers and air conditioners, particularly from low voltage situation. Consideration should also be given to tying reimbursement to the duration of an outage.	CPB	Electric Rate Case or Proceeding to Examine Tariff
Claims (Revise tariff to reflect outage duration)	The Commission should require Con Edison to amend its reimbursement tariff to provide enhanced reimbursement to reflect the duration of a particular outage.	AG	Electric Rate Case or Proceeding to Examine Tariff
Claims (Reimbursement increase)	Con Edison should be required to increase the current payments for distribution system failures of twelve or more hours in a 24-hour period to reflect, at a minimum, the rate of inflation from 2000 to 2007.	CITY	Electric Rate Case or Proceeding to Examine Tariff
Claims (Residential reimbursement increase)	a. Increase the compensation for losses due to spoilage of food or other perishables for lack of refrigeration for residential users from \$350 to \$450 per incident.	CITY	Electric Rate Case or Proceeding to Examine Tariff
Claims (Non-residential reimbursement increase)	b. Increase the compensation for losses due to spoilage of perishable merchandise for lack of refrigeration for non-residential customers from \$7,000 to \$9,000.	CITY	Electric Rate Case or Proceeding to Examine Tariff

**ATTACHMENT B  
RECOMMENDATIONS FOR FUTURE PROCEEDINGS**

<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>	<b><u>PROCEEDING</u></b>
Claims (Increase total liability level)	c. Increase the liability per incident to a total of \$15,000,000.	CITY	Electric Rate Case or Proceeding to Examine Tariff
Claims (Automatic reimbursement increase per rate of inflation)	d. Provide for automatic increases equal to the rate of inflation each time that a new electric rate case is approved or every five years, whichever comes first.	CITY	Electric Rate Case or Proceeding to Examine Tariff
Claims (Expand allowable reimbursement)	Con Edison should be required to provide compensation to customers for verifiable damages to their appliance motors, electronic equipment, and other voltage sensitive property.	CITY	Electric Rate Case or Proceeding to Examine Tariff
Planning, Operations, Maintenance and Oversight (Sanctions)	The Commission should implement performance sanctions promptly, rather than defer them until future rate cases, and should apply service performance financial measures to benefit LIC Network customers, rather than using service performance sanction revenues to benefit customers in areas unaffected by the LIC network service quality deficiencies.	PULP	Electric Rate Case
Other (Labor)	Internal staffing levels should be increased	Local 1-2	Electric Rate Case
Other (Labor)	Con Edison should not be encouraged to replace qualified in-house labor with contract labor and certainly should not be rewarded for doing so.	Local 1-2	Electric Rate Case
Other (Reliability Performance Mechanism)	The Staff recommendation concerning re-examination of the RPM in the next rate case should be modified to provide a more meaningful incentive, in the range of \$20 million, to minimize the duration of outages on its network system.	CPB	Electric Rate Case
Other (Eliminate disincentive for network shutdown)	The Staff recommendation should be modified to eliminate the disincentive to shut networks down.	CPB	Electric Rate Case
Other (Service quality standards)	Service quality standards for voltage reductions should be established in the next rate case.	CPB	Electric Rate Case

**ATTACHMENT B**  
**RECOMMENDATIONS FOR FUTURE PROCEEDINGS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>	<u>PROCEEDING</u>
Other (Load reduction)	Con Edison must revise its voluntary load reduction procedure so that the Company can effectively communicate with the large customers that can provide the most significant load relief during a power emergency.	AG	Electric Rate Case
Financial Issues (Earnings sharing mechanism)	The Commission should revise the Con Edison earnings sharing mechanism to assure that costs incurred by Con Edison due to any imprudent operation and maintenance are disregarded in the calculation of earnings to be shared with customers.	PULP	Electric Rate Case
Financial (Reliability performance incentives)	The Con Ed rate plan should be modified to remove the retail migration incentive and replace it with incentives that are targeted to service reliability.	CPB	Electric Rate Case

**ATTACHMENT C  
CROSS REFERENCE TO STAFF RECOMMENDATIONS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>	<u>STAFF RECOM</u>
Emergency Plan (Labor)	Con Edison should develop a procedure for when and what minimum level of mutual assistance and contactor assistance should be used for each event level identified in its underground emergency plans and guidelines, similar to what is specified for an emergency overhead event.	Local 1-2	63
Emergency Plan (Update as necessary)	Con Edison should evaluate its emergency procedures in light of lessons learned from the July 2006 outages and modify these procedures as necessary.	CITY	75
Planning, Operations, Maintenance and Oversight (Customer count)	The PSC should mandate that Con Edison provide complete numbers for how many customers experienced low voltage conditions of whatever degree during an outage.	PFP	5
Planning, Operations, Maintenance and Oversight (Revise Commission Regulations)	The Commission should revise its regulations for electric utility emergency plans, 16 NYCRR Part 105, to incorporate provisions that specifically address emergencies not caused by storms. In particular, the regulations should address power emergencies affecting urban areas with concentrations of buildings with elevators and should provide for active and ongoing Commission participation in evaluating specific utility emergency plans and follow-up to problems identified during exercises and actual power emergencies.	AG	18
Customer Operations (LSE and Critical Care)	The Commission must require Con Edison to implement a better and more accurate method of identifying and communicating with individuals who depend upon life support equipment, and for identifying and communicating with critical care facilities.	Assembly Corporations Committee	14 to 16
Customer Operations (Public Liaison Program)	The PSC should ensure that the new liaison program recommended by Staff have sufficient authority, resources and independence to provide accurate and unbiased information to key stakeholders and fulfill other mandated responsibilities, without undue influence or limitations.		10
Customer Operations (Public information)	Con Edison should provide heat wave/outage emergency preparedness information to all customer every summer as part of an ongoing public education program.	PFP	15
Customer Operations (Public Information)	Con Edison should send information pertaining to outage-related consumer issues, including where/how to get information, how to report service problems, what to do in an emergency, locations of cooling centers, where to get dry ice, etc, to customers at the beginning of each summer as a matter of course.	PFP (in text)	15

