

LONG ISLAND POWER AUTHORITY

**Tropical Storm Irene Storm Report
August 28 – September 5, 2011**

Submitted to the New York State Public Service Commission

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1.0 Executive Summary

Beginning late evening August 27, 2011, the Long Island Power Authority (LIPA) service area began to experience the devastating effects of Tropical Storm Irene. With sustained winds of 40-50 MPH and gusts in excess of 90 MPH, Irene was the most impactful storm to hit Long Island since Hurricane Gloria in 1985. Tropical force winds, coupled with heavy rain and flooding, downed trees, poles and power lines, leaving 523,000 LIPA customers without power. Nonetheless, in just over a week, power was restored to all customers affected by the storm thanks to the many men and women of National Grid, LIPA, Local 1049 and the “Off-Island” Linemen and Tree Trim personnel that worked tirelessly to restore power under often very difficult conditions.

Responding to an event such as Irene is an immense undertaking. It takes much focus and coordination and involves the execution of numerous activities, many of which go unnoticed by the public. To share some perspective, over the course of the storm restoration period, we:

- responded to nearly 19,000 damage locations associated with the 523,000 customer outages
- secured and provided nightly lodging for over 3,500 off-Island personnel involved in the restoration effort
- quickly established three temporary shelters with the Red Cross at Suffolk County Community College, Nassau Coliseum and Bay Shore High School with the capacity to bed over 2,500 line workers and tree trim crews when hotel accommodations became scarce with the arrival of the Labor Day holiday weekend, the start of the Hampton Classic and the ongoing US Open Tennis Championship
- dispensed over 250,000 gallons of fuel at remote locations such as hotels, shelters and staging sites to refuel trucks on the overnight in preparation for morning activities
- set up numerous material handling sites to pre-stage materials across Long Island, including the use of runway areas at Brookhaven and East Hampton airports, as well as Bethpage State Park and CW Post University
- established truck/vehicle staging locations at Christopher Morley Park and subsequently Nassau Coliseum where all of the arriving off-Island line and tree trim crews were provided a safety briefing and issued their storm kits
- made over 800,000 outbound calls to customers to set expectations, validate outage information and provide restoration updates as they became available
- assigned resources to towns and villages to address “wire downs” and “road clearings”, while balancing the demand for such resources with other necessary restoration activities

- replaced approximately 900 poles, 1,000 transformers, 80 switches, and over 1 million feet of wire and cable

Activities such as these involve much preparation and planning, and a tremendous amount of effort is spent each year to train and drill our employees for their roles in such events. National Grid employees serving LIPA, as well as National Grid employees from other business units have a designated storm assignment in addition to their normal day job. National Grid's regional presence permits the leveraging of other State and regional National Grid resources to rapidly assist in LIPA's restoration efforts. During the course of the year, these employees participate in table top drills and extensive emergency restoration field training exercises that simulate actual events and provide the proper training to enable them to fulfill their roles during actual storm events.

In the case of Irene, nearly 5,100 Long Island and Downstate NY National Grid employees took on such roles, with approximately 4,000 or 80% of these resources coming from areas outside the Long Island Electric Operations organization. In particular, these resources were supplied from National Grid's Gas, Generation and Shared Services organizations that are co-located with electric operations on Long Island and in other contiguous areas in Downstate NY. Working as field damage assessors, low voltage service crews, crew guides and logistics support, they helped to affect a successful restoration effort, the absence of which would most certainly lead to a much longer and less effective restoration effort.

Preparation for the actual arrival of Hurricane Irene began many days in advance of her making landfall on Long Island. In accordance with well established Emergency Response Implementation Plans (ERIPs), weather reports were closely monitored and storm preparation meetings were initiated several days prior to the storm. During these meetings and those which continued twice per day during the course of the event, tactical and strategic decisions were made. Requests for off-Island high voltage linemen and tree crews were also initiated approximately 96 hours prior to the storm's arrival. Simultaneously, efforts were launched to establish a crew processing center and contact was made with the MTA Bridges and Tunnels, the Department of Transportation, Office of Emergency Management and local police departments to expedite the receipt of these off-Island crews as they travelled to Long Island to assist with the restoration.

Per the ERIPs, contact was also made with counterparts from the Long Island Rail Road, Verizon and the Nassau, Suffolk and New York City Offices of Emergency Management to reinforce and discuss the coordination of activities, while outreach to elected officials and local municipalities commenced. In addition, calls were placed to all Critical Care customers to advise them of the impending storm and encourage them to take appropriate preparatory actions. Outreach to all large managed accounts was also initiated, with an emphasis on hospitals, nursing homes, schools, and wastewater treatment facilities. Utilizing a number of communications mediums, pre-storm messaging was also launched to our customers and employees, advising them of the upcoming storm and providing tips for hurricane preparation. Messaging centered on the potential for severe storm damage and stressed the need to focus on safety. Such contact and communication was maintained throughout the course of the restoration effort with messaging adapted to address the changing conditions.

Given this preparation, and the careful and coordinated execution of our procedures, we were able to immediately fully deploy resources once the storm had passed and it was safe to do so. Accordingly, earlier than forecast, restoration efforts began on Sunday afternoon August 28. A detailed damage assessment of LIPA's transmission, substation and distribution facilities was initiated and efforts were launched to begin repairing the "backbone" of the electrical system, with a strategy in place to restore the sixty-one transmission lines and twenty two substations that had experienced a "loss of supply". Restoration efforts followed a structured approach such that the outages affecting the largest number of customers were restored first. Priority was also given to restoring areas affecting public health and safety. As a result, neighborhood and single customer outages were addressed later in the process, but by doing so, enabled the largest number of customers to be restored most quickly.

Based on the anticipated damage from Irene, 2,000 off-Island high voltage linemen were requested through the Utility Mutual Assistance Groups. However, given the widespread devastation of Irene up and down the east coast from Florida to Maine, and the resulting tremendous demand for these resources, LIPA received only 1,000 additional high voltage linemen and was left with no alternative other than to execute its restoration plan with only half of these targeted resources for the first five days of the restoration period. In spite of this constraint, within 24 hours of the storm passing, approximately 178,000 or 34% of all LIPA customer outages and all substations that had experienced a "loss of supply" were restored. Within two days, the majority, 283,000 or 54% were restored and after three days, 358,000 or nearly 70% were restored. In addition, LIPA successfully delivered on each of its commitments to have all hospitals restored by Tuesday, all school outages completed well in advance of the start of the school year that was scheduled for early the following week, 90% of all customer outages restored by Friday September 2 and 99% restored by Sunday September 4.

On the evening of Thursday, September 1, National Grid New York completed restoration activities in upstate NY. Subsequently they released an extremely large contingent of high voltage linemen and contractors to Long Island to assist LIPA's restoration effort, with many arriving and working on Friday, September 2. The addition of these National Grid Upstate New York linemen and high voltage contractor crews to Long Island greatly increased our ability to restore electric service to the remaining LIPA customers and by Monday, all 523,000 customer outages were restored.

While much of the overall restoration response was well executed, certain shortcomings were evident relative to meeting the communications expectations of our customers and elected officials. Specifically, in an age where customers have come to expect immediate real-time information through computers, smart phones and the ever-present Internet, efforts fell short in providing the desired restoration information in terms of frequency of updates on progress and projections, visibility to where repair crews were working and customer/area specific outage restoration information. This in turn caused frustration among these stakeholders and diminished perceptions regarding the highly successful restoration effort.

During events associated with such wide spread damage to the T&D system, LIPA's storm restoration procedures call for a decentralized restoration model to best manage the large workforce and position crews in locations closest to the damage. In addition, localized knowledge

of the damage locations can be better applied by the on-site supervisor at the substation level, thereby increasing the overall effectiveness of dispatching jobs to crews. Unlike normal operations, this mode of operation precluded the ability to link specific customers with the outage job being worked. As a result, quicker and more efficient restoration came at the sacrifice of somewhat less robust customer communications. To further exacerbate the situation, efforts fell short on communications with elected officials. Notwithstanding the lack of specific outage restoration information, an increased focus on providing timely updates to these stakeholders would have proved beneficial and equipped them to better communicate with their constituents.

From a positive perspective, focused efforts were made to communicate with areas of public health and safety (i.e., hospitals, nursing homes, water districts, sewage pumping stations, etc.) to ensure the appropriate dissemination of information and proper attention to restoring such facilities. Public school districts were also provided a heightened focus, with prioritized restoration and proactive communication to school administrators and facilities personnel. Additionally, the use of new communications mediums, including a totally revamped Storm Center Web Site and the use of both Facebook and Twitter were successfully launched.

Opportunities also exist for better coordination with local towns and villages with respect to public roadway access, debris removal, downed wires and traffic signal restoration at critical intersections. During the storm restoration effort, it became evident that the perceived lack of coordination in certain areas added inefficiencies to the process and left many towns and villages requesting utility support to de-energize downed electrical lines so that their DPW personnel could execute their responsibilities. Efforts were made during the restoration to alleviate this concern while balancing this need with competing demands for such resources which were further exacerbated by the limited number of off-Island linemen available to support the restoration effort. As a result, efforts will be undertaken to establish a formalized process to prioritize and address such critical needs on a going forward basis.

In summary, history has shown the value of thorough preparation and the execution of pre-established plans. In fact, our restoration response to the March Nor'easter of 2010 that left over a quarter a million Long Island customers without power resulted in National Grid and LIPA receiving the prestigious Emergency Response Award from the Edison Electric Institute (EEI) for its efforts. As part of the "After Action Review" for that event, we identified and adopted many lessons learned that only made our recent effort that much better. We continue to be committed to continuous improvement and thus look to learn from and improve upon this performance as well.

2.0 Introduction

Hurricane Irene was a tremendous storm (see Figure 2.1), similar in size to Hurricane Katrina. As it moved up the east coast, hurricane force winds extended outward up to 90 miles from the center (180 miles wide), with tropical storm force winds extending outward up to 290 miles (approximately 600 miles wide). Just prior to making landfall in the New York metro area, winds dipped slightly below hurricane force, and beginning late Saturday evening, August 27 and continuing into Sunday August 28, Long Island felt the effects of Tropical Storm Irene with strong tropical force winds and heavy rain. Sustained winds in the 40 – 50 mph range, with measured gusts in excess of 90 mph were experienced and heavy down pours amounted to more than 6 inches of rain causing flood conditions across the Island. Saturated ground conditions accompanied by these high winds, caused a significant number of downed trees causing failure of utility poles and power lines (See Exhibit 1 for detailed rainfall and wind summary information from National Weather Service).

