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March 2, 2007

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

Re: Case 06-E-0894 , Investigation of Con Edison Electric Power Outages in Long Island
City Electric Network

Dear Secretary Brillling:

Please find enclosed an original and 10 copies of the PULP Comments in Response to Department of Public Service Final 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.

Very truly yours,

A handwritten signature in black ink, appearing to read "Gerald Norlander", is written over the typed name.

Gerald Norlander

Encls.

cc: Judge Stein (via email & regular mail)
All active parties (via email)

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

**Proceeding on Motion of the Commission to
Investigate the Electric Power Outages In
Consolidated Edison Company of New York,
Inc.'s Long Island City Electric Network.**

Case 06-E-0894

**PULP COMMENTS IN RESPONSE TO DPS STAFF FINAL 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**

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Introduction

The Public Service Commission ("Commission" or "PSC") commenced this proceeding to investigate a major failure of Consolidated Edison Company of New York on July 17, 2006 and the following days to provide safe and adequate service to large numbers of its customers in its Long Island City network. In its July 26, 2006 order commencing this proceeding to investigate the outages, the Commission described its purposes as follows:

On July 17, 2006, [Con Edison] began experiencing problems with its distribution feeders concurrent with demands arising from high temperatures affecting New York City. These problems were most pronounced in the company's Long Island City electric network in Queens and resulted in the loss of numerous feeders and extensive customer outages. . . . By this Order, the Commission hereby institutes this proceeding to examine *all* issues associated with the failure of the feeders and the outages in the Long Island City electric network that commenced on July 17, 2006. Staff shall conduct a *comprehensive* examination of the circumstances surrounding the failure of the feeders and the outages, *the events that led to the failures and outages*, Con Edison's response, communication and restoration efforts, the need for changes to Con Edison's practices and procedures to avoid similar failures and outages in the future, and the costs incurred by Con Edison

related to the failures and outages. . . . The circumstances underlying the events described above warrant close examination. In investigating this matter, Staff's review will include, *but is not limited to, the . . . circumstances that led to the loss of the primary feeders. . . .*¹

Staff of the DPS commenced its investigation, and numerous parties intervened in this proceeding, including the Public Utility Law Project of New York, Inc. ("PULP").

On January 17, 2007, DPS issued a Draft "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" ("*Draft Staff Report*"), which was circulated to active parties in the proceeding for their comments.² On January 31, 2007 PULP submitted comments identifying ten areas where further investigation or action is necessary.³

DPS Staff issued its final "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" ("*Final Staff Report*")⁴ and recommendations for Commission action on February 14, 2006. The Final Staff Report did not reference and did not address the issues and areas of

¹ Case 06-E-0894, Proceeding on Motion of the Commission to Investigate the Electric Power Outages In Consolidated Edison Company of New York, Inc.'s Long Island City Electric Network, *Order Instituting Proceeding and Directing Staff Investigation*, (Issued July 26, 2006) (*Emphasis added*).

² The *Draft Staff Report* is available at <http://www.pulp.tc/06E0894SR070117.pdf>

³ *PULP Comments in Response to Department of Public Service Draft 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*. PULP's comments on the Draft Report are available at <http://www.pulp.tc/PULPCommentsonStaffReportJan31.pdf> and comments of other parties are available at http://www.pulp.tc/html/queens_blackout2006.html

⁴ The *Final Staff Report* is available at [http://www3.dps.state.ny.us/pscweb/WebFileRoom.nsf/Web/F813FD973CA2310285257267004B9E83/\\$File/LIC_FINAL_REPORT_FEB_9_07.pdf?OpenElement](http://www3.dps.state.ny.us/pscweb/WebFileRoom.nsf/Web/F813FD973CA2310285257267004B9E83/$File/LIC_FINAL_REPORT_FEB_9_07.pdf?OpenElement)

concern identified in PULP's comments on the Draft Staff Report. The Administrative Law Judge established a schedule for initial comments and replies regarding the *Staff Final Report*.⁵ PULP is an active party in the investigation proceeding, and welcomes this opportunity to respond to the *Final Staff Report*.

Executive Summary of PULP's Recommendations

Staff too narrowly circumscribed the scope of its investigation, and did not sufficiently examine the root causes of the outages in its reports. Accordingly, its recommendations, while generally meritorious, do not fully address the issues presented by the major failure of Con Edison to provide safe and adequate service.

PULP makes the following recommendations to the Commission for action beyond the measures proposed in the Final Staff Report.

1. 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.
2. The Commission should examine the prudence of Con Edison's system operation.
3. 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.
4. 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.
5. The Commission should further investigate the July 12, 2006 outage of Con Edison's load flow management program, "AutoWOLF." and should require Con

⁵ It is expected that some active parties will issue their own reports on the July 2006 Queens power outages. In addition, a legislative special Task Force issued a report on January 30, 2007. It is available at http://www.pulp.tc/Queens_Task_Force_Rpt.pdf

Edison to archive load flow program records.