**ATTACHMENT C  
CROSS REFERENCE TO STAFF RECOMMENDATIONS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>	<u>STAFF RECOM</u>
Customer Operations (LSE customers)	Con Edison must do a better job of identifying vulnerable individuals that specific power outages would affect. In particular, the Company must do a better job of identifying individuals who depend on electrically-operated life support equipment such as breathing apparatus, the elderly and other mobility impaired who depend on elevators, and those vulnerable to overheating.	AG	18
Other (Demand reduction)	Con Edison must vigorously promote participation in its demand reduction programs in all parts of the Company's distribution network.	AG	66
Other (Con Ed should increase monitoring and communication capabilities)	Con Edison should develop and apply programs and technologies to increase its monitoring and communications capability with respects to all aspects of its system.	AG	4 & 7
Other (Con Ed should correct deficiencies identified in emergency drills)	Con Edison must quickly implement solutions to deficiencies identified during Company emergency drills.	AG	29
Other (Information provided to control center operators)	Con Edison should improve the way in which critical information is accumulated and presented to the control center operators especially with regard to secondary network events and customer service problems (e.g., outages, side out, low voltage, etc.).	CITY	41
Other (Information provided to control center operators)	a. Con Edison should expand the use of visualization tools to combine multiple information reporting systems and improve the way that critical operating information is presented to the control center operators.	CITY	41
Other (Improve collection and dissemination of critical information to control center operators)	Con Edison should improve the way in which critical information is accumulated and presented to its control center operators especially with regard to secondary network events and customer service problems (e.g., outages, side out, low voltage).	CITY	41
Other (Improve collection and dissemination of critical information to control center operators)	a. Con Edison should immediately take steps to improve the way in which critical information is visually presented to the Brooklyn/Queens Control Center personnel through the installation of a large screen projector display system similar to what is installed within the other regional control centers compatible with the space limitations at this location.	CITY	41

**ATTACHMENT C  
CROSS REFERENCE TO STAFF RECOMMENDATIONS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>	<u>STAFF RECOM</u>
Other (Improve collection and dissemination of critical information to control center operators)	b. Con Ed should expand the use of visualization tools at its control centers to combine multiple information reporting systems and improve the way that critical operating information is presented to the control center operators.	CITY	41
Identification of Outages (Customer Count)	The Commission must require Con Edison to establish immediately the necessary systems to accurately count customer and/or household outages, rather than the current metric that is far less precise.	Assembly Corporations Committee	1 to 6
Identification of Outages (Customer count)	The PSC should mandate improved techniques to adequately assess numbers of customers as well as numbers of people affected by an outage.	PFP	1 to 6
Identification of Outages	The Star program should be implemented in all service areas by June 1, 2007.	PFP	1
Identification of Outages (Customer outage reporting)	It is recommended that Con Edison develop another way to either replace or augment the customer interruption reporting process as a means of more accurately estimating the number of customers without service.	CITY	1 to 6
Identification of Outages (AMR)	b. Con Edison should study a means to utilize automatic meter reading ("AMR") to all or selected locations at customer premises to know when there are disruptions in service.	CITY	3
Identification of Outages (Identification of outage with help of cable/telephone providers)	a. Investigate the possibility of having the cable and/or telephone service providers provide data on the loss of service from their remote devices located within customer's premises.	CITY	4
Identification of Outages (Identification of outage through automated meter reading)	b. Investigate the implementation of an Automated meter Reading system including the capability of automatic detection of customers without power.	CITY	3
Identification of Outages (Identification of low voltage level to constitute outage)	c. Establish, along with Department of Public Service Staff, a value of service voltage that would be considered inadequate and therefore would be counted as a service outage.	CITY	6
Technical Issues (Low Voltage)	The PSC should require the Company to define a threshold for what constitutes low voltage and to provide supporting studies.	CPB	6

**ATTACHMENT C  
CROSS REFERENCE TO STAFF RECOMMENDATIONS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>	<u>STAFF RECOM</u>
Technical Issues (Expedited feeder processing scheme)	The PSC should determine whether the Company, prior to the LIC event, had ever used or tested the expedited feeder processing scheme it used during the LIC network event and, if so, whether it was effective in those instances.	CPB	36
Technical Issues (Transformer corrosion)	Con Edison should as quickly as possible examine all its transformers system-wide for evidence of corrosion and other defects.	AG	48
Technical Issues (Improve process for collection of failed system components)	For network contingencies where greater than two feeders are out of service during a heat storm, Con Edison should institute an improved process for the collection of failed cable, joint, and termination components for examination and analysis, including a detailed chain of custody. This should include both primary and secondary samples.	CITY	33
Technical Issues (Accelerate PILC and associated replacement)	Con Edison should accelerate its programs to eliminate the PILC primary cables and the associated targeted stop joints from the electric distribution system as rapidly as reasonably practicable given cost and other factors.	CITY	32
Technical Issues (See Above)	a. Con Edison should accelerate the programs to eliminate poor performing targeted stop joints and the associated PILC primary cable from the electric distribution system supplying the Long Island City network as rapidly as practicable.	CITY	32
Technical Issues (Remote Monitoring System)	Con Edison should complete an appropriate inspection and maintenance program to improve the reporting rate of its Remote Monitoring System within the Long Island City network up to, at a minimum, its designated 95% reporting level before the beginning of the 2007 summer load period	CITY	51
Technical Issues (Remote Monitoring System)	Con Edison should engage in a program to improve the reporting rate of its Remote Monitoring System, system wide, up to, at a minimum, its designated 95% reporting level within a reasonable amount of time.	CITY	51
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	b. This should include detailed guidance on the criteria for cooling of network transformers.	CITY	47