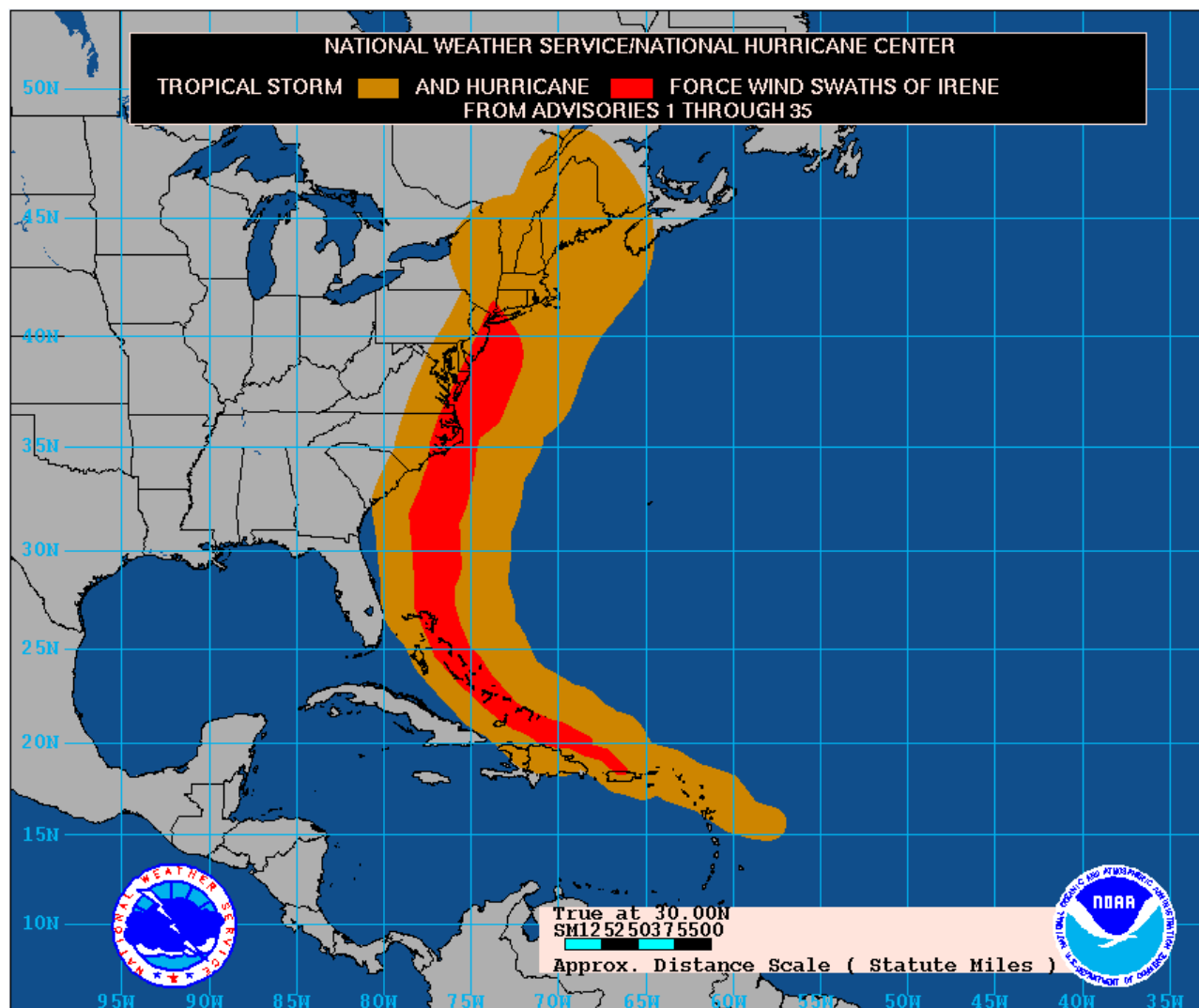


Figure 2.1

In total, 523,000 LIPA customers were affected by this weather system. In response, over 8,000 restoration and support personnel worked tirelessly around the clock removing trees, replacing poles and fuses, repairing power lines and other equipment and resetting transformers. By Monday, September 5, just over a week since the storm hit Long Island, all customer outages were restored. This proved to be the largest storm event experienced by LIPA's electric T&D System in almost twenty six years. The last event to have a similar impact was Hurricane Gloria that occurred in September 1985, leaving 750,000 customers without power.

The photographs below illustrate the magnitude of the storm's damage and its devastating impact on Long Island.



Storm damage across Long Island was widespread, with all four operating divisions feeling the effects of the storm (see Figure 2.2 for divisional breakdown of LIPA's service territory). In total, nearly 19,000 damage locations were associated with the 523,000 outages experienced. In comparison, during Hurricane Gloria in 1985, a similar number of damage locations (18,730) yielded 750,000 customer outages, nearly 50% more than Irene. This further emphasizes the extent of the damage experienced from Irene.

Table 2.1 below illustrates how the damage locations and customer outages from Irene were distributed across the four operating divisions. In addition to these outages, each of which required a crew and in most cases tree removal support to affect a repair, more than 7,200 reports of downed wires were received, analyzed and dispatched to survey crews.

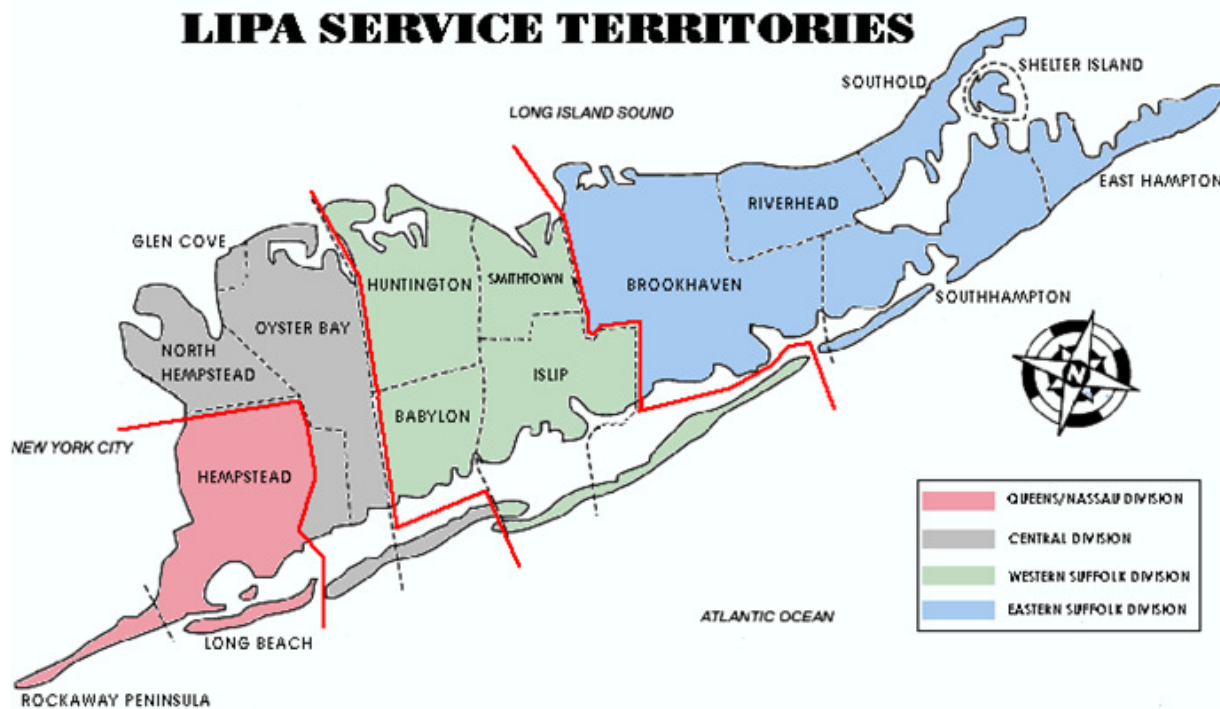


Figure 2.2

Table 2.1: Total number of Customers Affected and Outage Jobs by Division

Operating Division	# of Customers Affected	# of Damage Locations
Queens-Nassau	62,630	1,601
Central	119,607	6,950
Western Suffolk	175,401	6,026
Eastern Suffolk	165,362	4,349
Totals	523,000	18,926

The areas highlighted in red in Figure 2.3, illustrate the expansiveness of the storm and how all regions across Long Island were affected. Repairing this damage required 900 poles, 1,000 transformers and 200 miles of wire to be utilized. In total, there were 61 transmission circuits lock outs, 22 substation outages and 175 distribution circuit lock outs. In addition, there were 3,847 primary “wire-down” jobs, 2,712 blown line fuses, 2,138 secondary “wire-down” jobs, 1,540 transformer jobs and 5,609 single customer outages.

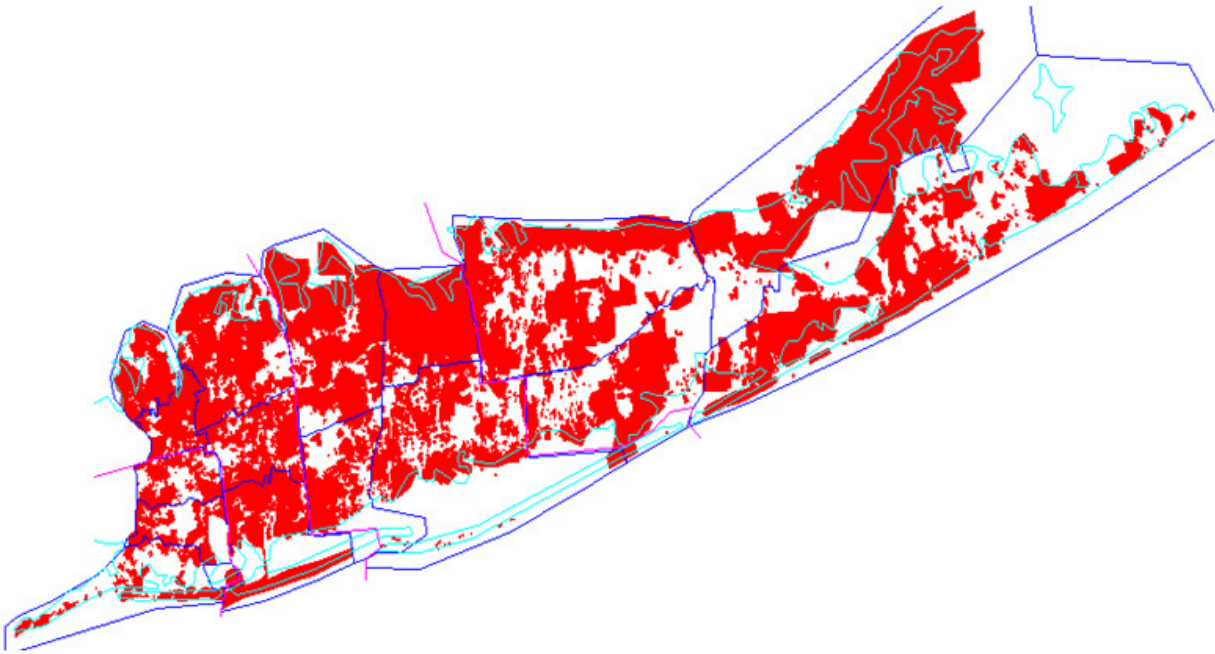


Figure 2.3

Conclusions

- Although this was the biggest storm to hit Long Island in over 25 years, all 523,000 customer outages were restored in just over a week, with LIPA meeting all publically communicated restoration targets. This was accomplished in spite of receiving only half of the required linemen for the majority of the restoration period.
- The wide spread damage on the east coast made obtaining the number of required high voltage line crews difficult until well into the restoration period.
- The available resources were properly utilized to most expeditiously repair the transmission and distribution system, while working with the highest regard for safety.

3.0 Pre-Storm Preparation

3.1 Emergency Plans

LIPA has established Restoration Plans, which delineate an Incident Command Structure and include Emergency Restoration Implementation Procedures (ERIPs) that govern the response to storms and other natural disasters, civil unrest, major equipment failure, or other emergency events. This includes the mobilization and direction of the Emergency Restoration Organization (ERO), which surveys system damage and repairs the transmission and distribution systems, as well as Emergency Restoration Procedures that address the securing of off-Island utility and contractor crews which are essential elements of the overall restoration plan. Such resources are secured to augment National Grid repair forces via the various Mutual Assistance Groups, such as the New York Mutual Assistance Group (NYMAG) and the New England Mutual Assistance Group (NEMAG), and the EEI Mutual Assistance Agreement.

The Restoration Plan and ERIPs are intended to be simple, flexible, and easily adapted to specific emergency events. For clarity, and to avoid unnecessary confusion, the procedures generally parallel normal operating procedures. This also reduces the need for specialized training or work practices. These Emergency Restoration plans were revised and expanded in the late 1980s by LIPA's predecessor company, LILCO, as a result of experiences during Hurricane Gloria, and have undergone several updates since then, most recently as a result of lessons learned from the March 2010 Nor'easter that impacted Long Island and left nearly 270,000 customers without electrical power. These procedures were also significantly updated in 2006 as a result of "lessons learned" in the Gulf States after a series of hurricanes, including Hurricane Katrina.

Overall, Transmission and Distribution (T&D) system conditions and storm preparation are characterized in one of three conditions:

- Condition "White" – Normal operations and/or minor storms where Long Island's Electric T&D Operations is able to affect repairs to the system with at most, minor assistance from the Overhead/Underground (OH/UG) Lines Department.
- Condition "Blue" – Long Island's Electric T&D Operations requires substantial assistance from other organizations.
- Condition "Red" – Anticipated or actual widespread damage to the electric T&D system, such that the Emergency Restoration Organization (involving almost all company personnel) may need to be mobilized, and assistance from outside line crews (contractor or other utilities) will be required.

The Emergency Restoration Organization has three major components that comprise the company's emergency plan: Operations, Communications, and Logistics Support. The organizational structure for each of these groups is illustrated in Exhibits 2-4.

a. Operations

The overall responsibility for emergency restoration activities resides with the National Grid President, Long Island Jurisdiction. The T&D Electric Operations group is responsible for

restoring electric service during emergencies. This includes the mobilization and direction of the Emergency Restoration Organization which surveys the damage and makes the repairs to the T&D system. The restoration response activities of the Operations group are described in the Company's Emergency Restoration Operations manuals.