6. 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.
7. The Commission should adopt voltage and other power quality performance standards.
8. The Commission should revise SAIFI/SAIDI outage performance standards to stop undercounting of Con Edison outages in submetered and master metered buildings.
9. 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.
10. 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.

COMMENTS

1. **The Commission should initiate an independent investigation of outages, grid conditions, disturbances and unusual events that may have affected reactive power supply or increased temperatures prior to the first feeder failure on July 17, 2006.**

The *Staff Final Report* ignores all grid events occurring before the first feeder outages.

Staff followed instead the event time line put forward by Con Edison in its reports.⁶ The Con Edison and Staff characterizations of the outage begin with unexplained equipment failures on

⁶ See Consolidated Edison *Initial Report on the Power Outages in Western Queens in July 2006*, August 2, 2006, available at http://www.dps.state.ny.us/Con_Ed_Summer_2006_Reliability_Report_06E0894.pdf and Con Edison *Comprehensive Report on the Power Outages in Northwest Queens in July 2006*, October 12, 2006., available at Con Edison website, www.coned.com

the afternoon of July 17, 2006, without probing the specific cause of those failures, and without discussion of some unusual events and conditions preceding the first feeder failure. For the reasons set out below, the Commission should initiate an independent investigation to examine outages, grid conditions and unusual events affecting reliable and safe operation of Con Edison's system in the days and hours prior to the time line and events discussed by Con Edison and Staff.

On July 12, 2006 – the Wednesday immediately preceding the Long Island City network outage beginning Monday July 17, 2006 – federal and NYISO officials testified before the Committee on Government Reform, Subcommittee on Energy and Resources, United States House of Representatives and expressed their concerns regarding the reliability impact of outages of two major Con Edison transmission lines to New York City that had failed in late June 2006.

Federal Energy Regulatory Commission (“FERC”) Chairman Kelliher testified:

“During the last two weeks, two of four major transmission lines into New York City from upstate New York have failed. They will be for some time [sic]. Our Division of Reliability is consulting closely with the affected transmission owner to ensure that the outages have no reliability effects. *Nonetheless, the loss of these two lines means that New York City as well as Long Island will be tested during any periods of sustained hot weather.*” (*Emphasis added*).⁷

Chairman Kelliher's concerns were echoed by those of the New York Independent System Operator (“NYISO”), manager of the bulk power grid in New York. Mark Lynch, the CEO of the NYISO, also testified to the same House Committee on July 12, 2006 regarding vulnerability of the New York City area to blackouts:

It is important to note that, notwithstanding an overall positive outlook for the summer, recent *unplanned outages on two major subterranean transmission*

⁷ Testimony of Joseph T. Kelliher Chairman, Federal Energy Regulatory Commission Before the Committee on Government Reform Subcommittee on Energy and Resources United States House of Representatives July 12, 2006, p. 5. (*Emphasis added*). The testimony of FERC Chairman Kelliher is available at <http://www.ferc.gov/EventCalendar/Files/20060712145318-kelliher-test-07-12-06.pdf>

cables into New York City occurred following the issuance of the Summer Assessment. These outages, *which are expected to continue until early to mid-August*, have added to the challenges of dealing with summer demand in New York City. The NYISO has worked with Con Edison, the local utility that owns the cables, to implement plans to address this situation, including coordination with neighboring PJM to address various operating contingencies. The new generating capacity that has been brought online in New York City has been helpful in dealing with this situation and the city continues to meet all applicable reliability criteria. ***However, the possibility for voltage reductions or controlled, localized load shedding remains somewhat elevated under extreme weather or the loss of additional facilities. (Emphasis added).***⁸

Clearly, the officials responsible for oversight of the electric grid in New York and the nation were concerned enough about Con Edison's system to testify to Congress about the possibility of further outages, in addition to the two transmission line outages. Their testimony sounded the alarm that there might be a need for voltage reductions or other localized load shedding in hot weather. The precise nature of their concern is not yet known, but is the subject of PULP's FOIA inquiries to FERC.⁹ We understand that Con Edison is seeking to suppress release of unidentified NYISO documents in the possession of FERC on the basis of claimed "critical infrastructure security" concerns. While PULP is not yet privy to Con Edison's representations to FERC, the location and function of transmission lines and generating facilities in proximity to the Long Island City network are in the public record and readily available. For example, one of the transmission lines, from Westchester to Queens, about which the FERC Chairman and

⁸ Testimony of Mark Lynch, NYISO CEO before the Committee on Government Reform, Subcommittee on Energy and Resources, United States House of Representatives, Testimony available at <http://reform.house.gov/UploadedFiles/7.12.06%20Lynch%20Testimony.pdf>

⁹ As of March 2, 2007, FERC had not provided any documents in response to PULP's pending Freedom of Information Act ("FOIA") request made on August 29, 2006. FERC identified more than 200 documents within the scope of PULP's request regarding the Con Edison transmission line outages and the warning of Chairman Kelliher in his July 12 testimony, but continues to review them internally for eventual release to PULP.