**ATTACHMENT C**

**CROSS REFERENCE TO STAFF RECOMMENDATIONS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>	<u>STAFF RECOM</u>
Technical Issues (Network detector malfunction results and detection)	Con Edison should review Alive on Back Feed occurrences which are one of the causes for feeder restoration delays and are often caused by a network protector that does not operate properly. An approach that would make it easier to locate the malfunctioning network protector is use of a local remote secure radio control device built directly into the network protector relays.	CITY	50
Technical Issues (Relay protection design setting review and corrective action)	Con Edison should review the design settings for all relay protection schemes on its distribution feeders to insure that they have been kept up-to-date and reflect the increased load growth (transformers) being supplied. A schedule for this review and any identified corrective actions should be completed before the summer of 2007.	CITY	54

**ATTACHMENT D**

**PARTY RECOMMENDATIONS STAFF SUPPORTS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>
Planning, Operations, Maintenance and Oversight (Inspections for failure potential)	The Commission must require Con Edison to conduct inspection of its Long Island City network to identify wherever possible weakened elements resulting from the July 2006 outage, and any as yet unidentified vulnerabilities in the system that could lead to another such outage.	Assembly Corp Committee
Planning, Operations, Maintenance and Oversight (Service performance standards)	The Commission should adopt service performance standards to reduce N-2 feeder outage incidents and their duration and to reduce the incidence of secondary system fires and explosions.	PULP
Planning, Operations, Maintenance and Oversight (Modeling)	The Commission should further investigate the July 12, 2006 outage of Con Edison's load flow management program, "AutoWolf", and should require Con Edison to archive load flow program records.	PULP
Planning, Operations, Maintenance and Oversight	The Commission should direct the Company to adopt each of the Staff's recommendations along with several critical additional requirements put forth by CPB.	CPB
Planning, Operations, Maintenance and Oversight (Status reports)	Status Reports should be provided to interested parties by Con Edison, not just to Staff.	CPB
Planning, Operations, Maintenance and Oversight (Company compliance)	The Commission should review at a public session, no later than the end of May 2007, the Company's compliance with each Commission directive in this case.	CPB
Planning, Operations, Maintenance and Oversight (Compliance tracking)	The PSC should adopt an open and transparent system of compliance tracking in this and other proceedings.	CPB
Planning, Operations, Maintenance and Oversight (Construction program planning)	The PSC should initiate an audit in 2008 of Con Edison, pursuant to PSL 66(19), focusing on the construction program planning.	CPB
Planning, Operations, Maintenance and Oversight (Load reduction)	The Commission should ensure that Con Edison moves quickly and vigorously to implement and expand as necessary a targeted program to use the full potential for energy efficiency and clean distributed generation to relieve the load on constrained networks, including the LIC network.	AG
Customer Operations (Labor)	First and second line supervisors should be required to employ the same skills and empathy required of the workers they are supervising.	Local 1-2

**ATTACHMENT D  
PARTY RECOMMENDATIONS STAFF SUPPORTS**

<b>CATEGORY</b>	<b>RECOMMENDATION</b>	<b>PARTY</b>
Customer Operations (Labor)	Improvement in the liaison between Electrical Operations and the Customer Service Center is needed. Management should provide more information that has greater accuracy during an emergency than what was provided to the Customer Service Representatives during the LIC outage.	Local 1-2
Customer Operations (Call Center reporting)	Con Edison must review its entire Call Center reporting process to ensure that all potential bottlenecks are eliminated so that customers can report their service problems to them in a rapid, simple, user-friendly manner under all emergency conditions.	CITY
Other (Con Ed should upgrade network reliability)	Con Edison should pay more attention to demand increases within specific networks and other factors indicating that a network is particularly vulnerable to a power emergency and should take steps to upgrade reliability in such networks.	AG
Other (Real time information collection for real time decision making)	Con Edison should have studies conducted on how to collect real-time information supporting the real-time decision making on rapid directed load control. A combination of monitoring systems and deterministic and knowledge-based modeling methodologies should be considered.	CITY
Other (Keep procedures, specs, other up to date and reflective of current conditions)	Con Edison must keep its library of procedures, specifications, and other directives up-to-date and reflective of current conditions.	CITY
Identification of Outages (Communication with telecommunication providers)	The PSC should direct that constant communication with telecommunications companies occur between Con Edison and telecommunications service providers during these types of events, even if it requires the Commission to serve as a de facto liaison.	CPB
Identification of Outages (Customer/individual outage count)	Con Edison must look behind the "customer" to the number of individual affected by any power emergency and develop emergency responses that take into consideration the fact that losing power at a 100-unit apartment building served through a single meter affects more than a single household.	AG
Identification of Outages (Identification of outage or low voltage on a real time basis)	Con Edison should develop and implement appropriate technology and /or systems to identify network distribution customers that are out of service (one or more phases) or are being provided inadequate voltage on a real-time basis.	CITY
Identification of Outages(Advanced Metering Infrastructure projects)	c. Con Edison should actively participate in the Department of Energy's Grid 2030, an "Advanced Metering Infrastructure" project ("AMI"). This project could assist the company in deciding how it will collect and analyze data in the future.	CITY