ERIPs are reviewed periodically to ensure that they reflect current organizational structure, departmental functions and responsibilities, and executive personnel assignments. In addition, they are reviewed after being utilized during a large-scale storm event, in conjunction with a storm critique (After-Action Review) and the implementation of subsequent corrective actions.

The Emergency Restoration Operation Procedures are divided into three sections:

ERIP Section 1.1, System Headquarters

- The System Headquarters section of the Emergency Restoration Procedure encompasses those actions and procedures that are taken in anticipation or in response to a system disaster. It also includes those procedures and decisions that are made at the system level which provide for the resources, logistics, reporting and the mobilization of manpower which are required to successfully restore power during a Condition "Red" event.
- When the track of a hurricane or other major storm threatens the LIPA service territory, the President of the Long Island Jurisdiction convenes a meeting with key Company Directors and representatives from the Long Island Power Authority. The purpose of this meeting and subsequent meetings is to implement preparatory measures for the potential disaster. All preparatory actions are included on the Storm Anticipation Checklist.
- Once all preparatory measures have been initiated, the procedure provides for the orderly notification and mobilization of the Emergency Restoration Organization. The President of the Long Island Jurisdiction is responsible the declaration of Condition "Red"
- Concurrent with the mobilization of company resources during Condition "Red", LIPA directs and authorizes the request for outside assistance from foreign utility and contractor line and tree crews. This is accomplished utilizing the Mutual Assistance Roster issued by the T&D Committee of the Edison Electric Institute.
- This ERIP also includes the procedures that describe the steps necessary to establish which substations should be placed into local control, and in what order. Following the decision by the Chief Coordinator to place substations into local control, the procedure provides for the assignment of crews, crew guides, and logistics needs.
- Additionally, included here is the procedure that provides for the collection of restoration data and the periodic reporting to the company's Communication Organization (Room 210) and the Restoration News Center. These groups provide for the timely dissemination of restoration information to employees, special customers, government and municipal agencies and the media.
- Finally, this section includes the procedure that covers the safe operating conditions with Independent Power Producers, before, during, and after the passage of a severe storm.

ERIP Section 1.2, Division Headquarters

- The Division Headquarters Section of the Emergency Restoration Procedure details those

procedures and actions that are undertaken at the Division Operating Headquarters, in anticipation or following the declaration of Condition “Red”. Included are procedures for: Division Reports to System Headquarters, Patrol and Restoration of Transmission Circuits, Processing of Rapid Survey Information, Mobilization of Restoration Manpower and Dispatch of Personnel, Material Delivery Instructions, Division Support Instructions, Activation of the Telco-National Grid Joint Restoration Agreement, Damage Repair Tracking and the Division Console Operation Procedure.

- Prior to the impact of a major storm, the System Operations – Distribution (SO-D) Division Manager is responsible for initiating a Pre-Storm Checklist. The Pre-Storm Checklist has been developed to assist the Operation and Service Supervisors to check all items that will be important should a storm effect the service territory.
- The SO-D Division Manager, in consultation with the overhead/underground (OH/UG) Lines Division Manager, notifies them of the OH/UG Lines console operation and that mobilization of the 2-Man Make-up Crew organization may be required to support the restoration effort.
- Following the declaration of Condition “Red,” the SO-D Division Manager is responsible for notifying and mobilizing their restoration organization at the local division level.
- Instructions on the operation of the SO-D Division Storm Console are included which describe the method of tracking damage and repair jobs at the Division Headquarters Console using the outage management system, CARES, as well as manual methods.
- Additionally, this section includes the procedure that deal with the distribution, collection and inventory of the Restoration Substation PC Kits.
- In summary, Substation Area Coordinators (SACs) and Alternate Substation Area Coordinators (ASACs) operate under and report their restoration efforts at the substation level to their respective Division Operating Headquarters. Their primary point of contact at the division level is the Group Coordinator for their particular console

ERIP Section 1.3, Substation

- The Substation Section of the Emergency Restoration Procedure identifies those procedures and actions that are undertaken by Staff who report to a substation following the declaration of Condition “Red”. Procedures implemented are for damage survey activities, processing damage information, and if required, taking local control, directing restoration crews, damage and repair tracking, emergency switching on the distribution system and developing substation and circuit level restoration estimates (ETRs).

Conclusions

- The Company’s use of a single, integrated set of ERIPs universally across the LIPA service territory provides for a clear and comprehensive approach to storm restoration.
- The Incident Command structure contained in the Emergency Restoration Plans was followed appropriately and worked well.
- Procedures should be revisited to focus on the redeployment of the survey organization to other duties once the required survey activities are complete.

b. Communications

The Communications Organization is responsible for receiving customer calls and communicating with special needs customers, municipal agencies and elected officials. This is done through the Customer Contact Center and through the Communications Coordination Center in Hicksville.

Communications Coordination Center (CCC) activation for Condition “Red” is the focal point for communication coordination and control. The CCC is responsible for creating the overall core messages to be utilized across the various communication channels. Personnel who staff this facility include representatives from LIPA’s Government Relations and Customer Service departments, as well as, National Grid’s Customer Service Operations, Government Relations, Community & Customer Management, and Emergency Planning organizations.

The activities of the Communications group are described in the Company’s Emergency Communications Manual for Condition Red. The procedures contained in the manual provide detailed steps for the required documentation and actions for receiving and processing calls. Also, they direct coordinated actions with other National Grid organizations to describe notifications to key electric customers, government agencies and critical care customers.

Other specific actions directed by these procedures address those to:

- Mobilize the Storm Communications Coordination Team members by use of the NY Alert notification system.
- Ensure that all customer facing organizations involved in communications regularly receive a consistent set of updated messages and talking points.
- Ensure that all customer communications channels are operable and updated on a timely schedule.
- Ensure coordination with Storm Operations personnel for customer specific information necessary to support various communications.
- Coordinate the flow of information to ensure availability for use with Customer, Media and Government communications.

Outreach to and interaction with media outlets is coordinated through LIPA’s Media Relations Room (Restoration News Center) under the direction of their Executive Director of Communications. This position is responsible for providing clear, frequent messages to all media outlets throughout the course of the event, as well as ensuring that the LIPA web-site maintains a parallel level of information. Regular communications, which include news briefings and releases, are conducted at the Restoration News Center.

National Grid’s Media Information group is responsible for coordinating communications about the emergency with its employees. Special meetings between field and office forces and the

media are coordinated by this group. The activities of the media Information group are described in the Restoration Information Center Procedures.

Conclusions

- While an update and revision to the Communications ERIP was completed in June 2011, the revised ERIP was not thoroughly communicated and fully executed during Irene. This procedure should be re-visited to confirm that the communications expectations and responsibilities of both the Communications and Operations organization in fulfilling these expectations are clearly understood by all.
- The existing communication procedures in place were adequate, but in certain cases became limited by the lack of restoration information available for communication. Both system and procedural enhancements are being developed to allow earlier and more job level messaging during major storm events.
- Opportunities exist to revisit the physical layout and location of all communications personnel during storm events (i.e., Call Center, Communications Coordination Center and Restoration News Center) to ensure optimal and most efficient flow of information both within the company and to elected officials.
- Communications, especially with elected officials needs to be enhanced. Opportunities exist to expand and reinforce current procedures around communications with such groups.
- Outreach to Critical Care customers and communication with key commercial customers (through the Major Account Group) worked well. Opportunities exist to refine expectations of Critical Care customers relative to their participation in LIPA's Critical Care Program.

c. Logistics Support

The Logistics Support Emergency Plan is developed to provide a coordinated response in supporting logistics requirements in any type of corporate emergency. This Plan:

- Defines the role of the Logistics Support Organization (LSO) in enhancing corporate-wide response to any type of emergency.
- Establishes a classification and notification system for mobilizing key personnel involved in logistics support through the activation of the LSO.
- Facilitates the logistics (procurement, distribution, maintenance, transportation and replacement) of materials and mobilization of logistics personnel during emergencies.
- Provides the mechanism for enhancing coordination among the various departments directly involved in logistics arrangements throughout our service territory.
- As needed, mobilizes and activates Foreign (off-Island) Crew staging sites (utilizing contracted services, if necessary) and secures lodging for off-Island crews.

As further preparation for such events, the Inventory Management organization maintains stock of required restoration materials at pre-established storm stock levels. These levels, originally set to

meet the demands from the devastation experienced during Hurricane Gloria on Long Island in 1985, were re-examined as part of a review performed in 2005/06 as a result of the Florida hurricanes. Adjustments were made to update this stock to more accurately reflect the current materials being utilized on the T&D system. Additionally, levels were adjusted in accordance with the establishment of strategic partnerships with key vendors whereby certain materials are now stocked at these vendor sites, with the ability to have them quickly delivered to us on-site in short order.

Conclusions

- Overall, the implementation and execution of the Logistics Support Emergency Plan went well.
- The Logistics annual HQ drill, which simulates emergency response activities, includes a comprehensive review and execution of the individual functional coordinator roles, and details the required coordination with Logistics field personnel proved its value. Logistics coordinators clearly demonstrated how well versed they were by the expeditious and professional manner that they went about carrying out their responsibilities.
- Pre-stocking materials to meet expected storm level damage is effective and essential to ensure an adequate supply to enable a successful restoration effort.

3.2 Training

In preparation for events such as Tropical Storm Irene, the Emergency Restoration Organization (ERO) conducts training and mobilizes all substation and console personnel annually for a one-day exercise during the April-June timeframe. Nearly all National Grid and LIPA company employees (across all lines of business) have an emergency restoration role that is assigned upon hiring and practiced as part of these drills. All substation restoration personnel (about 1,500 personnel) are mobilized at their substations to drill in their assigned restoration roles, which includes a thorough patrol of each substation's distribution feeders to familiarize themselves with the circuits, locate any substandard conditions and maintain their skill at documenting and cataloging damage assessment data as it would be addressed during a real storm event. On-going training for all support personnel (Substation Area Coordinators (SACs), Alternate Substation Area Coordinators (ASACs), PC Operators, etc) is routinely provided and also tested as part of these drills.

The ERO also conducts on-going training for most of the job positions in the Operations Group. All training modules for the training of the Survey organization are developed and maintained by the Emergency Planning organization. These modules include lectures, exercises, and video presentations. New personnel assigned to the Survey organization are provided two-day sessions to initiate them into the program. Experienced personnel are provided one-day refresher training sessions each year to review procedures and drill the skills necessary during restoration. The training program is organized in modular form and is enhanced with a number of video presentations and classroom exercises.

The Crew Control Organization prepares training modules and conducts the training for Crew

Guides and Two-Person Crew personnel. Additionally, the Foreign Crew Management group holds an annual drill to review the roles, processes and systems. This year, the drill was held on February 1, 2011. The Overhead/Underground Lines Department is responsible for this training. A copy of the drill schedule is included as Exhibit 5.

Finally, the company engages in comprehensive Hurricane Preparedness drills each year, fully simulating all planning, execution and follow-up activities associated with such events. Such drills are extremely valuable as they permit all operational, logistical and communications activities to be practiced and subsequently fine-tuned during non-emergency conditions. Real world scenarios are developed by the Emergency Planning group and drilled, requiring participants to make real time decisions as if they were responding to an actual event. Emergency Response Organizations, members of LIPA's Major Storm Review panel (MSRP) and local public officials are invited to participate in the drill which helps to ensure the thoroughness in testing all activities. As part of this exercise, systems utilized to support restoration efforts are also tested. An emphasis is also placed on drilling the execution of communications activities with elected officials, press, media, customers and internal employees. Following the completion of such exercises, a detailed critique is conducted among the MSRP and drill participants to ensure that any and all issues are raised and subsequently addressed prior to an actual storm event.

Conclusions

- Well established training plans are comprehensive and annual drills provide excellent opportunities for employees to drill the required skill sets and keep current in the event that such roles are activated to support storm restoration efforts.
- Additional training should be investigated for employees at all levels in the Incident Command Structure.
- SACs/ASACs should be provided additional training on RDRP dispatch and substation dispatch authority to further enable the use of existing customer messaging systems and enhance the communications process.
- Opportunities may exist to redefine the roles and responsibilities of Gas Distribution personnel and low voltage workforce to more effectively utilize them for service restoration functions in future storms (i.e., materials delivery)
- Existing training should be revisited to increase the focus on actual restoration concepts and crew management (i.e., system restoration vs. system re-build).
- While ERO field personnel received training on the revised Communications ERIP, including the importance of their role in supporting customer communications, additional training would help to further enhance the process.