NYISO CEO expressed concern is the same line 71 whose location is described in an NYISO report investigation of allegations that Con Edison had previously been slow to repair it after an outage in an effort to increase its transmission congestion contract (“TCC”) revenues.¹⁰

Five days after Congress was advised of the situation, on July 17, New York State had a heat wave that resulted in record statewide electricity usage.¹¹ On the afternoon of July 17, there were secondary system electrical fires and by evening of July 17 Con Edison shed load by reducing voltage in the Long Island City Network. Also, on July 18 - 19 Con Edison shed load by reducing voltage in its Jamaica Network.¹²

Thus, the load shedding events and outages foreshadowed by FERC and NYISO officials actually occurred five days later. Yet neither Con Edison nor Staff mention the warnings, and neither have claimed that the reliability concerns of FERC and NYISO were unrelated to the

¹⁰ “The 71 Dunwoodie-Rainey line (“the 71 line”) is a high-pressure fluid-filled cable approximately 15 miles in length. It is an underground facility that runs from Dunwoodie, which is north of New York City, to Queens. Consolidated Edison (Con Ed) owns and maintains the line, which was installed in 1963. This facility reduces the transfer capacity of the Dunwoodie-South interface by 700 MW when it is out of service. The Dunwoodie-South interface governs the amount of energy that can flow south into New York City and any limitation on this interface significantly impacts both the energy flow into New York City and energy prices within the city.” *MMP Investigation of Con Ed 71 Line Outage*, NYISO, available at http://www.nyiso.com/public/webdocs/services/market_monitoring/investigations/line71_outage.pdf The NYISO found no effort to manipulate TCC markets by repairing the line slowly. The NYISO report does not address the possible effects of an extended transmission line outage on Con Edison’s revenues from its in-city generating plants or its natural gas service revenues at times when, due to reduced transmission import capacity, in-city natural gas fired generation, including Con Edison units, are more likely to be dispatched.

¹¹ “A mid-summer heat spell drove statewide electricity usage to 32,624 megawatts (Mws) on July 17, breaking a record set in July 2005.” NYISO Connection, Summer 2006, available at http://www.nyiso.com/public/webdocs/documents/newsletters/connection/nyisoConnection_summer2006.pdf

¹² Con Edison response to PULP IR #51. Voltage was reduced by 8% in an effort to shed load in the Jamaica Network after three feeders failed. Apparently, customers were not notified.

events in the LIC network.

In addition to the heat wave, the FERC and NYISO officials expressed concern about the impact on reliability in New York City if another outage, in addition to the outage of the Con Edison transmission lines between Westchester and New York City, should occur. There are strong indications of an outage or other grid disturbance which occurred at 3:25 PM on July 17, approximately 25 minutes before the first Con Edison feeder failure. Specifically,

- NYISO records indicate an abrupt New York City load reduction of approximately 95 MW, at 3:25 PM¹³
- NYISO records indicate there was a “large event reserve pickup,” at 3:25 PM¹⁴
- Con Edison secondary system voltage sensor data indicates that there was a temporary spike in the number of sensors indicating voltages lower than 126 volts, at 3:25 PM¹⁵
- NYISO real time energy prices for Long Island and New York City more than quadrupled, at 3:25 and 3:35 PM, respectively.¹⁶
- NYISO real time prices for spinning and operating reserves spiked at 3:25 PM¹⁷

¹³ See NYISO real time load records attached to PULP IR # 68, showing two entries for 15:25, with an approximately 95 MW instantaneous drop in NY City load at the second 15:25 entry. http://www.pulp.tc/PULP_s_65_-_72.pdf

¹⁴ See NYISO Operator Messages indicating a “large event” at 15:25:14. A “large event” requiring NYISO dispatchers to call upon operating reserves is consistent with an unscheduled outage of a power plant. See NYISO records of Operator Messages, available at www.NYISO.com, and attached to PULP 28.3.

¹⁵ 193 sensors in the LIC Network showed secondary voltages below 126 Volts at 3:25 PM. Subsequently, that number dropped, even as load picked up. See attachment to PULP IR # 68.2 http://www.pulp.tc/ConEd_Voltage_Analysis_-_071706_-_Hour_16_Sags_Load.pdf

¹⁶ See PULP IR # 70, showing Long Island zone real time prices went from approximately \$467 at 15:20 to \$1608 at 15:25, and PULP IR # 70, showing NY City zone real time prices more than quadrupled, from approximately \$184 at 15:25 to \$924 at 15:35. http://www.pulp.tc/PULP_s_65_-_72.pdf

¹⁷ NYISO data indicates that real time prices for 10 minute spinning and 10 minute operating reserves in the NYISO East zone ancillary services markets rose on July 17, 2007 from \$47 at 15:25 to

In sum, these facts suggest that a generator may have tripped off line at 3:25 PM on July 17 – the very circumstances the FERC Chairman and the NYISO CEO said could lead to voltage reductions and other localized load shedding. Con Edison has not provided any information regarding these events, and Staff has displayed a similar lack of curiosity.