**ATTACHMENT D**

**PARTY RECOMMENDATIONS STAFF SUPPORTS**

<u>CATEGORY</u>	<u>RECOMMENDATION</u>	<u>PARTY</u>
Technical Issues (Inspections for failure potential)	Con Edison should give priority to examining its substations system-wide for as yet unidentified vulnerabilities that could knock out several primary feeders or even an entire substation at the same time.	AG
Technical Issues (Ensure that removal of the most failure prone system components receive priority)	b. Through the autopsy and examination of both failed and removed before failure components, Con Edison should work to improve the prioritization methodology to ensure that the most failure sensitive components are being removed first.	CITY
Technical Issues (Reconsider use of flame resistant construction concepts)	Con Edison should reconsider incorporation of flame resistant construction concepts for insulation and jackets into secondary cables employed for future use in ducts.	CITY
Technical Issues (Use of more modern secondary cable)	Con Edison should consider use of more modern secondary cable constructions on their system for new constructions (i.e., self-sealing cables).	CITY
Technical Issues (Evaluation of predictive diagnostic tools)	Con Edison should initiate an aggressive plan to evaluate commercially available predictive diagnostic tools to analyze the current state of installed cables, joints, terminations and associated equipment.	CITY
Technical Issues (Transformer maintenance)	It is recommended that Con Edison evaluate the use of condition-based maintenance, where the service life and service conditions of transformers are used in a more prominent role in the determination as to when maintenance is required.	CITY
Technical Issues (Transformer design)	Transformer manufacturers today have the computer design capability to maximize KVA of transformation while respecting physical limitations on unit size. Thus, one could possible design a 550 or 600 KVA unit that could physically fit into the vault that is currently occupied by a 500 KVA rated transformer. It is recommended that this issue be reviewed with manufacturers to determine whether or not and to what degree this could be accomplished.	CITY
Technical Issues (Network protector and transformer reporting)	Con Edison should develop a more detailed reporting form for their network protector and transformer inspections. The form that is completed by the field personnel should be entered into a field computer and then downloaded into a database that has the ability to be accessed to produce individual equipment reports and summary reports. From this database equipment failure trends could be discerned or developed.	CITY

**ATTACHMENT D  
PARTY RECOMMENDATIONS STAFF SUPPORTS**

<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Position of network protector on failed transformers)	a. In addition, Con Edison should modify its protocol to include the "as found" position on all network protectors associated with failed transformers.	CITY
Technical Issues (Transformer inspection reporting)	b. In reviewing inspection reports (CINDE records) on the 13 transformers that failed, it was found that transformer reporting was inconsistent and sometimes incomplete. It is recommended that completed transformer reports be subjected to a random sample audit to ensure that the database is relatively complete and up to date.	CITY
Technical Issues (RMS system)	d. Con Edison should continue to improve the RMS system with increased consideration to the following:	CITY
Technical Issues (RMS system)	i. Aggressively pursue technology enhancements that will allow for an increased success rate of network protector information being available for stuck network protectors.	CITY
Technical Issues (RMS system)	ii. Ensure that all new RMS transmitters have the capability to provide voltage readings. This becomes increasingly valuable as a tool to clear ABF conditions as information regarding stuck network protectors becomes more available.	CITY
Technical Issues (RMS system)	iii. Provide a link from NetRMS to the network protector relay information contained within the equipment database so that operators can have a quick way to determine what type of relay is installed at any location of interest.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	Con Edison should modify its procedures for operating the distribution system under contingencies to provide guidance for operator actions under severe contingency levels with potential low voltage conditions within the network of concern.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	a. This should include guidance on the application of three phase grounds to clear backfeeding network protectors.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	b. This should include detailed guidance on the criteria for cooling of network transformers.	CITY

**ATTACHMENT D**

**PARTY RECOMMENDATIONS STAFF SUPPORTS**

<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	c. This procedure should establish a clearly defined protocol to incorporate observations made by responsible outsiders as well as its own employees regarding conditions in the field.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	d. This should include guidance on the application of Rapid Restoration procedures applicable to the distribution system while operating networks under multiple contingency conditions.	CITY
Technical Issues (Improve procedures for multiple contingency/potential low voltage operation)	e. This should include criteria for evaluating the secondary network cable system, manhole events, customer outages, and the level of secondary voltage supply to their customers. Improved guidance needs to be provided to determining when a network load area should be de-energized.	CITY
Technical Issues (Evaluation of secondary network during multiple feeder contingencies)	Con Edison should consider the creation of a dedicated engineering team directed towards the evaluation of the secondary network cable system during multiple feeder contingencies to ensure that appropriate attention, evaluation, and planning is applied to this area while immediate efforts are directed towards the restoration of the primary feeders.	CITY
Technical issues (Substation PQNodes)	Con Edison should expedite the installation of substation PQNodes on a system-wide basis to insure that all of their substations are completed prior to summer 2007. Additionally, testing and tuning of the PQNode should be completed to insure that the Reactance-to-Fault application is functional for all of their networks prior to summer 2007.	CITY
Technical Issues (Relay protection design setting review and corrective action)	a. Con Edison should establish a periodic review process that validates the settings for all relay protection schemes on its distribution feeders to insure that they have been kept up-to-date and will operate properly when called upon.	CITY
Technical Issues (Voltage reduction effectiveness)	If Con Edison plans to continue using voltage reduction for unloading distribution circuits, which should mean reduction of current, the Company should perform studies to determine the conditions under which the voltage reduction would be effective for this specific objective, if at all.	CITY
Technical Issues (Voltage reduction effectiveness)	a. Con Edison should perform a thorough field and empirical analysis to determine the effects of voltage reduction on actual voltage and current in the network under severe contingencies.	CITY