4.0 Pre-Storm Activities

4.1. Operations

The LI Electric T&D Operations organization closely monitored the track of Irene since its development as a tropical system east of the Lesser Antilles on August 20. Representatives participated on all scheduled National Weather Service Conference Calls. On Monday, August 22, Irene was upgraded to a Hurricane and on Tuesday August 23, it became apparent that Hurricane Irene would affect Long Island by the upcoming weekend. Forecasts called for a Category 1 Hurricane with sustained winds greater than 74 mph and heavy rain. In response, all key personnel responsible for specific components of the Emergency Restoration Plan were instructed to initiate and complete their respective pre-storm checklists.

On Wednesday, August 24, approximately 96 hours before the arrival of the storm, arrangements were made to initiate a “roll call” of the Emergency Restoration Organization (ERO) and to supplement the on-Island restoration workforce. This is essential to the successful execution of the eventual storm response as it requires notification to thousands of National Grid resources that comprise the ERO. This roll call puts such employees on alert for storm duty and determines the number of resources available for support. Proper coordination of these activities are necessary as more than 80% of these resources come from groups outside the Long Island Electric T&D organization that serves LIPA, with resources being supplied from National Grid’s co-located Gas, Generation and Shared Services organizations on Long Island and in Downstate NY.

Additionally, efforts were launched to begin to secure off-Island crews for the weekend in response to these anticipated storm conditions. Based on the projected track of the storm and recognition of the anticipated demand for these resources from the other utilities in its path, this decision was made in advance of existing protocols that call for such decisions to be made 72 hours prior to the storm’s arrival. These additional off-Island crews are acquired through National Grid’s vast contractor network and other mutual assistance activities.

Mutual assistance is typically rendered once a storm passes and the impacted companies have completed their damage assessment. This approach allows the supporting utilities to equitably divide the available resources based on the needs of the requesting companies. Mutual assistance comes in two forms: (1) contractor crews that work for specific utilities; and (2) employees of other utilities. As part of the process, utilities request specific types of resources, such as digging crews, additional supervision, damage assessors, and other resources, to assist with the storm restoration effort. During Irene, mutual assistance calls commenced on Thursday, August 25, prior to the storm making landfall.

Edison Electric Institute’s (EEI’s) “Restore Power” website is also utilized. This website is dedicated to facilitating electrical utility restoration needs before, during, and after emergencies caused by natural disasters. The online Restore Power community provides an accurate, real-time source of information that allows requesting utilities to find crews, contractors, and vendors in a timely manner.

National Grid is a signatory to EEI's "Suggested Governing Principles Covering Emergency Assistance Arrangements Between Edison Electric Institute Member Companies." This document streamlines the process by which mutual assistance is requested, rendered, managed, and reimbursed between signatory companies. It is also the base document by which one or both EEI members, who are not signatories, may enter into mutual assistance agreements.

Additionally, National Grid is a member of the NY Mutual Assistance Group (NYMAG). NYMAG is a regional group of electric utilities who assemble together for the planning and implementation of a timely, efficient, and cost-effective restoration effort of their impacted transmission and distribution systems, which is in the interests of the members and their customers.

The major objectives of the NYMAG are detailed below:

- To provide an enhanced line of communication between members before, during, and after major storm planning, restoration, and invoicing activities;
- To plan (proactively) for the rendering of mutual assistance between members, as the weather situation and resource needs dictate;
- To share resources, where applicable and permitted, separate of a major storm, enhancing the service and quality of storm/emergency planning between and for members; and
- To document the proactive means by which members respond to a major storm via common guidelines and procedures.

Similar to contractor line crews, National Grid's ability to hire contractors, on behalf of LIPA, for tree work was enhanced by the fact that the company does business, regularly, with large national and local contractors. The company works with large forestry vendors that also perform work for other utilities and specialize in utility tree trimming and removal services. These vendors provide emergency services with the approval of their "home" utility companies, and have the ability to quickly move resources from one part of the country to the other, if needed to assist in storm events.

A chronology of select high level pre-storm procedural activities taken by the Operations organization is detailed below:

- Wednesday, August 24 (T-96 Hours)
 - A decision was made to deny any new vacation requests. By Thursday, August 25, all upcoming vacations previously approved were canceled. Additionally, key management employees were called back from vacation.
 - Performed roll call of all personnel and verified staffing of key positions.
 - Solicited local distribution line contractors for additional high voltage (HV) resources.

- Activated the Foreign Crew Management group.
- In evaluating the projected region-wide impact, LIPA directed the request of 400 HV linemen and 100 tree trimmers from off-Island contractors ahead of the procedural guidance.
- Thursday, August 25 (T-72 Hours)
 - At 0830 hours, Condition “Red” was declared by the President of Long Island Jurisdiction. LIPA’s procedures call for Condition “Red” to be in effect when any or all of the following actions are taken:
 - One or more substations are mobilized to perform Rapid Survey.
 - Foreign crews are called in to augment the National Grid repair force.
 - One or more substations are placed under Local Operation Control to direct the repair operations.
 - Roll call of the Emergency Restoration Organization was completed by Friday morning, resulting in an initial availability of over 75% of personnel. Efforts to contact the remaining personnel continued through the following days.
 - Coordinated with Verizon to expedite repairs of substation lease lines and telephone lines.
 - Notified Logistics to check availability of additional line and transmission trucks, contact the staging area vendor, Base Logistics for potential staging area activation and check stocking levels of mobile storerooms. Requested staging areas to be established at Bethpage State Park, East Hampton Airport and Brookhaven Airport.
 - Worked to return system clearances and place system back into its normal operating configuration.
 - Made arrangements to stock trucks and check tools.
 - Increased request to a total of 1600 HV linemen and 400 tree trimmers
 - In addition to soliciting off-Island commitments, obtained 56 additional linemen from local contractors.
 - Participated in New York Mutual Assistance Group (NYMAG) call. Assessment of pending weather was consistent with neighboring utilities. All local utilities were holding manpower and requesting additional resources in anticipation of expected storm conditions. Received commitment for 100 line contractors as a result of this call.
 - Obtained commitments for an additional 470 linemen and 400 tree trimmers through the National Grid contractor network.
 - Requested 14 Physical Assist crews from National Grid’s Gas Organization.
 - The Foreign Crew Management team opened the Roslyn site and tested system and communication integrity.
 - Crew Guide notifications were made and directed to report on Saturday, August 27. Commitments for additional crew guides were obtained through local gas and mark-out contractors.
 - Held conference call with Verizon and obtained 30 pole setting crews, while coordinating a Verizon liaison to be placed in each division headquarters.

- Friday, August 26 (T-48 Hours)

- In preparation for the anticipated increased transmission system activity, activated the lock out coordination and the Transmission Survey groups, while scheduling additional multi station operators to work. In addition, two helicopters were acquired and staged out of the projected storm path, with authorized personnel identified.
- Held pre-storm briefing with the SACs and ASACs and the Division Group Coordinators to review the expectations of the organization in the event that “Local Control” was enacted.
- Made decision to place 43 HV linemen on the overnight shift starting at 1900 hours Saturday, August 27.
- Notified personnel and Local 1049 of mandatory extended workdays beginning Sunday.
- Selected additional foremen as temporary supervisors for the foreign crews being utilized in the division consoles (i.e., divisional dispatch centers).
- As a result of the planned evacuations, switching procedures were written to de-energize Fire Island in advance of storm conditions. These procedures were put into action on Saturday night following the completion of the evacuation.
- Conducted a storm anticipation drill with the Foreign Crew Management (FCM) team to review FCM processes and systems.
- Participated in NYMAG call.
- Coordinated lodging and bussing plans with Logistics.

- Saturday, August 27 (T-24 Hours)

- The placement of sandbags at several low lying substations was completed to protect them from potential flooding.
- Beginning Saturday night, all servicemen were scheduled to work 16 hour days.
- CAC Liaisons were scheduled to report to the division control rooms to assist with the projected increased call volume beginning Saturday morning.
- The control rooms more than doubled their staffing levels and scheduled console operators with “polygoning” (job analysis) skills to report to work on Saturday morning.
- SACs and ASACs along with PC Operators reported to their substation to conduct a test of telecommunication and Information Systems in anticipation of activation on the following Monday.
- Executed a staffing plan for Shelter Island, with one 3-man OH crew staged prior to the storm.
- Construction storm consoles prepared and staffed around the clock starting at 1900 hours.
- Verizon liaisons reported to the division headquarters to meet key personnel, become acquainted with facilities, and test their internet access.
- The Christopher Morley staging area and Roslyn Foreign Crew Management site were opened.
- 50 high voltage foreign crews assigned to each division headquarters.

- Crew guides arrived and an overview training session was held.
- Almost 600 HV linemen and 200 tree trimmers arrived and were provided work assignments for after the storm passed. (Planned to “stand down” on Sunday morning due to forecasted weather conditions and start restoration activities on the “C” shift (4 PM – midnight) once the storm has passed).

Conclusions

- In response to Irene, personnel displayed a well coordinated and efficient response. The training and annual drills of the Emergency Restoration Organization was evident, and proved effective at preparing for the impact of the storm.
- Decision points for obtaining off Island crews should be re-evaluated as to the timing of such decisions given the projected path of the storm and the anticipated competing demand for the required level of off-Island linemen.
- Access to the additional National Grid off-Island linemen and Contractor Network provided great benefit in securing off-Island resources.

4.2. Logistics

A chronology of select high level pre-storm procedural activities taken by the Logistics organization is detailed below.

- Tuesday, August 23
 - Chief Logistics Coordinator (CLC) received electronic notification to attend a LIPA Storm Anticipation meeting / conference call on August 24 at 1200 hours.
 - CLC notified Inventory Management (IM), Fleet Services, Procurement and Lodging to review and complete their respective 72 hour pre-storm (storm anticipation) activity checklists.
- Wednesday, August 24
 - Manpower availability for the upcoming weekend was checked for Logistics HQ, Inventory Management, and Fleet Services. All groups confirmed an 85%+ staffing availability.
 - The Lodging group checked on hotel availability for the period from August 25 through Labor Day weekend, to better understand vacancy rates.
 - Procurement began contacting suppliers of critical materials and services to insure they were aware of the pending storm, to check on material/service availability and to insure off hour contact information was accurate.
 - Fleet Services checked their on-site fuel inventory of gasoline and diesel, as well as the levels of #2 fuel oil and kerosene at the Power Generation sites.
 - Rental companies were contacted to check availability of typical storm restoration related units.
 - Major parts and service providers were contacted regarding availability of coverage and support during the upcoming holiday weekend.

- Reviewed the number of out of service units and priority was assigned to those units normally used for electric storm restoration.
 - A storm preparation meeting was held with the Fleet Services Director and all National Grid Fleet Services Managers.
 - Inventory Management (IM) checked the number of poles, transformers, cables, and storm kits on hand system wide.
- Thursday, August 25
 - With declaration of Condition “Red”, commitment was made for off-Island line and tree trim crews to begin arriving on August 27.
 - CLC initiated multiple daily meetings with all lead coordinators of logistics functions (IM, Fleet Services, Procurement, Lodging, Food Services, Staging Areas, etc.), providing required direction and receiving updates on specific activities, issues, and concerns. All of the Logistics-related organizations reviewed and completed their respective 48 hour storm anticipation checklist activities.
 - CLC notified Facilities and Voice/Data to set up the Logistics Center HQ room for activation at 1800 hours. CLC notified the assigned Logistics HQ personnel of their scheduled reporting times to HQ.
 - CLC directed Lodging to reserve hotel rooms to accommodate the incoming off-Island crews from Saturday, August 27 through Thursday, September 1.
 - Operations requested Christopher Morley Park (CMP) to be ready to accept the incoming crews on Saturday morning. Operations also requested Logistics to make preparations to convert runways at the East Hampton and Brookhaven airports, and an area of Bethpage State Park into material and truck staging areas after the storm passes. The CLC notified the Logistics Real Estate coordinators to contact the staging site property owners that we were planning on utilizing their sites to support the restoration effort, per the signed agreements that we have in place. Real Estate contacted property owners and confirmed their concurrence to use their properties. The CLC then notified the assigned staging area manager to prepare to activate Christopher Morley Park (CMP) as a truck and storm kit staging area for the incoming crews, and the assigned staging area managers for the East Hampton and Brookhaven airports and Bethpage State Park to activate the sites as material and truck staging areas after the storm passes. Procurement began the process of procuring bus and van services for the Christopher Morley Park (CMP) operation.
 - Procurement re-issued listing of the Storm Contractors that are under contract to Operations.
 - Procurement and General Shops made arrangements to secure all required rental equipment (i.e. office trailers, portable generators, light towers, arrow boards, golf carts, portable lavatories, etc) required to construct these self-contained staging sites.
 - Facilities made arrangements to secure and deliver refuse dumpsters and trash cans at the sites.
 - Inventory Management expedited all storm material deliveries.
 - Fleet insured that all on-site fuel tanks and mobile fuel tankers were filled to capacity.
 - Per Operations request, Fleet secured additional digger derricks and aerial trucks. Additional fork lifts were also secured for use at the material staging sites.