In discovery, Con Edison has acknowledged that with reduced import capability as a result of its transmission line outages, New York City was more dependent upon local generators for both energy and reactive power. Reactive power (measured in megavars) is an essential component of electric service, the need for which increases with the use of appliances having motors, such as air conditioners. Even if energy (measured in megawatts) is sufficient, a lack of megavars can cause voltage drops, increased current, instability and unpredictable failures.

The Commission needs to investigate whether a generator providing reactive power to the LIC network tripped at 3:25 on July 17, or whether other generators that had been providing reactive power were called to provide megawatts when the NYISO declared a “large event” and called for a “reserve pickup,” which requires immediate production of energy. Significantly, the price of megawatts for Long Island quadrupled at 3:25 and 3:35, indicating a sudden need to call on even the most high-priced power.

FERC recently modified proposed reliability standards to clarify that distribution companies such as Con Edison are part of the bulk power grid for reactive power purposes. FERC is proposing to require distribution utilities to measure and manage their reactive power

\$500 at 15:35.

loads and to acquire sufficient reactive power.¹⁸ Con Edison and other transmission providers, are opposing this assertion of FERC jurisdiction. The Commission is also opposing it on jurisdictional lines. Yet Staff has refused to inquire and assess whether an outage at a critical time may have caused a disturbance or reactive power deficiency that could have been a root cause of the overheating and secondary system fire that triggered the event.

The *Final Staff Report* simply follows the time line of Con Edison's reports. The focus for Con Edison and for Staff is solely on the sequence of 27 kV feeder failures in the Long Island City Network beginning at 3:50 PM on Monday, July 17, 2006. Neither Con Edison, nor Staff, have provided the Commission with insight or understanding of the significant events leading up to that 3:50 PM feeder failure.

At that time, feeder 1Q17 failed due to an adjacent secondary cable that was burning. At 4:22 PM feeder 1Q16 failed due to the same burning secondary cable that was also adjacent to feeder 1Q17. Because the Con Edison network is designed to withstand the loss of only two feeders ("N-2"), this placed the system into jeopardy as temperatures and load rose during the afternoon of July 17. In the evening of July 17, another feeder failed, and due to a malfunctioning circuit breaker on that line, three additional feeders tripped. It was at that point that Con Edison attempted to shed load by reducing voltage in the LIC network by 8%. With five feeders out, the situation then deteriorated further as additional feeders failed. New York City has suggested that the voltage reduction may have increased current, further exacerbating

¹⁸ *New FERC Rules to Impose Voltage Stability Obligations on Local Utilities*, PULP Network, October, 2006, <http://pulpnetwork.blogspot.com/2006/10/new-ferc-rules-to-impose-voltage.html> Discovery indicates that Con Edison does not measure reactive power loads within its distribution networks.

the situation:

An analysis of the Long Island City situation regarding the voltage reduction effect, based on the available information, suggests that the voltage reduction applied by Con Edison from July 17 through July 23 most likely did not reduce the over-current in the affected areas and possibly contributed to additional problems caused by already low voltages in these areas.¹⁹

The order instituting this proceeding indicates that the root cause or causes of the outage were not apparent to the Commission at that time: “*For reasons that are unknown at this time, some of the feeders began to fail; at one point, 10 out of the 22 feeders were out of service.*”²⁰ Neither the Con Edison reports nor the *Final Staff Report* address the root cause of the burning secondary cable that began the chain of events which put the system into N-2 status with the outage of feeders 1Q17 and 1Q16 (when the network was at 94% of its peak load capability). Nor do these reports address the root cause of the failure of 1Q21²¹ (which due to separate breaker failure event cascaded the system into N-5 status). Con Edison generally maintains in its reports that at the time of failure the MW load on each of the failed components was within established load ratings. Regrettably, the *Final Staff Report* follows Con Edison’s approach of not examining the root causes of unexplained secondary system fires. It does not mention the transmission line outages, it does not discuss the warnings of the FERC Chairman and NYISO

¹⁹ Report of New York City, March 2, 2006, at p.81.

²⁰ Case 06-E-0894, Proceeding on Motion of the Commission to Investigate the Electric Power Outages In Consolidated Edison Company of New York, Inc.’s Long Island City Electric Network, *Order Instituting Proceeding and Directing Staff Investigation*, p. 2. (Issued July 26, 2006) (*emphasis added*).

²¹ Con Edison’s report traces the failure of 1Q21 to a fault, which in turn was due to a failed primary cable termination, which in turn was said to be due to “tracking (electrical arcing).” Con Edison October 12 Report at p., 3-17. There is no explanation in Con Edison’s reports or in Staff Reports of why the cable was “arcing.”

CEO, or the voltage data collected through Con Edison's sensors, or the indications from NYISO data of a generator outage having occurred 25 minutes prior to the first feeder failure which may have led to a temporary deficiency of power or reactive power, or some other disturbance affecting stability. Neither Con Edison nor the *Final Staff Report* discusses whether reactive power was sufficient at all times to meet reactive power loads, which increase with air conditioning load.²² Con Edison is generally resisting disclosure in this area, discovery requests remain unanswered, and PULP's pending motion to compel disclosure whether there was an outage event at approximately 3:25 remains undecided.