**ATTACHMENT D**  
**PARTY RECOMMENDATIONS STAFF SUPPORTS**

<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Voltage reduction effectiveness and procedures for utilization)	b. After the aforementioned analyses are completed, con Edison should develop a set of specific operating procedures and specifications to provide clear rules for the use of voltage reduction in response to distribution system contingencies. Such procedures should take into account the effect of voltage reduction on all system components as well as customers that may already be experiencing sub-standard voltage due to a multiple contingency.	CITY
Technical Issues (Secondary network load flow models)	Con Edison should accelerate its ongoing efforts to improve the accuracy of its secondary network load flow models by insuring that all system configuration changes are rapidly reflected in the mapping database that is then frequently extracted into an updated secondary load flow model.	CITY
Technical Issues (reflecting know open mains in WOLF)	a. Con Edison should investigate the feasibility of reflecting the known open mains in the WOLF load model similar to what is currently being done at the transformer level with the banks-off information.	CITY
Technical Issues (Modeling)	b. Con Edison must ensure that customer load data is matched and modeled to the actual service points to insure that the secondary network cable flows are accurate and that the load flow model converges under multiple contingency conditions beyond design.	CITY
Technical Issues (Collection of failed components)	Con Edison must review its entire Call Center reporting process to ensure that all potential bottlenecks are eliminated so that customers can report their service problems to them in a rapid, simple, user-friendly manner under all emergency conditions.	CITY
Training (Operator training)	Con Edison should examine its training and testing program for Substation Operators and District Operators to insure that operators are properly instructed, with particular emphasis on actions during stressful emergency conditions.	CITY
Training (Operator training) (Feeder restoration process not to be impacted by operator error)	a. Improvements need to be made to these processes to insure that the operator errors do not impact the overall feeder restoration process by decisions being made on incomplete or incorrect data.	CITY
Training (Operator training)	b. Improvements need to be made to insure that the operators understand what the desired results of their actions are, as well as what undesirable consequences can result, so that they can make informed decisions that will not negatively impact the overall feeder restoration process or cause additional damage.	CITY

**ATTACHMENT E  
TECHNICAL RECOMMENDATIONS**

<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (Feeder testing)	a. Con Edison should apply Very Low Frequency testing to 5% of the second tier of worst performing system feeders (those between the worst 5% and 10% of the worst performing feeders) on their system and not apply DC Hipot testing to those tested feeders for a minimum of three years after Very Low Frequency testing is performed.	CITY
Technical Issues (Feeder testing)	Con Edison should increase the number and effectiveness of its system wide feeder testing program on both a post failure and a planned basis.	CITY
Technical Issues (Feeder testing)	Con Edison should promptly schedule Feeder 1Q13 for a DC Hipot test to determine whether a strongly indicated incipient fault exists on this feeders.	CITY
Technical Issues (Transformer life expectancy)	A review of several Con Edison Specifications reveals that there is a relatively complex method of characterizing the capability of a transformer under various operating conditions. In spite of this relatively complex system, there is no apparent consideration given to loss of life per event or cumulative aging of the transformer insulation. The major determinant of transformer life expectancy is the combined effect of the hottest spot temperature in the transformer insulation system and the duration of that exposure. Loss of life is cumulative and non-reversible. Thus, it is recommended that Con Edison determine the cumulative loss of life as a result of normal or emergency operation.	CITY
Technical Issues (Transformer testing criteria)	Con Edison's specifications state that the top oil temperature is the criterion that is to be used in determining whether supplemental cooling of the unit is required. The use of top oil temperature to solely determine whether or not to use supplemental cooling is not recommended. The time constant for the transformer oil is much greater than the time constant of the winding. Therefore, the winding hottest spot temperature could be at severely elevated levels while the oil has yet to reach its ultimate value as a result of step increases in load. It is recommended that Con Edison consider changing their criteria to hottest spot temperature.	CITY
Technical Issues (Transformer relay settings)	It is recommended that an analysis of the relay targets associated with suspected transformer inrush issues be made to determine if relay settings changes would have the potential of affecting the likelihood of tank rupture by changing the I <sup>2</sup> t energy released in the transformer tank during an internal fault.	CITY

**ATTACHMENT E**  
**TECHNICAL RECOMMENDATIONS**

<b><u>CATEGORY</u></b>	<b><u>RECOMMENDATION</u></b>	<b><u>PARTY</u></b>
Technical Issues (EMPT analysis and utilization of results)	During the analysis of the Long Island City power outages, Con Edison hired a consultant to perform an Electro Magnetic Transient Pulse ("EMTP") analysis to measure transients for the Long Island City event. Because it is suspected that several network protector microprocessor relays failed during the event as a result of transients, Con Edison should ensure that this study includes transients on the secondary system and share the results of the EMTP study with the network protector microprocessor relay manufacturers. Con Edison should work with the microprocessor relay manufacturers to conduct a design review of the relay and implement any design changes that may be required as a result of the study's findings.	CITY

**ATTACHMENT F**

**WASHINGTON HEIGHTS RECOMMENDATIONS STATUS**

<b>PSC</b>	<b>RECOMMENDATION</b>	<b>IMPLEMENTATION RESULTS: IMPACT ON LIC NETWORK</b>
II-1	Con Edison should improve its cable rating methods to more accurately reflect actual thermal conditions and develop techniques to better model its network systems, especially those under multiple contingency conditions.	The company has made strides in improving its cable rating efforts as a result of this action. However, staff believes that the results in determining feeder problems beyond second contingency still need improvements, and that more work is needed to model overloads in the primary and secondary network system.
II-2	Con Edison should evaluate reasonable actions that can be taken to improve monitoring of its secondary system, including use of additional monitoring devices where feasible, and report to the Commission by June 1, 2000 on its findings.	The feasibility of monitoring current and ambient temperature in the secondary network system has yet to be successful. Con Edison stopped its evaluation of this action plan back in 2004 and has since abandon this effort due to obsolete technology and cost on deployment of the SUNDAS on a system wide basis. Instead the company worked to improve the RMS reporting rate to 95%. This did not help. During the Long Island City event, the RMS reporting rate was at 75%. As of 11/1/06, 765 RMS transmitters have been installed and 20 RMS receivers installed in area substations. Staff believes that more needs to be done to monitor the secondary system in lieu of what happened in Long Island City.
II-3	Con Edison should examine its 86 degree Fahrenheit wet bulb/dry bulb design criterion to determine whether a more stringent criterion is appropriate for its distribution system. The study should estimate the costs of implementing various scenarios (e.g., one in five or ten year criteria).	Con Edison concluded that an increase in the temperature variable design standard for its distribution system is not warranted and would not be cost effective. It's not clear whether there would have been an affect on LIC if the company changed its 86 degree design criterion.
II-4	If Con Edison water-cools a transformer during a multiple contingency event, it should review the transformer's load capacity after the system emergency.	Con Ed has been utilizing this process since the recommendation. During the LIC event, 59 network transformers were cooled down. According to Con Ed the process did somewhat mitigate damage from overheating. Of the 59, 1 short circuited and failed. Need to review EO-4095 specs to see if anything needs to be done regarding corrosion.
II-5	Con Edison should require basic impulse level (BIL) testing in its network transformer rebuild specifications.	Con Ed has been utilizing this process since the recommendation. BIL test prevent reconditioned units with weak insulation from being installed in the network. End result is to increase reliability of system. Staff followed-up on whether any of the failed transformers affecting the primaries in the LIC network were reconditioned after 11/16/2000. None were found.
II-6	Con Edison should establish clearer criteria for prioritizing the order in which paper cable should be replaced. Con Edison's unwritten policy of removing and replacing sections of paper/lead cable in both directions between splices when making repairs associated with stop joints or paper/lead cable, needs to be formalized.	Criteria for prioritizing the removal of PILC cable has been formalized into specification EO4097. The removal of all PILCs from the system will be completed by 2024. This would not have helped reduce the contingency levels in the LIC event.
II-7	Con Edison should develop a program for eliminating stop joints with high failure rates that are still in service	Con Ed has been removing PILC cables in conjunction with its stop joint removal program. At the time of the Queens Outage, Long Island City network had 66 Elastimold 2W-1W joints, 300 Raychem 3W-1W joints, and approximately 700 sections of PILCs. Since 2000, 400 sections of PILC removed, and 200 targeted stop joints. Three primary feeder cables in the Long Island City network event failed partly due to 3 Elastimold 2W-1W joints, and 1 section of PILC cable. We would like to remove all PILCs and stop joints in the system sooner than later. However, given the cost implication, this is a long-term replacement program.