- Friday, August 26
 - Logistics Center HQ in Hicksville was fully staffed and operational and ran on a 24 x 7 basis through the conclusion of the restoration effort. The 24 hour storm anticipation checklists were completed by each of the respective Logistics related organizations.
 - Assigned staging area managers held on-site meetings with IM and Fleet staging area leads and the property owner reps. to look over the sites, review established site plan drawings, and prepare for the build out of the East Hampton Airport, Southampton College, Brookhaven Calabro Airport, Bethpage State Park, Great Neck High School, and Christopher Morley Park sites.
 - Fleet completed vehicle/equipment repairs. All fleet units were returned to service.
 - All units were fueled overnight. The mobile fuel tankers and Fleet mobile service units were moved from flood prone areas.
 - Delivery of the mobile store rooms (that were stocked by IM) and the rental forklifts was coordinated with IM. Ten additional digger derricks, seven tall buckets, twenty 4x4 SUV/Pickups and two rack trucks were scheduled for delivery to Long Island.
 - Fleet assisted with the overnight setup of the staging/processing areas at East Hampton Airport, Brookhaven Airport, Bethpage State Park and Christopher Morley Park sites to be fully operational in the morning.
 - Lodging secured required number of hotel beds for the committed off-Island crews.

Conclusions

- Review and completion of the respective Logistics organization storm anticipation checklists was essential in identifying our as is state, as it related to key materials, equipment, vehicles, fuel levels, etc. and in the steps required to ramp up to achieve storm target levels in these categories.
- The staging area managers' familiarization of their assigned staging areas, and the use of our prepared schematic layout drawings of these sites, was instrumental in the rapid build out and activation of these sites.
- Logistics personnel performed their assigned pre-storm activities and responsibilities effectively and efficiently.

5.0 Pre-Storm Messaging and Communications

In addition to the many pre-storm activities with respect to operational and logistical activities, providing the appropriate pre-storm communications is essential to ensuring that customers, stakeholders and employees are prepared for the extent of the damage that is expected from the impending storm. In the case of Tropical Storm Irene, Storm Communications procedures were enacted and the pre-scribed actions were executed well in advance of the storm's arrival.

During this phase of the preparation, efforts were also undertaken to insure the integrity of the various internal communications systems to be utilized in the restoration process. Readiness tests were conducted for the phone lines, IVRs and LIPA's Storm Central Web Site. Additionally, all appropriate 24 hour systems support was secured, including the appropriate disaster recovery plans.

Pre-storm communications began five days prior with interviews with the press being conducted on August 23 and 24. By Thursday, August 25, communications efforts were in full force and incorporated a number of different mediums to communicate LIPA's pre-storm messages. E-mail blasts were sent to all 280,000 customers for whom LIPA had e-mail addresses, offering preparedness and safety tips and providing links to LIPA's Storm Central portion of its web site.

Per procedure, on Friday, August 26, proactive calls were made by live representatives to all Critical Care Customers to advise them of the impending storm and stress the importance that they take appropriate actions to prepare for potential electrical outages for an extended period of time. Major Account customers were also contacted proactively and provided information regarding the approaching storm. Press interviews, radio advertisements and e-mail blasts to customers continued for several days and a Public Service Announcement was issued on Friday August 26 to stress the importance of proper preparation. Outreach to governmental officials was also initiated with a letter being faxed to all governmental agencies and elected officials and personal contact being made with County Executives, Town Supervisors, Mayors and others. Finally, internal communications were focused on preparing employees for the storm, advising them of the potential for extended work days once the storm hit and urging them to take precautions to prepare their homes and families for the storm event. Procedural contacts were also made with NYISO, PSC and DOE regarding storm preparations.

A summary of key pre-storm communications activities is provided below and outlined in the timeline included in Figure 5.1.

- Two e-mail blasts and individual follow-up calls to 503 major account customers, which identified specific actions to take for an event of this magnitude (e.g., test generator backup, ensure adequate fuel supply, etc.)
- Direct contact with Hospitals, LIRR, and other critical major account customers to ensure coordination of emergency plans
- Two e-mail blasts to 280,000 customers for whom we have email addresses, providing information on potential hurricane damage

- Over 8,000 personal calls made to contact 5,000 customers with critical care equipment advising them to be prepared to make alternate arrangements in the event they were without power as a result of the storm
- Faxed letter to governmental agencies and elected officials
- Personal contact with County Execs, Town Supervisors, Mayors and others
- Website home page updates and Social Media used to provide storm tracking, safety and preparedness information, as well as to provide customers with contact information
- Call Center Interactive Voice Response (IVR) system updated with Hurricane preparedness and safety information
- Emergency preparedness advertisements timed to run just before the storm and Public Service Announcement issued
- 55 Press interviews conducted, public service announcement and advertisements provided hurricane preparedness information to general public
- Social media used to provide information to media and press
- More than 30 employee communications issued to update employees on storm and restoration progress, as well as reminders about Safety (before and after storm)

Throughout these pre-storm communications, the emphasis of messaging was on “preparedness”. Stakeholder groups were advised of the potential storm and urged to take necessary precautions to prepare for the possibility of extensive storm damage and widespread electrical outages. As part of this messaging, LIPA provided tips on “how to prepare for the storm” and placed a strong emphasis on safety. Messaging also spoke to LIPA’s preparations and reminded customers how best to contact LIPA should they experience an outage from the storm.

Pre-Storm Key Media and Customer Communications – Many channels were utilized to help prepare customers for the impending storm

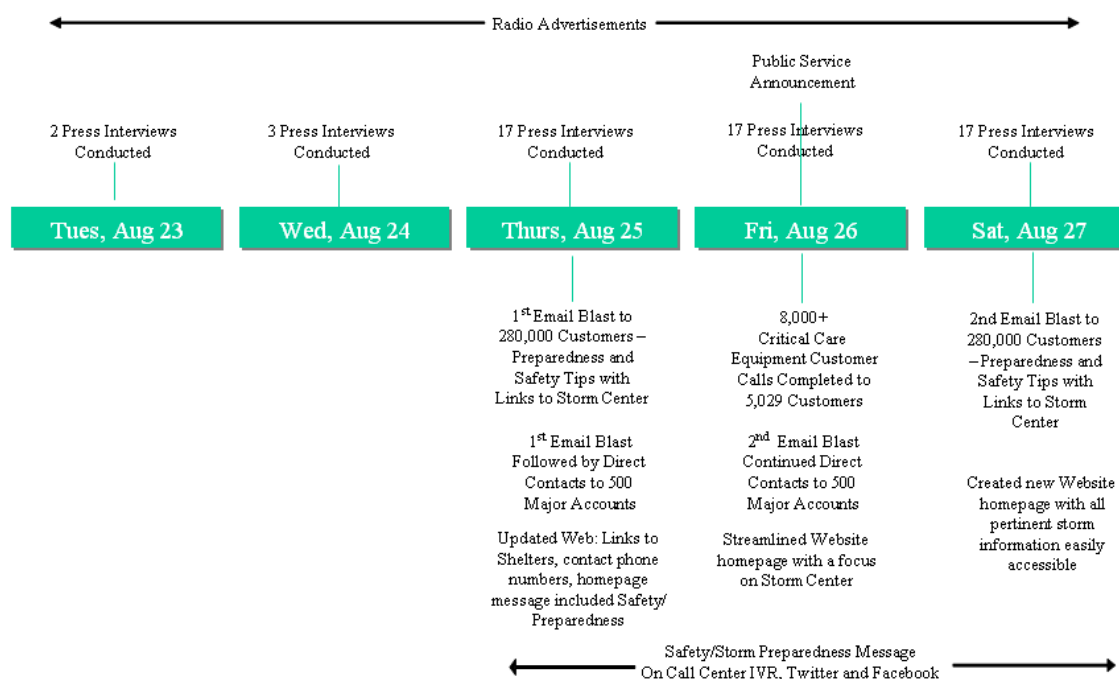


Figure 5.1

Conclusions

- Pre-storm communications effectively utilized numerous communications mediums (IVR, Web, email blasts) to provide pre-storm messaging to the various stakeholder groups.
- Pre-storm communications readiness testing on internal systems helped to ensure the integrity of their operation during the restoration effort.
- Messages were effective, but fell short in fully setting customer expectations regarding the expected duration of restoration activities. Pre-storm messaging should also be utilized to better set expectations regarding expected restoration processes and limitations on the availability of specific restoration information (i.e., sequencing of restoration priorities, what level of information will be available when).
- Customers and other key stakeholder groups would benefit from additional information prior to the storm with regard to LIPA's overall restoration approach (i.e., restoration priorities, survey damage assessment, approach, etc).
- Confusion exists among the public relative to LIPA's Critical Care Program. Efforts must be made to clarify that being registered as a Critical Care Customer does not translate to priority restoration, but rather to that of receiving proactive communications from LIPA to advise them of impending storms and potential electrical outages.

6.0 Restoration

6.1 Operations

a. Storm Impacts

Early on the morning of Saturday, August 27, LI Electric T&D Operations held several conference calls to discuss the impending storm conditions and to reassess manpower requirements. The National Hurricane Center had placed Long Island under a Hurricane Warning. Weather forecasts were now calling for winds to quickly increase, gusting above 35 mph and by late Saturday night and into Sunday afternoon calling for sustained winds of 50-75 mph with gusts of 70-85 mph possible. By Saturday evening, weather conditions had begun to deteriorate. As of 2300 hours, the storm had affected approximately 7,213 customers of which 1,661 had already been restored.

The most severe storm impacts were experienced on August 28 from approximately 0200 until approximately 1300, with significant impact to all areas across the Island. The center of the storm made landfall and passed directly over New York City at approximately 0900, which kept the entire LIPA service territory in the northeast quadrant of the storm for nearly eight hours. Maximum winds were recorded in excess of 90 mph. The storm resulted in total outages of approximately 523,000 customers. Initial damage assessments indicated that as of 1700 on Sunday, August 28, the system had experienced 175 distribution lockouts, 61 transmission lockouts and 22 substations had experienced a loss of supply, including five which fed Fire Island that were preemptively de-energized.

1. Transmission Facilities

The system experienced 61 transmission lockouts (de-energized state) as follows:

<u>Voltage</u>	<u>Number of Lockouts</u>
138 KV	4
69 KV	41
33 KV	7
23 KV	9

With the departure of the storm, LIPA line crews set to work to repair the transmission system and return the maximum number of customers in the shortest amount of time. All substations that experienced a “loss of supply” were restored by Monday at 1700 hours. Some substations were left with a radial supply so that crews could concentrate on the heavily damaged areas of the distribution system. The entire transmission system was returned to normal by Wednesday, September 1.

A complete list of transmission line lockouts can be found in Exhibit 6.

2. Substations

There were 22 separate substation outages. A complete list can be found in Exhibit 7. Most of the substation outages were caused by the loss of transmission supply. By Monday August 29 all substations had at least one supply. The substation outages were distributed as follows:

<u>Division</u>	<u>Number of Substations</u>
Queens-Nassau	0
Central	5
Western Suffolk	12
Eastern Suffolk	<u>5</u>
Total	22

3. Distribution Facilities

There were 175 distribution circuit lockouts. A complete list can be found in Exhibit 8. The distribution circuit outages were distributed as follows:

<u>Division</u>	<u>Number of Distribution Circuit Lockouts</u>
Queens-Nassau	33
Central	62
Western Suffolk	44
Eastern Suffolk	<u>36</u>
Total	175

4. Restoration Progress (Customers Restored)

The following table and chart provide a summary of customers restored by the end of the day and a description of restoration milestones.