Con Edison in its reports has portrayed the outage as a freak and unpredictable occurrence, a combination of unlikely events, while Staff has unduly confined the scope of its investigation. In contrast, when FERC conducted an investigation of the 1977 blackout, it set out the goals as follows:

Although the Con Edison power failure of July 1977 was technically different from the 1965 event the 1965 and 1977 events have an important feature in common: in both cases; a low-probability event created an emergency in one sector of the system, and after that event, a combination of equipment malfunctions and incorrect operator actions allowed the emergency to grow to major proportions. It is not possible to prevent an occasional localized power failure. It is possible technologically to reduce to an extremely low value the (probability that such a contingency will lead to a systemwide failure, or to an extended interruption on a major portion of a large system, such as Con Edison's. Just as in 1965, a number of questions require answers

- (1) What were the specific causes of the failure?**
- (2) If equipment malfunctions and operator errors contributed, could they have been prevented?
- (3) To what extent. was Con Edison' prepared to handle such an

²² PULP is conducting discovery on these issues. This process is still underway, although slowed undeniably by Con Edison's resistance to disclosure and by Staff not exercising its investigatory powers to develop the record on these matters.

emergency?

(4) Did Con Edison prudently plan for reserve generation, for reserve transmission capability, for automatic equipment to protect its system, and for proper operator response to a critical situation?²³

In the 1977 blackout, concerns were expressed about reactive power load in Con Edison's system and the relation of reactive power deficiencies voltage stability and a tripped generator:

“The large amount of underground cables, coupled with the location of major baseload generation north of Con Edison's franchise area, creates unusual reactive power and voltage control problems. Abnormal voltages affect the quality of service and potentially can result in machine instability. The tripping of the Ravenswood No.3 generating unit after islanding and automatic load shedding on July 13, 1977, resulted from abnormal network reactive power flow and voltage conditions. Voltage control is expected to become an increasingly severe problem for Con Edison. According to an April 1973 report issued by the Con Edison System Planning Department, a potential peak load, low-voltage problem on the Con Edison system was identified, and a commitment made to study the requirements for system reactive support. Subsequent reduction in peak load estimates have postponed the time when these voltage support devices are needed.”²⁴

While the 1977 blackout was more of a high voltage grid event, the report signals a “potential peak load, low voltage problem.” On July 17, 2006, a day with near peak load, it does appear that there was a low voltage problem in the LIC network. The relationship of low voltage to heat and possible fires in the secondary system, the supply of reactive power, and to possible reactive power supply interruptions or disturbances caused by the outage of a nearby generator at a time when transmission service to upstate was limited due to uncompleted repairs on a failed transmission line all require investigation. None of the corrective actions taken or proposed by

²³ FERC Report on 1977 Con Edison Blackout (1978), available at http://www.pulp.tc/usdept001_050.pdf

²⁴ FERC Report on 1977 Con Edison Blackout (1978), available at http://www.pulp.tc/usdept001_050.pdf

Con Edison or Staff address these factors none of those actions would address recurrence of a similar outage on a hot day in 2007.

Under the circumstances, the *Fianl Staff Report* is not responsive to the Commission's charge to conduct a full investigation. The Commission should direct Staff to conduct further inquiry and investigation into matters leading up to the outage, or the *Final Staff Report* should be augmented by an independent investigation of those matters.²⁵

2. The Commission should examine the prudence of Con Edison's system operation.

The Commission should conduct a prudence investigation into Con Edison's operation and maintenance of its systems, as recommended by Staff.²⁶ The *Final Staff Report* is a rich source of information regarding deficiencies that will not be repeated here.

3. 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.

Of particular concern to public safety and the provision of adequate and reliable service is the operation of the Con Edison system when it is stressed by feeder outages, and the frequent fires and manhole explosions. In its Order commencing this proceeding, the Commission stated, "Con Edison's electric network system is designed such that reliable service is maintained if two feeders in any network are out of service simultaneously. Starting on July 15, 2006, New York

²⁵ After the 1977 blackout, Governor Carey directed that there be an outside investigation, which was completed by an investigator with subpoena power with the assistance of outside counsel. See NY State Report on 1977 Con Edison Blackout (1978), available at http://www.pulp.tc/ny_state_77.pdf

²⁶ "Con Edison's performance in preparing for, and responding to, the outage event was deficient, a gross disservice to its customers. The Commission should initiate a proceeding to consider the prudence of the Company's actions, or lack thereof. The Company failed to fulfill its responsibilities under the Public Service Law." *Final Staff Report* at 9.

City and much of New York State began experiencing temperatures above 90 degrees.”