**ATTACHMENT F**

**WASHINGTON HEIGHTS RECOMMENDATIONS STATUS**

PSC	RECOMMENDATION	IMPLEMENTATION RESULTS: IMPACT ON LIC NETWORK
II-8	Con Edison should accelerate efforts to better understand the susceptibility of various age groupings of paper/lead cables to failure to help prioritize replacement efforts.	Based on CTL data analysis and USI report, Con Ed has concluded that the failure of PILC cables can occur at any time and it's not a function of load. PILC cables experienced loads well above its emergency ratings. Acceleration of the PILC and joint removals would not have helped reduce the level of contingencies in the LIC outage.
II-9	Con Edison should implement its cable rejuvenation program associated with manholes and reassess its manhole inspection program.	Con Ed has installed to date over 36,000 new ventilated manhole covers throughout the underground system since 2005. Approximately 800 of those were installed in the areas that the LIC Network was affected by the outage. Only one manhole explosion was reported during the entire event. The vented covers installed in Long Island City network may have prevented more manhole explosions from occurring. There are approximately 42,000 out of 81,000 installed and the plan is to replace them all by end of 2008. Based on staff's current projections, the Company cannot possibly meet its target date. We would like to see this program accelerated. However, like the PILC program, can't see it happening given the practicality and cost implication. This is a long term replacement program.
II-10	Con Edison should accelerate its evaluation of alternatives to high-potential testing, such as low frequency AC testing, to determine their possible effectiveness and report to the Commission on its efforts by June 1	The effectiveness of AC hi-potting is promising. It was, however, not used in the LIC outage because it is still in its R&D phase. Con Ed needs to pass a minimal of 40 feeders for each 13 kV and 27 kV feeders to meet an adequate statistical sampling size. They have enough of the 13 kV tests but needs to do more on the 27 kV. The projection is that the validation period will last 3 more years. Feeder outage scheduling and full seasonal load cycle assessment is prolonging the completion of this project. This one could be long term.
II-11	Con Edison should consider installation of feeder sectionalizers for all networks in order to return customers to service more quickly and to help stabilize the network during multiple contingencies	Many of the distribution feeders are bifurcated--split into 2 legs within a short distance to the substation, and go on to supply load in two divergent areas within a network. A sectionalizer switch would be installed on one of the legs or both. Feeder sectionalizers were not installed in the LIC network.
II-12	Con Edison should evaluate the effects of low voltage on customer equipment as a result of the secondary network problems experienced in Washington Heights. As part of its evaluation, all equipment damage claims should be reviewed. The company should report its findings to the Commission by June 1,2000.	Con Edison commissioned research scientists at the Department of Electrical and Computer Engineering at Polytechnic University in New York City to conduct the study. Evaluation completed, report provided. The low voltage study demonstrates that the occurrence of low voltage supply, even if sustained over a 24-hour period, would not cause the failure of a motor that has been properly installed, operated, and maintained. Staff will revisit the study.
II-13	Con Edison should review the design for all relay protection schemes on its network feeders similar to those on IM05 to ensure proper relay operation.	Con Ed determined specific conditions and configurations in which a station relay would operate in lieu of a network protector opening. This should have prevented feeder breakers from incorrectly operating, thus reducing false or undesirable tripping. This is a long term replacement program.
II-14	Con Edison should develop, before June 1, formal plans for operating networks under multiple contingency conditions, including the identification of load relief measures available for each network.	Plans were completed in 2000 and revision to EO-4095, Distribution System Operation Under Contingency Conditions. This recommendation helped the company in terms of processing the feeders during the LIC event. Need to address corrosion after water cooling down of transformers.