Day	Date	Cumulative # of Customers Restored	Restoration Milestones
Monday	August 29	178,000	1/3 rd of all outages restored w/in 24 hours
Tuesday	August 30	283,000	Met commitment to restore all hospitals; all LIRR Level "3" emergencies addressed
Wednesday	August 31	358,000	
Thursday	September 1	434,000	
Friday	September 2	474,000	Met 90% "Restoration Commitment"
Saturday	September 3	487,000	

Sunday	September 4	520,000	Met 99% “Restoration Commitment”; all school outages restored
Monday	September 5	523,000	Restoration Complete

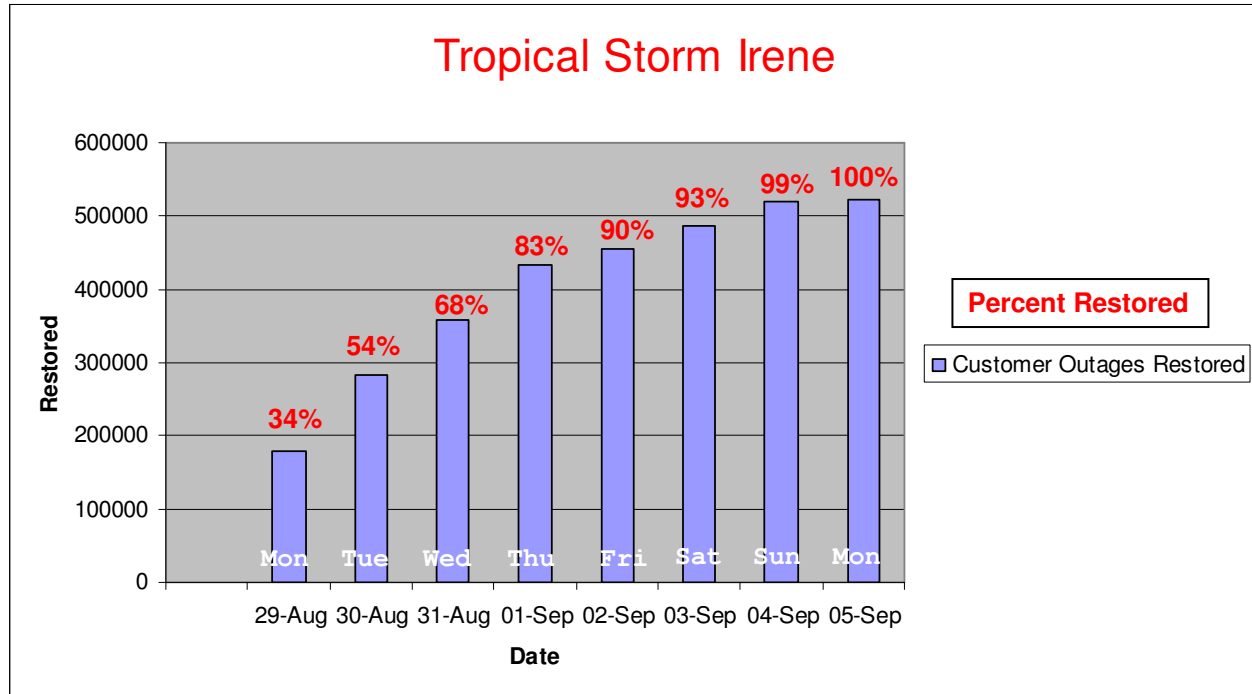


Figure 6.1

5. Major Restoration Milestones

There was an immediate and heightened focus on areas of public health and safety, including hospitals, nursing homes, sewage treatment facilities, water pumping stations, schools, and other public safety facilities. Highlights of this focus include the following:

- All 11 Hospitals with outages restored by August 30.
- All known and registered Nursing Facilities with outages restored by September 1.
- All essential sewer treatment facilities surveyed to confirm power and/or availability of emergency power.
- All water pumping stations identified and prioritized with their governing agency based on criticality and availability of customer owned emergency back-up generation.
- Close coordination and restoration of schools had all restored by September 3, resulting in minimal disruption of school schedules.

7. Manpower Summary

Figures 6.2, 6.3 and 6.4 provide a summary of the number of total resources employed on Long Island during the duration of the storm restoration efforts.

On-Island National Grid Workers		
LI Dedicated Electric	1,100	Dedicated to LIPA under current MSA contract (20%)
LI Gas/Generation /Shared Services	4,000	National Grid gas, generation and shared services personnel on Long Island that provide storm support due to co-location on LI (80%)
Total	5,100	Total National Grid LI Restoration Support
National Grid Personnel Assignment Breakdown (from above)		
Field Damage Assessment/Survey	1,400	Perform damage assessment to collect field intelligence to support effective restoration efforts
High Voltage/Low Voltage	550	National Grid on-Island HV/LV repair personnel
Other (National Grid Personnel)	3,150	Provide logistics support, call answering, crew guide, etc
Total	5,100	Total National Grid Employees with Restoration Assignments

Figure 6.2

On-Island LIPA Contractors		
High Voltage Repair Personnel	214	
Tree Trim	184	
Total	398	Total On-Island Contractors

Figure 6.3

Off-Island Field Workers		
High Voltage – National Grid, National Grid contractors and Mutual Assistance and contractors	2,000 *	National Grid Linemen, National Grid Contractors and resources supplied by New York Mutual Assistance Group
Tree Trim	1,100	
Field Support/Supervision	300	Accompany Off-Island resources to provide field support and supervision
Total	3,400	

Figure 6.4

Note: Numbers in above tables are rounded.

Conclusions

- The storm caused significant damage to transmission, substation and distribution facilities.
- Restoration efforts progressed well and followed the pre-established procedures.
- The decentralization of crew and system configuration control proved to be an effective means of managing the additional high voltage and tree trim resources.
- There was a clear focus on quickly restoring facilities impacting public health and safety.
- Access to 4,000 National Grid personnel from its Gas, Generation and Shared Services organizations co-located on Long Island and in Downstate NY were essential to establishing an effective Emergency Response Organization (ERO).
- All storm anticipation and restoration conference calls included an appropriate safety message, safety review and a discussion of safety performance during the storm.

b. Survey (Damage Assessment)

A key component of the emergency response plan is damage assessment. This capability ranges from mobilization of select individuals for damage survey for minor events to the wide spread mobilization and manning of substations. This provides for substations to be manned by a group of people who are able to take control, survey, and locally dispatch work as necessary.

Irene departed the service territory somewhat earlier than anticipated. As a result, the Operations & Survey Control Group of the Emergency Response Organization was activated Sunday afternoon to perform rapid and detailed survey from designated substations. As part of the emergency response plan, personnel are pre-identified and trained to conduct wide spread substation surveys. Accordingly, the majority of distribution substations were staffed with these pre-identified teams and they proceeded to perform a detailed survey of the entire LIPA system in response to the storm.

Detailed survey at these substations involved 2 person teams physically inspecting, either by car or on foot, all overhead primary and secondary conductors associated with each circuit. This ensured all damage locations were physically verified as opposed to relying solely on customer generated damage reports. After assessing the damage, Survey personnel identified the material and equipment requirements for these jobs. As per procedure, damage information was collected on RP-5 damage tickets and input to the CARES - Outage Management System (OMS). The inside Console Operators and Group Coordinators then linked the damage information with CARES outage jobs.

After a review of known damage and the information gathered from the Outage Management System, a decision was made on Sunday evening to place a good number of substations in Local Control. Local Control is generally limited to areas where damage conditions are so extensive that outage analysis and crew control from Headquarter locations is no longer practical. Accordingly, at these locations, the decision was made to decentralize and turn over Crew Control and System Configuration to the Substation Area Coordinator (See Exhibit 9 for Daily EOC List of substations in Local Control).

Given the widespread devastation and damage to the T&D system, the ability to provide customer specific estimates within the system was no longer practical. Unlike normal operations, per procedures for such an event, operating in a non-centralized dispatch of restoration crews to outage locations precluded the ability to link specific customers with the outage job being worked. Additionally, for those areas where jobs were still being dispatched centrally, the abnormally high volume of activity also disrupted this ability until a full damage assessment had been completed and damage locations were linked with a customer or area. As a result, for most of the restoration period, customer specific Estimated Times of Restoration (ETRs) were not readily available.

Substation Survey teams also responded to non-outage emergency jobs. These calls include wire downs, burning/sparking wire, pole damage and miscellaneous calls. These Survey teams were frequently able to close out trouble calls that did not involve LIPA facilities, and “stood by” lower priority downed wires, which enabled repair crews to focus on higher priority work. Substations with minimal damage were de-mobilized upon completion of their survey with personnel transferred to harder hit areas or reallocated to other assignments (e.g., crew guide). Substations with greater damaged remained opened until restoration was complete.

Additionally, a helicopter patrol of the entire transmission system was conducted on Monday, August 29 and Tuesday, August 30 with initial focus on selected high profile circuits, to identify any potential problems lingering from the storm and verify the integrity of the transmission system. Consideration was given to initiating the helicopter patrol on Sunday, August 28 but given the sustained high wind conditions and concern for safety, the decision was made to delay to the following day.

Conclusions

- Transmission, sub-transmission, and distribution surveys were expeditious and appropriate in support of the storm restoration.
- A significant contingent of field, office, and support staff was mobilized to respond to the event, completing the mobilization in a timely manner and in accordance with ERIPs.
- Approximately 10,000 miles of distribution lines were walked and surveyed and was a key component in providing an accurate damage assessment and enabling an efficient deployment of restoration repair crews.
- Moving to a decentralized dispatch of crews to adequately address the widespread damage introduced limitations to the communication of customer specific outage information.

c. Crew Control

On Sunday, August 28 all in-house crews and contractors reported at 0700. However, sustained winds and heavy rain during the B shift (0800-1600 hours) precluded many crews from addressing outages and all were kept in the division headquarters. By early afternoon, the storm had passed and once it was safe to dispatch all repair crews to the field, the restoration process began with all in-house crews and the 280 foreign contractors being dispatched by division consoles. Restoration activities were coordinated following a methodical approach whereby the system backbone is first addressed and as a result, restoring the Transmission system is the top priority. This is followed by addressing the loss of supply substations. Distribution lock-outs in energized substations are

addressed next, and teams of high voltage (HV), low voltage (LV), and tree trim crews are assembled to restore main-line distribution. Accordingly, as transmission damage was identified, crews were pulled off distribution jobs and assigned to transmission.

Most of the in-house crews were initially dedicated to restoring the transmission circuits that tripped. Excellent coordination between SOT, Substation Operations, and OH/UG Lines personnel allowed for the rapid restoration of multiple transmission circuits.

To assist in the restoration process, Physical Assist personnel from National Grid's Gas Operations were actively engaged in digging pole holes, delivering material, and cleaning up debris. Additionally, liaisons from Verizon that had been placed in each of the four divisions gained a good appreciation of the damage experienced on the system which greatly assisted in the coordination of resources to affect system repairs. Overall, Verizon pole setting crews proved to be a tremendous help in the restoration effort, setting over 300 poles. To further enhance the process, daily reports on geographic "areas returned to service" were provided to Cablevision. These reports helped to improve the efficiency of their repair resources as they could now better target repairs to their facilities in areas where power had been restored. Finally, by the latter part of the restoration effort, the LIRR made pole setting equipment and manpower available to assist with restoration efforts.

On Monday, August 29, in-house crews and LI based contractors were still primarily focused on the transmission system. By 1500 hours, 35 transmission circuits were restored and an additional 14 were being worked. By 1700, all substations that experienced a loss of supply had been re-energized, marking a significant milestone in the restoration process. Simultaneously, there was close coordination with Long Island Rail Road (LIRR) personnel and all LIRR "Level 3 Emergencies" were being addressed (Level 3 is defined as service on a branch is completely suspended or restricted immediately prior to or during peak period). Many of these emergencies focused on the restoration of transmission facilities along the LIRR 'right-of-way' and associated track clearing and debris removal. LI T&D Electric Operations personnel continued to analyze substation damage information and allocated the foreign crews to either division headquarters or substations as appropriate. To facilitate this process, constant communication was maintained between Hicksville headquarters and Roslyn processing center. By 1500, all, but one LIRR "Level 3 Emergencies" were cleared.

Coordination with towns and municipalities for road clearance and restoration of traffic signals at critical intersections was coordinated through the local Emergency Operations Centers (EOCs). In many instances, HV utility resources were required to allow for the safe removal of trees or road debris by local public works personnel. Priority locations were filtered through the EOC and efforts were made to best allocate utility resources to such priorities, while balancing the competing need for such resources for other major restoration efforts. Given the high demand for these resources and limited availability of additional off-Island contractor resources early on, there was at times frustration experienced among the local towns and villages when the inability to meet all requests for resources left their public works crews unable to perform their duties. During the restoration, efforts were made to improve upon the process by more closely working directly with the town and village representatives. While this improved the overall response, efforts are

underway to further enhance the process, with consideration being given to the formal identification and dedication of utility resources to such efforts for future storms.