By 4:22 PM on July 17, the Long Island City Network had lost two feeders. It was at the limit of its design, load was at 94 % of peak capacity, and the network appears to have been operating on the edge of failure as temperatures in the underground system and customer demand driven by air conditioning load increased. Despite this serious situation,

- Con Edison did not invoke any formal load reduction program in cooperation with the NYISO; indeed, it did not do so until the next day, well after the system was in crisis.
- Con Edison did not put out an urgent call to all customers to reduce their usage, and instead made some telephone calls to some large customers, some of whom, for example, Astoria LLC, a merchant power generation company, did not answer.
- Con Edison did not reduce voltage as a cautionary measure then to help shed some load, and reduce strain on the system, as it did the next day in the Jamaica network on July 18 - 19. Rather, voltage was not reduced in the Long Island City Network on July 17 until 18:54, after the fifth feeder had failed at 18:48, at a time when voltage was already low in parts of the system and when further reduction may have been counterproductive by increasing current rather than decreasing load, as New York City has observed.

The Commission should compare the response of Con Edison at this critical juncture with the performance of other utilities when their underground networks are at the limit of their reliability design. Con Edison’s operation of the system was so obviously flawed the Connecticut Commission has made a comparison and indicated that Con Edison’s reaction to a looming crisis when the system was operating at the limits of its reliability design was inadequate, stating

Consolidated Edison appears to have been slow in recognizing and managing a similar developing problem on its system, resulting in catastrophic damage to its system.²⁷

²⁷ See *Report of the New York State Assembly Queens Power Outage Task Force Concerning the July 2006 Power Outage in Consolidated Edison’s Service Territory*, January 30, 2007, p. 26, quoting *Connecticut DPUC Report to the Governor on Electric System Infrastructure and Policies*, Conn. DPUC

PULP recommends that further attention be given to the response of Con Edison when its networks were operating at N-2 contingency levels on July 17. With very hot weather and near-peak loads, and growing demand from air conditioners, the actions taken by Con Edison after the failure of the second feeder seem to be unfocused, without clear objectives to reduce load by any specific amount, and without adequate communication to the public seeking their fullest cooperation in reducing load at a point when the system was highly vulnerable.

The record of the month preceding the LIC Network outage indicates that there were other occasions when N-2 situations occurred, apparently without serious consequence.²⁸ The number of hours in which networks operate at N-2 are hours of heightened reliability concern, and greater threat to continuity of service, even if an N-2 episode comes and goes without customer outages that would register in SAIFI and SAIDI reports.

PULP recommends that Con Edison be required to promptly report the number and duration of all N-2 distribution Network incidents. PULP further recommends that service performance metrics be developed to reduce the number and duration of N-2 episodes, by imposing financial consequences related to the number of hours and times when the system is running at N-2 and customers are at heightened risk of blackouts.

Several of the feeder failures were the result of fires, the cause of which remains unexplained. In a system as large as Con Edison's, it is inevitable that there will be some incidents involving cable fires, manhole fires, transformer fires, and occasional explosions.

Docket No. 06-08-20, Sept. 15, 2006, p. 15. The New York Assembly Task Force Report is available at http://www.pulp.tc/Queens_Task_Force_Rpt.pdf

There needs to be better tracking, however, of the number and seriousness of such events to gauge whether risks to public safety and reliable service are increasing or decreasing. In addition, Con Edison should be required to set objectives to reduce the number of such incidents and performance metrics should be established by the Commission.

4. 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.

Con Edison in its reports claimed that in general, system components that failed were operating within their rated capacities. Staff, in its report, suggest lowering the current capacity ratings. There is another possibility that Staff has not investigated. Inadequate reactive power (MVARS) can also result in overheating of lines or other disturbances.²⁹ “A key characteristic of reactive power demand is the magnitude and speed at which it changes over time. Due to the varying nature of loads, reactive power requirements, both supplying and consuming, can change significantly (and sometimes unpredictably) during the day at the same location.”³⁰

While often a problem in bulk power grid blackouts, reactive power is also a concern in distribution systems. This was underscored recently by FERC, which modified proposed

²⁹Voltage control (keeping voltage within defined limits) in an electric power system is important for proper operation of electric power equipment to prevent damage such as overheating of generators and motors, to reduce transmission losses and to maintain the ability of the system to withstand disturbances and prevent voltage collapse. In general terms, decreasing reactive power causes voltages to fall, while increasing reactive power causes voltages to rise. A voltage collapse occurs when the system is trying to serve much more load than the voltage can support. Inadequate reactive power supply lowers voltage; as voltage drops, current must increase to maintain the power supplied, causing the lines to consume more reactive power and the voltage to drop further.” *Reactive Power Supply and Consumption*, Federal Energy Regulatory Commission Staff Report, February 4, 2005. Available at <http://www.ferc.gov/EventCalendar/Files/20050310144430-02-04-05-reactive-power.pdf>

³⁰ *Reactive Power Supply and Consumption*, Federal Energy Regulatory Commission Staff Report, February 4, 2005, p. 25.

reliability rules to impose reactive power management and acquisition requirements upon distribution utilities, which previously had not been considered to be part of the bulk power system.³¹ PULP's discovery indicates that Con Edison has no way to measure or manage reactive power loads within its distribution networks.

As indicated previously, Con Edison is resisting FERC's new requirement on jurisdictional grounds, and the Commission has supported that position in its comments filed at FERC.³² In these circumstances it is essential for the Commission to assert its authority to investigate and monitor the adequacy of Con Edison's monitoring and management of reactive power within its distribution system.