**ATTACHMENT F**

**WASHINGTON HEIGHTS RECOMMENDATIONS STATUS**

<b>PSC</b>	<b>RECOMMENDATION</b>	<b>IMPLEMENTATION RESULTS: IMPACT ON LIC NETWORK</b>
II-15	Con Edison should monitor the loading of high-tension customers' transformers as part of its system modeling programs.	Con Ed funded an R&D project (Sensorlink) in attempt to find a way to monitor high-tension customer transformers. The R&D project was unsuccessful. The Company then turned to monitoring using the existing Remote Monitoring System. This approach was also unsuccessful because of the difficulties encountered with the installation portion of the project and the potential for high maintenance costs. Con Ed is now installing new wireless demand meter technology to monitor high tension load in a program that will install these units in all high-tension customer transformers by the end of 2008. This recommendation did not have an appreciable impact the LIC event. This is a long-term project.
II-16	Con Edison should revise its procedures to ensure that upgrades required for load relief and load distribution changes experienced during the previous year are implemented in time for the next year's summer season.	Con Ed has been following the load relief and system reinforcement work every year as dictated by this recommendation.
II-17	Con Edison should determine which recommendations in its report on the July 1999 outage, and in the report of the review board, need to be completed immediately to improve reliability for the summer of 2000 and implement them expeditiously. The company should report to the Commission on all of the recommendations, explaining its implementation plans and status.	Con Ed has completed 11 of 16 recommendations. All recommendations that should have been completed for the 2000 summer period are completed.
II-18	Con Edison should perform a formal review of the effects of low voltage (below the 8% voltage reduction level) on customers in the Cooper Square network and report to the Commission by June 1, 2000. Con Edison should also report to the Commission on its analysis of the fire at the Cooper Square MTA station within 30 days after the New York City's Fire Department's report is completed.	Study conducted by Electrotek and Polytechnic Institute on the effects of low voltage on motors. Report reviewed by staff.
II-19	Con Edison should review its design criteria for non-network distribution equipment and report to the Commission by June 1 on steps it is taking to reduce the likelihood of widespread problems in future heat waves.	The company has reviewed its design criteria for overhead system equipment and has implemented several automated systems to reduce the severity of likely widespread problems from future heat waves. The three key efforts are modeling auto loops, installation of USA units, and wireless DAS. This recommendation has no impact on the LIC event.
IV-1	Con Edison should evaluate the further acceleration of its paper/lead cable removal program. The evaluation should include, at a minimum, an assessment of the cost and benefits of further acceleration.	Con Ed evaluated the possibility of accelerating the PILC cable replacement program and concluded that the cost outweighed the benefits of the likelihood of overall impact on the reduction of cable failures in the UG system. See II-6, II-7, II-8.
IV-2	Con Edison should report annually to the Commission on its capital and operations and maintenance expenditures for electric distribution and substation operations and the progress of the associated programs.	Con Ed has been providing this report on an annual basis.

**ATTACHMENT F**

**WASHINGTON HEIGHTS RECOMMENDATIONS STATUS**

PSC	RECOMMENDATION	IMPLEMENTATION RESULTS: IMPACT ON LIC NETWORK
IV-3	In the event of another sustained outage, the company should provide claim forms, in English and other widely used languages, and mail them to each customer in the affected area.	Con Ed has implemented this recommendation in its Customer Operation Procedures. This was effective in the LIC event. Con Ed translated the form into 6 different languages, sent a letter from its SVP of Customer Operations to customers in the most effected areas in the network, opened sites in different locations in the network for people to get and drop off the forms, posted in on the Web site and issued press releases about filing claims.
V-1	Con Edison should evaluate its emergency procedures in light of lessons learned from the July 1999 outages and modify the procedures as necessary.	The Company, in 2000, adopted the following procedures pertaining to communications during an electric distribution emergency: Corporate Policy Statement 810-2 "Public Affairs Crisis Communication Plan", Customer Service Procedure 10-0-2 "Customer Service - General - Crisis Communication Plan", Customer Service Procedure 2-0-1— Customer Operations-General: Corporate Event Customer Response Plan, Customer Service Procedure 4-0-1 – Energy Services-General: System Emergency Plan. In addition, Customer Service Procedure 5-0-23 "Communication Guidelines in the Event of an Electric Emergency" was modified. The majority of the procedures was not effective during the LIC outage.
V-2	Con Edison should streamline and consolidate its emergency procedures to eliminate redundant and cumbersome material.	In 1999, Con Edison reorganized the functions of the Manhattan Emergency Management Center (MEMC) including emergency communication response functions. In an attempt to streamline the old emergency procedure, a new procedure entitled "Emergency Management Center Procedure" replaces a procedure entitled "Manhattan Control Center Emergency Management Center" that was in effect in July 1999. It is know today as the Incident Command Structure. I can say that the ICS is more structured than the process used in 1999.
V-3	Con Edison should implement a rigorous training program to ensure that all its employees are adequately trained in emergency procedures	While the company has an ongoing training program, there may not be adequate follow-up on lessons learned in training exercises.
V-4	Con Edison should review its process of appealing to the public for conservation during system emergencies to determine the effectiveness of its approach and whether other actions might be more effective (e.g., appeals from appropriate government officials, working with public officials to spread information, coordinating with agencies of the City of New York. etc.).	Several of the tasks the company identified to implement this recommendation are questionable, in terms of what the company did then and LIC. For example, the company stated it would review existing procedures for notification of system stresses prior to and during an emergency. Two tasks were to identify, evaluate & if appropriate, integrate new procedures, including sound trucks for public notification and to identify the type of system conditions that would trigger notification procedures. Staff has no knowledge of the company's efforts with regard to these actions. Furthermore, the company does not know if its appeals are effective in getting customers to reduce electric use.
V-5	Con Edison should evaluate the efficiency and effectiveness of its processes for dispatching and setting up its mobile command center.	The company now has 2 vans which enabled the company to have a presence in 2 locations in the network during the outage. However, the vans stayed in their original locations, thus limiting the presence in the effected areas.