By Tuesday, August 30, 46 of the 61 transmission circuits were restored. Coordination of physical assist crews for the substations to work with the SACs and job site to deliver material and save time travelling to material staging areas was in full swing. By Wednesday, August 31, 54 of the 61 transmission circuits were restored. As a means to increase visibility of crew locations, internal manpower locations began to be provided by color console and were distributed daily.

On Thursday, September 1, all 61 transmission circuits were restored. In turn, OH/UG Lines supervision assigned to assist SACs in local control in concentrating on restoring the 3-phase main.

Conclusions

- Long Island Rail Road “Level 3 Emergencies” were prioritized and appropriately addressed.
- Need to revisit existing restoration procedures with the LIRR to confirm a clear and consistent understanding of protocols.
- Restoration of transmission facilities progressed smoothly.
- Coordination of efforts with local towns and municipalities for tree and debris removal and the restoration of traffic signals at critical intersections need to be further enhanced.
- Opportunities exist to assess how to best align recovery efforts (i.e., getting lights back on most quickly) with needs of municipalities regarding public safety (i.e., road openings, restoration of evacuation centers/shelters, wire-downs, etc).
- Opportunities exist to re-examine how off-Island crews are deployed to outage jobs. Specifically, given constraints on crew supervision (i.e., off-Island crews often travel to LI with a limited number of supervisors), it may be more beneficial to have such crews complete all restoration in a given area as opposed to breaking up resources from a given entity and assigning them to a higher priority job in another area once all three phase main repair work is completed in that area.

6.2 Foreign Crew Management

The Foreign Crew Management Team’s goal is to work with Operations and secure the foreign crew resources necessary to provide support for the storm event. In addition, they are responsible for on boarding the crews, coordinating lodging requirements with Logistics and assigning lodging to the crews, and in conjunction with Operations developing and implementing the crew resource plans.

Prior to the storm, Long Island T&D and Emergency Planning leaders contacted the New York Mutual Assistance Group (NYMAG). In addition, Long Island T&D took advantage of EEI’s “Restore Power” website, which as mentioned, contains a national repository of utilities willing to provide mutual assistance support to other utilities during emergencies.

On Sunday, August 28, additional high voltage line crews and tree trimmers were processed and assigned a work location. A total of slightly over 800 linemen and 450 tree trimmers were available to work once the storm passed.

Based on the anticipated damage from Irene and existing policies and procedures, requests were made for 2,000 high voltage linemen through our Utility Mutual Assistance Groups. However, given the widespread devastation of Irene and the resulting tremendous demand for these resources up and down the east coast of the United States, LIPA received only 1,000 additional high voltage linemen and was forced to execute its restoration plan with only half of these targeted resources for the first five days of the storm restoration. Throughout the week, additional crews were secured from National Grid, National Grid contractors, NYMAG, NEMAG, MAMA, and Great Lakes Mutual Assistance Groups.

In total, LIPA employed approximately 2,800 overhead line workers to assist with damage repairs during the storm restoration effort. Approximately 2,000 off-Island resources were brought in to supplement the local workforce of over 700 internal line workers and local contractors. These numbers include about 140 off-island National Grid line workers who assisted in the restoration effort. LIPA also employed almost 1,100 forestry workers. Figure 6.5 provides an overview of off-Island crew arrival by date. Exhibit 10 provides a listing of off island contractors that supported the storm restoration effort.

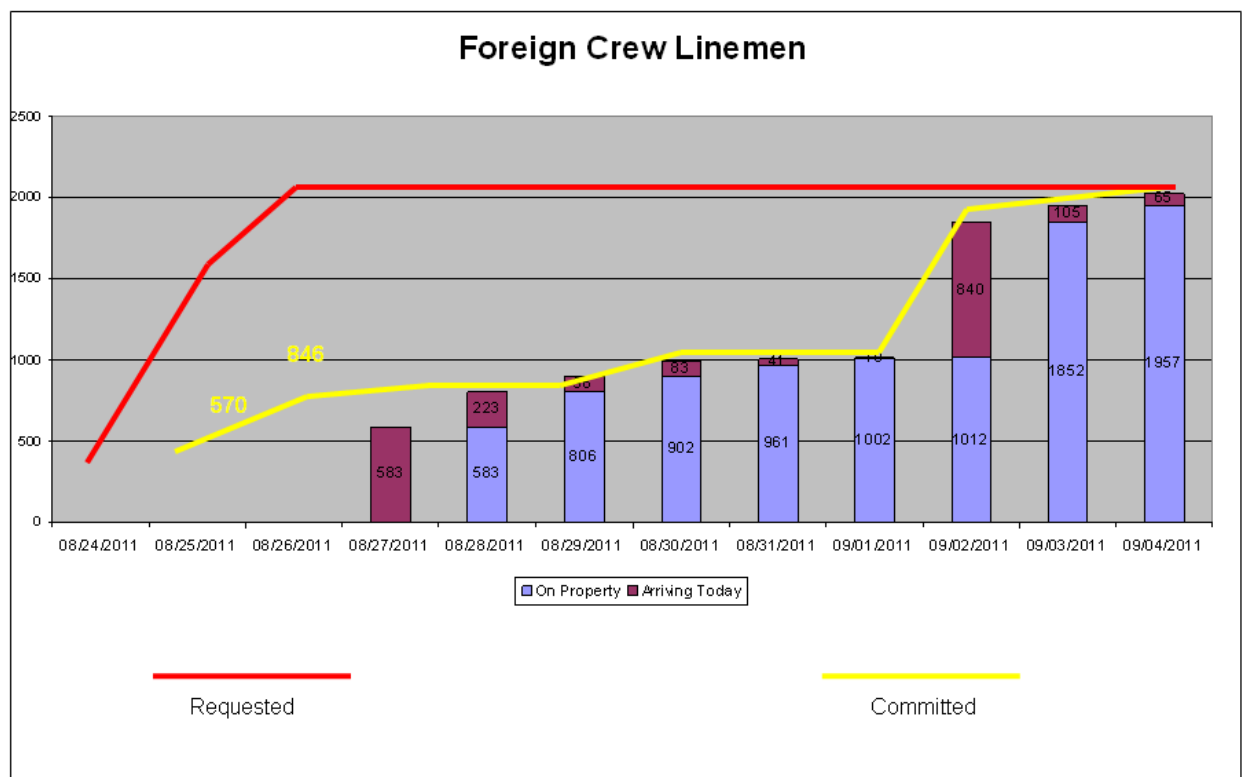


Figure 6.5

As the commitments were received from various companies, the Foreign Crew Management staff initiated preparations for their arrival. Arrangements for rooms were made by the Logistics organization. The Foreign Crew Management team prepared for the arrival of outside utility and contractor crews by implementing the Foreign Crew Arrival Plan. The plan allowed for the orderly and efficient movement of foreign crew vehicles into the Christopher Morley Staging Area. The successful management of outside crews to support the restoration effort was an enormous task given the numbers of crews involved. All available personnel were assigned to support the effort, as needed, around-the-clock.

Overall performance of the Foreign Crew workforce was outstanding from a production and safety performance standpoint. Only one non-electrical incident was reported by a contractor throughout the storm's duration. National Grid's ability to acquire contractor support for distribution line and forestry work was enhanced by the fact that the Company does business, regularly, with large national and local contracting firms. As part of the contract arrangement the company ensures that additional resources can be procured for response to these type events.

The major actions taken by the Foreign Crew Management Team were coordination with the foreign crews, processing of all off-island crews, conducting information and safety briefings to the crew guides and their assigned crews, ensuring those who did not have Corporate Procurement (P-cards) received cash for food expenses from the Treasury representatives, coordinating lodging for the crews and communications with the crew guides including their work assignments. The Foreign Crew Management System which was developed as a lesson learned from the March 2010 Nor'easter was utilized effectively throughout the event. The Resources on Demand system was utilized to capture the arrival and departure of the crew personnel and equipment. This will be instrumental in validating foreign crew invoices. The Foreign Crew Management team utilized reverse 911 technology to improve communications with the crew guides.



Figure 6.6

On Friday, September 2, due to an anticipated high volume of crew arrivals, the Foreign Crew Processing Team worked with Logistics to move the foreign crew staging area to Nassau Coliseum (see figure 6.6 above). This ensured an efficient flow at the staging area and avoided delays on Seasingtown Road and the Long Island Expressway that were experienced during the March 2010 storm.

Conclusions

- The Foreign Crew Management systems, processes and training that was implemented as a result of lessons learned from the March 2010 Nor'easter enabled an extremely efficient crew management of the 3,400 off island personnel that assisted during the event.
- The high demand for distribution linemen and tree trimmers by all of the utilities along the east coast resulted in a delay in achieving the requested linemen and forced LIPA to perform restoration with only half of the requested resources for the majority of the restoration period.
- LIPA should re-examine its existing decision matrix relative to the timing, number and mix (i.e., linemen vs. tree personnel) of supplemental off-Island resources requested.

6.3 Logistics

The Logistics Organization played a vital role in the support of the storm restoration effort, including supporting the processing of Foreign (off-Island) Crews throughout the storm period.

The Logistics Organization's mission is to facilitate and to ensure that all required Inventory Management, Fleet Services, Procurement, Lodging, Facilities Management, Voice/Data, and other related support activities were provided in an effective and timely manner throughout the duration of the restoration effort.

The Chief Logistics Coordinator (CLC) attended all of the National Grid/LIPA Storm Update Meetings during the restoration effort and provided Logistics updates to National Grid and LIPA senior managements at those meetings. The CLC held multiple meetings/calls daily with each of the individual logistic function coordinators to insure that all Inventory Management, Fleet, Procurement, Lodging, Facilities, Voice & Data, etc. required services were being provided as needed, to address any issues, and to ensure that "next steps" were being clearly communicated to all.

The CLC and the Foreign Crew Processing Team (located in Roslyn) coordinated and communicated extensively throughout the restoration effort. Regarding forestry crew operations, the CLC communicated with T&D Forestry, the single point of contact for all relevant tree trim operations information (i.e., forestry crew personnel numbers, vehicle numbers, lodging locations, etc.). In addition, the CLC provided status updates, as requested, to all other impacted groups. In particular, the CLC communicated extensively with Security, disseminating the hotel and temporary shelter housing information, including addresses, numbers of crew personnel and trucks at each hotel and housing location, and holding discussions of any issues that arose. Based on these discussions, Security planned their nightly guard protection and patrol levels at each site.

The CLC and Emergency Planning were in constant communication, including discussions on August 31 of contacting the Nassau and Suffolk OEMs and the American Red Cross for establishing temporary shelter housing locations to accommodate some of the foreign crews arriving over the Labor Day weekend. The CLC also contacted Base Logistics (logistics contractor) to provide cost estimate for potential mobilization and set up of bunk trailers at a designated site to house the incoming crews. The CLC presented LIPA with these two options. LIPA requested that Logistics proceed with the temporary shelter housing option.

a. Inventory Management

Inventory Management (IM) provided 24 hour coverage of all operating yard storerooms throughout the duration of the storm restoration period. Major actions taken by Inventory Management Logistics included the issuing of storm restoration kits to all of the line crews upon their arrival at the processing staging areas (Christopher Morley Park and Nassau Coliseum), performing daily inventory checks of poles, transformers, wire, etc., providing cables, poles, transformers, cross arms, switches, line hardware, etc., as requested by the crews, and continuously replenishing Inventory Management's critical material supplies via vendor deliveries based on established agreements to ship all National Grid authorized stock as well as any additional stock in their possession.

Based on the activation of the selected primary material staging areas (East Hampton Airport, Brookhaven Airport, Bethpage State Park, Christopher Morley Park and, later Nassau Coliseum), Inventory Management proceeded to activate their four mobile storerooms (stocked with electric restoration materials) at these designated sites, and also picked, packaged, and delivered additional materials to each of the sites. The ability to secure supplemental Physical Assist labor and vehicle resources from National Grid's Gas Organization enabled the drop off of materials at secondary material staging areas such as CW Post University and Jean W. Cochran Park, at specific job sites, and at substations across LI and was a key ingredient in expediting the completion of jobs. A detailed map depicting locations of Material Staging Areas and Crew Processing locations is included in Exhibit 11.