The Commission should direct Staff to conduct further investigation and improvement of Con Edison's ability to measure and manage reactive power loads within its networks.

5. 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.

AutoWOLF is a computer program that digests vast amounts of data from various sensors within the Con Edison system regarding flows of electricity, and creates status reports which include assessments of which feeders may be overloaded and predictions of which feeders are most likely to fail. AutoWOLF generates video screen displays and text reports, which according to Con Edison's response to PULP discovery, are not archived.³³

³¹ See *New FERC Rules to Impose Voltage Stability Obligations on Local Utilities*, PULP Network, <http://pulpnetwork.blogspot.com/2006/10/new-ferc-rules-to-impose-voltage.html>

³² *New FERC Rules to Impose Voltage Stability Obligations on Local Utilities*, PULP Network, October, 2006, <http://pulpnetwork.blogspot.com/2006/10/new-ferc-rules-to-impose-voltage.html>

³³ "New reports over-write the previous reports and reports are not archived." Con Edison response to PULP IR 56.

According to the Con Edison representatives who spoke at the Technical Conference, this program ceased working on July 12, 2006 (ironically the very same day FERC and NYISO officials predicted possible New York City load shedding and voltage reductions in forthcoming hot weather). A less sophisticated substitute was apparently in use when the feeders began to fail on Monday, July 17. Con Edison attributed the inoperability of AutoWOLF to a software malfunction, which in turn was due to defective upgrades obtained in May, 2006. If there were known defects in the May AutoWOLF upgrades, it is not clear why they were causing problems on July 12 and why they were not corrected until July 18. By that time, there were so many feeders out of service that the predictive capability of the AutoWOLF program in anticipating additional failures was severely limited.

In a prudence proceeding, Staff should further investigate why AutoWOLF was not running and why Con Edison did not archive and retain reports of such systems so that the record of system status, predicted outages, and the sequence of network events, as recorded and anticipated by AutoWOLF or other systems, could be reviewed. The Commission should require retention of these records so that the company's situational awareness and actions can be better evaluated.

6. 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.

At page 46 of the *Final Staff Report* it is recommended that life support customers whose lives or health are particularly endangered by an electricity outage be identified so that emergency services can be provided. PULP suggests that additional attention be paid to this issue forthwith, not only by Con Edison, but also by the Commission.

Submetering is a departure from the general law that only electric companies can provide electricity. A longstanding court precedent definitively established that landlords cannot sell or resell provide electricity to tenants:

It was found that the practice of submetering is parasitic and undesirable, competing with the central service station by selling to ultimate consumers who would be otherwise customers of the company. Profits of the submeterer would otherwise be available for the reduction of rates to other customers or aid in maintaining the level of rates in a period of rising costs. Under the present provisions of the Public Service Law service to the customers of a submeterer cannot be regulated although *such users should be entitled to the same protection as a direct user of the company's service*. These findings are not only supported by the record but, in our opinion, are almost self-evident propositions, requiring but slight proof to support them.³⁴

Despite this established precedent,³⁵ the Commission has been circumventing it by allowing owners to submeter if tenants pay no more than they would have paid to Con Edison and if their HEFPA rights are observed. Under this “no harm, no foul” approach to departures from the Public Service Law as interpreted by the state’s highest court, the Commission engrafts these conditions into all its submetering orders.³⁶

This event now reveals a situation not encompassed in the current Commission rules and practices allowing submetering. A life support customer may not be identified as such because

³⁴ *Campo v. Feinberg*, 279 A.D. 302 (3d Dept. 1952), *affirmed* 303 N.Y. 995 (1952)(*emphasis added*). Available at <http://www.pulp.tc/CampovFeinberg.pdf>

³⁵ *Campo v. Feinberg, supra*, was affirmed by the New York Court of Appeals, the State’s highest court, and its interpretation of the Public Service Law regarding submetering has not been superceded by legislative changes. .

³⁶ As a result, a submetering customer who is aggrieved by the provision of service from an entity other than the utility at higher cost or in violation of HEFPA would have a remedy under the PSC submetering order, the Commission could correct violations because it has primary jurisdiction of complaints, and if a customer still aggrieved after pursuing Commission remedies sought judicial relief, a reviewing court might rule on the narrow issue of compliance with a submetering regulation rather than address the power to allow any submetering.

she is no longer a customer of the utility, and there is no duty imposed upon submeterers with respect to their identification, notification, and emergency services. Thus, a life support customer living in a submetered building may not receive emergency services in a blackout.

The Commission commence a generic proceeding to review the public service obligations of utilities and submeterers with respect to identification of life support customers and the provision of emergency service to them.

7. The Commission should adopt voltage and other power quality performance standards.

The Staff Report touches on the issue of power quality and low voltage, and recommends that Con Edison report to the Commission its estimate of how many outages and low voltage conditions existed during the Long Island City network event.