**ATTACHMENT F**

**WASHINGTON HEIGHTS RECOMMENDATIONS STATUS**

PSC	RECOMMENDATION	IMPLEMENTATION RESULTS: IMPACT ON LIC NETWORK
V-6	Con Edison should evaluate its processes for supplying up-to-date status reports to its mobile command centers. It should also ensure that information provided to customers during system emergencies support current emergency needs.	Since a recommendation in the LIC report was that the company should identify ways to use its outreach van and staff more fully, including providing instructions to its van personnel to count customers they interact with & to keep records of issues & questions, it appears that the WH recommendation was not adequately implemented. One of the LIC findings was that there were no instructions for the van staff to report to senior Company officials about conditions in the network.
V-7	Con Edison should convene focus groups with customers in areas affected by the July 1999 outages to discuss how communication can be improved during emergency situations. Con Edison should seek the participation of the advisory boards in this process.	The company did implement this recommendation, but since there were numerous communications improvements that were identified this year, questions arise about what the company did. After WH, the company was to work with local organizations in no fewer than 6 communities which experienced outages during '99 throughout the service territory. Based on customer input, Public Affairs was to incorporate practical communication recommendations in communication procedures.
V-8	Con Edison should strengthen its emergency procedures to ensure that a knowledgeable and trained Emergency Information Coordinator is assigned in a timely way to support the communication processes during emergencies.	During LIC, an incident commander was assigned on July 18, when the 1st 10th contingency occurred.
V-9	Con Edison should run practice drills to simulate emergency situations. These drills should involve all employees likely to be involved if a system emergency arises and should ensure that clear communications are maintained between staff from the electric control center, field operations, call center, public affairs, and media relations.	Con Ed has conducted emergency practice drills.
V-10	The company should develop more detailed procedures for providing information to public officials and community leaders during system emergencies, including a broader list of community leaders.	While the company's implementation of this recommendation appeared to adequately satisfy it, questions arise about lessons learned from the WH, in light of the LIC outage.
V-11	Con Edison should take advantage of the existing network of community-based organizations to assist in its efforts to provide affected customers with information about the problem, restoration information, updates, and the claims process.	This is what Con Ed stated it would do to implement this recommendation: develop a database of community & civic organization leaders (by group - seniors, physically challenged, healthcare), periodically update the database to maintain the integrity of the contact info, and develop a plan to activate notification process for use during an emergency. Again, serious questions arise about this implementation, especially whether they followed the last step (to activate the notification process.)
V-12	Con Edison should review non-business hours staffing levels for its Call Center during system emergencies.	The company's Call Center staffing levels were reasonable during non-peak hours.
V-13	Con Edison should implement procedures to monitor the quality and timeliness of information conveyed to customers during an emergency situation.	Given that several events have happened since WH, it is questionable whether the company has revised its own procedures, as it stated it would in the implementation of this recommendation.
V-14	Con Edison should review its procedures for contacting "Concern" customers during system emergencies; revise these procedures, as needed; and follow these policies.	The procedures have been updated - new procedures appeared to have been followed during LIC.

**ATTACHMENT F**

**WASHINGTON HEIGHTS RECOMMENDATIONS STATUS**

<b>PSC</b>	<b>RECOMMENDATION</b>	<b>IMPLEMENTATION RESULTS: IMPACT ON LIC NETWORK</b>
V-15	Con Edison should ensure that it has properly identified and obtained appropriate contact information for all large and/or sensitive customers in its service territory. This information should be updated on an ongoing basis.	To Staff's knowledge, there were no large and/or sensitive customers in the LIC network who were not contacted.
V-16	Con Edison should provide appropriate contact information to all large and/or sensitive customers in its service territory to ensure that they have access to information to support their planning needs. This information should be updated and provided to these customers on a regular basis.	This is a planning recommendation and, as such, did not have a bearing on LIC.
V-17	Con Edison should work with its large and/or sensitive customers to develop an accurate current inventory of the emergency generating capacity installed on these customers' premises. The company should provide assistance, when requested, to ensure that these emergency generators will be utilized optimally in possible future events.	Survey forms were sent to each of its 2,300 large and sensitive customers asking each customer to provide specified information concerning any on-site emergency generation at the customer's premises. Where the Company already had on-site generation information for a customer, the survey form provided that data and asked the customer to confirm or correct the data. Responsive information from customers is entered into the Company's EMOPSYS database. A procedure was developed that implements a process for annually mailing the on-site generation survey to the Company's large and sensitive customers. I believe that the list was updated into the EMOPSYS database on an annual basis.
V-18	Con Edison should consider developing a more formal program for using customer-owned emergency generators as a strategic load management tool during critical distribution system events like that of July 1999.	Con Edison filed tariff leaves instituting a Voluntary Load Reduction Program. The program became effective on August 17, 2000 pursuant to an order of the Public Service Commission issued August 16, 2000 in Case 00-E-1330. The program help reduced Con Ed's load during the LIC outage.
V-19	Con Edison should, as part of its formal reporting responsibilities for system emergencies, prepare a comprehensive evaluation of the effectiveness of its internal and external communication processes.	While the company's implementation of this recommendation appeared to be adequate, staff is not aware that the company has ever prepared a comprehensive evaluation of the effectiveness of its internal and external communication processes.
VI-1	The Commission should direct Con Edison to show cause why, for distribution failures of 12 or more hours in a 24 hour period, it should not increase compensation limits and add compensation for damage to appliance motors.	Pending.
VI-2	The company should develop and submit for Staff review, a form for customers to submit to the company for damage claims.	The forms for residential and commercial claims were developed back in 2000, and used during the LIC outage.
VI-3	In the event of another sustained outage, the company should provide claim forms, in English and other widely used languages, and mail them to each customer in the affected area.	The forms were developed in 2000 and it is in English, Spanish, Polish, Russian, Hindi, French-Creole, Chinese, and Korean.
VI-4	Con Edison should develop ways to disseminate information about the claims process so that customers have realistic expectations about how much reimbursement they can obtain.	In 2000, Con Edison developed methods such as broadcast recorded message on VRU, message on the company's website, media advertisement, letters to affected customers, and outreach efforts to local community organizations, elected officials, and other interested parties. Apparently not all of this were effective during the LIC outage.