The Commission should do more. There should be a review of other voltage reductions and their impact upon customers, such as the Jamaica Network voltage reduction apparently implemented without notice on July 18, and a new generic proceeding to establish power quality standards.

In addition, under current performance standards, the utility is accountable only when service is off. A low voltage situation simply does not count as an interruption of service. Performance standards need to be reviewed by the Commission and strengthened.

8. The Commission should revise SAIFI/SAIDI outage performance standards to stop undercounting of Con Edison outages in submetered and master metered buildings.

As pointed out by the Assembly Task Force report at p. 19 -20, the Commission's methods of measuring customer outages (SAIFI and SAIDI) may undercount them in Con Edison service territory because buildings that are master metered or submetered may be occupied by

many tenants, but are considered to be only one customer for purposes of the service interruption metrics. Con Edison's vaunted high reliability statistics may be more reflective of the urban character of its service territory and the prevalence of master metering and submetering than a true reflection of service quality. Also, the SAIFI and SAIDI standards do not capture low voltage incidents. The Commission should change these standards or adopt additional standards to achieve a truer measure of reliability of Con Edison service.

9. **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 concurs with Staff's recommendation to commence a proceeding to review Con Edison prudence in the operation and maintenance of its system.³⁷ There should also be a review the impact of any costs incurred due to imprudence on the Con Edison earnings sharing mechanism. In the current rate plan, adopted in Case 04-E-0952, earnings over 11.4% and up to 13% will be shared on a fifty-fifty basis between customers and Con Edison. Earnings over 13% will be shared 75% for customers and 25% for the company.

Con Edison will file reports for its 2006 -2007 rate year in or about June, 2007. If Con Edison incurs, as is inevitable, substantial additional costs to repair its Long Island City Network, normally those costs would decrease earnings. It follows that if Con Edison is in an overearnings situation, those repair costs will decrease amounts that otherwise would be returned

³⁷ "Con Edison's performance in preparing for, and responding to, the outage event was deficient, a gross disservice to its customers. The Commission should initiate a proceeding to consider the prudence of the Company's actions, or lack thereof. The Company failed to fulfill its responsibilities under the Public Service Law." *Final Staff Report* at 9.

to customers. Only 25% or 50% of the incremental outage costs would ultimately be borne by Con Edison if it is otherwise overearning. Accordingly, if the Commission finds that any repair costs or other costs related to the outage were caused by imprudent conduct of Con Edison, then those costs should be disregarded for purposes of earnings sharing calculations.

10. **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.**

The Assembly Task Force Report identifies a serious flaw in the Commission's performance quality measures, in that any financial consequences for failing to meet service reliability standards are deferred until the next rate case.³⁸ PULP agrees with that analysis.

In addition, there are serious problems not only in delaying sanctions for poor service reliability but also in distributing the financial redress. Under the current system, all customers in theory receive a slight financial benefit when deferred financial performance sanctions are allocated to customers in the next rate case. It makes no sense for customers in Manhattan and Westchester to benefit from the misery of customers in Queens. Yet this is the result of Commission policy, adopted in a prior case involving the allocation of service performance monies.³⁹ The prior order rejected a request from New York City to allocate funds related to

³⁸ See Report of the New York State Assembly Queens Power Outage Task Force Concerning the July 2006 Power Outage in Consolidated Edison's Service Territory, January 30, 2007, p. 19 - 23. The New York Assembly Task Force Report is available at http://www.pulp.tc/Queens_Task_Force_Rpt.pdf

³⁹ Case 00-M-0095, Joint Petition of Consolidated Edison Company of New York, Inc. and Northeast Utilities for Approval of a Certificate of Merger with All Assets being Owned by a Single Holding Company; Case 96-E-0897, In the Matter of Consolidated Edison Company of New York, Inc.'s Plan for (1) Electric Rate Restructuring Pursuant to Opinion No. 96-12 and (2) the Formation of a Holding Company Pursuant to PSL, Section 70, 108, and 110, and Certain

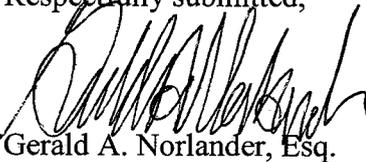
service quality performance deficiencies to the areas that had suffered the deficiencies. If, as suggested by Staff's reports, Con Edison may be subject to \$9.6 million in service performance sanctions, it makes no sense to give that back to all customers including those who suffered no loss of service. Instead, such funds should be directed to customers in the area of the outage, through measures such as enhanced compensation, load reduction, and enhanced energy efficiency programs for low income consumers that will both reduce load and consumer burdens.

CONCLUSION

PULP urges the Commission to adopt the recommendations set forth above, and to take such other and further measures as it deems appropriate to assure safe and adequate service to Con Edison customers.

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Respectfully submitted,



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Related Transactions; and Case 01-M-1263, In the Matter of Emergency Restoration of Utility Service to New York City, ORDER CONCERNING RELIABILITY PERFORMANCE MECHANISM, (Issued October 22, 2003), available at http://www.pulp.tc/PSC_Reliability_Performance10-22-03.pdf