In addition, the demobilization and departure of foreign crews was expedited by offering multiple storm kit drop-off sites and by staggering the drop off times. Once again, the key driver of this successful process was our ability to utilize the Gas Physical Assist labor and vehicle resources to supplement our Inventory Management resources that provided the flexibility to pick up storm kits at dozens of sites across LI and transport them back to our operating yards in a timely manner.

b. Fleet Services

Fleet Services provided 24 hour coverage of all nine operating yard garages throughout the duration of the storm restoration period. A major task of Fleet Services Logistics was the nightly refueling of all National Grid, off-Island line and tree trim crew trucks and vehicles staged at the numerous hotel sites, temporary shelter housing sites, and staging sites, as well as fueling the LIPA units stationed in the yards, and the portable generators set up at various locations. As the number of hotel site locations escalated daily to accommodate the ramp up of off-Island crews, the refueling of vehicles in an 8 hour overnight period became a very challenging task. At peak, re-

fueling operations of the off-Island foreign line and tree trim crew trucks/ vehicles required the fueling of over 2,800 vehicles staged at over 80 different locations across Long Island. In addition to utilizing the four in house 2,000 gallon tankers, steps taken by Fleet Services included securing one additional National Grid 2,000 gallon tanker from Syracuse, one National Grid 4,000 gallon tanker deployed from Albany, and multiple mobile fuel tankers and labor resources from their fuel contractors. Fleet also implemented a plan for their fueling vendor to provide fuel deliveries as required, in order to maintain sufficient fuel quantities.

Fleet performed vehicle towing and repairs, responded to road calls to address vehicle breakdowns, flat tires, etc., and provided roving mechanics to provide on site staging area assistance during the restoration effort, while maintaining maximum availability of the entire fleet. Also, as requested by LI T&D Electric Operations, additional digger derricks, tall aerial bucket trucks, SUVs, etc. were secured by Fleet.

c. Procurement

Procurement assisted in purchasing and expediting all material and services requests, rapidly processed the commercial review of storm contractor orders, and issued contracts to contractors who were responding to LIPA's service territory for the first time. This focused effort eliminated any delay of those crews heading towards Long Island to assist.

d. Lodging

The major action taken by Lodging included the securing of required hotel rooms to accommodate the daily influx of crews arriving on Long Island throughout the restoration effort. At Thursday, August 25 morning's storm meeting foreign crew commitments were approved and Logistics commenced the hotel reservation process and book rooms from Saturday, August 27 through Thursday night, September 1. At that point, the CLC directed the Lodging organization to reserve all hotel rooms available within Nassau and Suffolk Counties to meet the off-Island crew commitments on a daily basis. The 26 hotels that Lodging had pre-established blanket orders with were contacted first. Lodging then delved further into their hotel database list to meet the rapidly escalating number of off-Island crews. Based on the preliminary storm damage assessments, on Monday, August 29, all existing room reservations were requested to be extended through Labor Day, September 5 and that the numbers increased to accommodate significantly more crews. After booking all available LI hotel beds, with a shortfall of beds still remaining for the weekend, the CLC directed the Lodging organization to reserve all available hotel beds in neighboring Queens County. A 0600 hours, hot and cold buffet breakfast was included with all of the hotel bookings, so that the crews could go directly to their first job each morning. Rooms were reserved in a total of 78 hotels across LI and Queens. Hotel beds were successfully secured for all of the off-Island crews through Thursday night, September 1. However, based on a contingent of more than 1,000 foreign crew personnel that were to arrive over the Labor Day weekend, and with hotel bookings in the LI and adjoining region having been completely exhausted, the CLC and Logistics coordinators met on Wednesday, August 31 to make preparations for proceeding with the set up of temporary shelter housing locations to accommodate any crew complement overflow.

Temporary Shelter Housing

On Wednesday, August 31, the CLC directed the Logistics Real Estate coordinators to contact Nassau and Suffolk County schools, colleges, etc. for permission to use any large indoor open space within their facilities for the purpose of bedding down some of our crews. Logistics secured space in the Nassau Coliseum, Suffolk County Community College (SCCC), and Bay Shore HS. The CLC and Logistics coordinators working with Safety, OSHA, and the local Fire Depts. developed a standard cot layout plan that was consistent with the regulatory compliant protocol in order to determine the maximum number of cots that could be placed within these facilities.

On Thursday, September 1, Logistics and Fleet personnel met on site with representatives of the three shelter locations to physically measure the amount of space being made available to us, answer any questions, establish contacts, and insure that the facilities would meet regulatory compliance. The CLC contacted the Nassau and Suffolk County OEMs and the American Red Cross and was able to secure 2,500 cots and blankets for our use. Procurement ordered bed sheets, pillows, pillow cases, towels, soap, hygiene kits, etc. for use by crew personnel at these sites.

On Friday, September 2, Fleet picked up a total of 1,500 cots from two Suffolk County Red Cross depots. Four hundred (400) cots were delivered to Bay Shore HS and 1,100 cots were dropped off at SCCC. Fleet picked up the remaining lodging supplies (bed sheets, pillows, pillow cases, towels, toiletries, sundries, etc.) that were ordered and delivered to Hicksville and transported them to Bay Shore HS and SCCC. The CLC working through our Physical Assist coordinator secured supplemental labor resources to support our build out of these sites. Logistics personnel working with MSD crews were able to set up each location within a 6 hour period, and both sites were up and running by 1600 hours. The supplemental labor resources were key in our ability to rapidly set up sleep accommodations for up to 960 personnel at SCCC and up to 376 personnel at Bay Shore; the maximum allowable number of cots for the respective spaces. Approximately 200 and 300 off-Island personnel slept at the Bay Shore H.S. and SCCC locations, respectively.

On Saturday, September 3, Fleet picked up a total of 1,000 cots from one Nassau County Red Cross depot and delivered the cots and all of the other required lodging supplies to the Nassau Coliseum. Logistics personnel working with MSD and Gas Physical Assist crews set up sleep accommodations for a total of 950 personnel in the Nassau Coliseum space. Approximately 300, 800, and 400 off-Island crews slept at the Bay Shore HS, SCCC (see Exhibit 12), and Nassau Coliseum locations, respectively.

On Sunday night, September 4, there were hotel beds available for 97% of the off-Island crews. On the morning of Monday, September 5, over 90% of the off-Island crews were released and left to return home. Hotel beds were available for the remaining crews. Therefore, Logistics, MSD, and Gas personnel broke down the three temporary shelter housing locations and returned all of the cots to the Red Cross.

MSD and Gas personnel supplemented the Logistics personnel supporting the overnight coverage at these shelter locations. There was also a nurse on site during the overnight at each location.

Southampton College

Southampton College was secured by Real Estate as a lodging location for off-Island crews working on the east end of LI. On Friday, August 26, the assigned National Grid site manager and staff made the necessary preparations to house the incoming crews. The required bedding supplies, hygiene products, etc. were delivered to the site and set up in the dorm rooms. The six dormitories and the site were prepared and ready to accept incoming crews beginning on Saturday, August 27. A total of 250 off-Island personnel (total number of beds in the 6 dormitories) slept nightly at the Southampton campus during the storm restoration period. During the day, activities such as cleaning of the restrooms and shower facilities were performed, as well as laundry service pick ups and drop offs of bedding supplies, refuse pick ups, etc.

e. Staging Sites

Christopher Morley Park was set up as the foreign crew processing truck staging area on Friday, August 26. The site operated from Saturday, August 27 through Friday, September 2. The nearby Great Neck High School parking lot was utilized to accommodate any excess overflow of vehicles. On Friday, September 2, this operation was relocated to the larger Nassau Coliseum (parking lots 1 & 2). The larger space footprint was required to accommodate the approximate 1,000 off-Island personnel and vehicles that were arriving on Saturday, September 3. At these sites, the incoming crews received their safety briefings, Fleet fueled their trucks, and Inventory Management distributed storm kits to them.

East Hampton Airport, Brookhaven Airport, and Bethpage State Park were the primary material and truck staging areas for the crews during restoration. At these sites, the crews had access to poles, transformers, cross arms, switches, cables, hardware, etc. In addition, there was a mobile storeroom at each site. The staging sites were utilized by crews working on jobs in the immediate area, thereby significantly reducing travel time to an operating yard by the crews in order to pick up materials and alleviating congestion concerns in operating yards. While at a staging site, Fleet personnel re-fueled incoming trucks via their on-site fuel tanker. There was also a mobile service unit on site to perform minor vehicle repairs, if necessary.

The ability to utilize MSD and Gas personnel, equipment, and vehicles to supplement our resources allowed Logistics to direct numerous drop offs of materials to secondary material staging areas (C.W. Post University parking lot, Jean W. Cochran Park, Brightwaters, etc.), to substations and to actual crew job site locations, at the request of SACs and crew guides. This capability reduced individual job repair times and expedited the overall restoration effort.

Beginning on Friday, September 2, Brookhaven Airport was also used to stage trucks overnight for the crews assigned to lodge at the Bay Shore H.S. temporary shelter housing location. Bus services were arranged by Logistics to transport these crews between Brookhaven Airport and Bay Shore HS. Also, Eisenhower Park (Parking Field #2) was used as an overnight truck staging area and as the bus service location to transport crews that were staying at hotel locations in Queens.

f. Food Services

Food Services Logistics received daily meal requests from the operating yards, office facilities, storm consoles, staging areas, foreign crew processing sites, Southampton College housing site, temporary shelter housing locations, etc. The Food Services group ordered, processed, and made arrangements for daily breakfast, lunch, and dinner meal deliveries at dozens of locations across Long Island. In addition, Food Services arranged for daily deliveries of bottled water, sodas, and snacks to Christopher Morley Park and Nassau Coliseum, as these locations were used to stage the incoming foreign crews and their trucks, while they waited for their supervisors and crew guides to complete the administrative processing of the crews that was being conducted in Roslyn. Deliveries of bottled water, sodas, and snacks were also made at the three temporary shelter housing locations for the crews sleeping at those sites.

g. Property

Property Logistics was actively engaged in supporting the needs of the Operations organization for the duration of the storm period. Facilities provided personnel to support overnight coverage at the three temporary shelter housing locations.

Upon a request by System Operations on August 29, the CLC arranged for daily pick ups of refuse at all activated substations by National Grid's LI janitorial contractor and by in-house Facilities staff, effective for the duration of the storm restoration efforts.

Conclusions

- The Logistics Organization response was comprehensive, well coordinated, and very successful in supporting the overall restoration effort.
- The very rapid set up of the three temporary shelter housing locations in order to meet the aggressive timelines of the incoming off-Island crews during Labor Day weekend was a massive effort that highlighted teamwork, collaboration, and commitment by all involved.
- The ability to tap the labor and vehicle resources of Gas and MSD was critical in our ability to drop off materials at dozens of locations throughout the Island that expedited restoration, to rapidly launch the temporary shelter locations, to support the many established staging sites, and to expedite the crew demobilization and departure process.
- Opportunities exist for improved communications and coordination with field restoration personnel regarding the location and access of material drop down sites.
- The excellent relationships that we have developed with all of the staging site and shelter housing location property owners, the Nassau and Suffolk County OEMs, and the American Red Cross fostered great cooperation from those entities during this storm event. Working as partners with these groups facilitated Logistics support operations across the Island.
- The Logistics Organization was able to quickly adapt to changing requirements for lodging and staging of crews.

6.4 Safety, Health and Environmental (SHE)

The Safety, Health and Environmental (SHE) organization used the incident command structure to provide a single point of contact for SHE. This included a dedicated contact for all LIPA Storm updates and for daily SHE activities. Meetings were held at least daily to provide updates that would be communicated upwards.

a. Safety

Safety began to prepare for the storm on Tuesday, August 23 by conducting the Pre Storm 72 hour check list. SHE initiated their Safety Storm Response plan throughout the System on Thursday August 25. On Sunday, August, 28 the “Incident Safety Officer” was in place at the Logistics room in Hicksville.

Call outs to Safety personnel were conducted on Sunday afternoon, August 28 to have representatives to respond to their assigned staging yards. This began 16 hour plus coverage in all areas of Long Island. Safety was operating out of Hicksville and a safety structure was well established. Crew assignments were being relayed to the safety staff regularly throughout the days; off-Island crews were being briefed upon arrival; and safety personnel were being assigned to Staging areas and material “laydown” areas. Safety reached out to the Local Occupational Safety and Health office (OSHA) to provide them with our storm preparation. The regional OSHA director offered their assistance and support in personnel to review storm restoration activities in the field which Safety accepted and provided personnel for guidance to crew locations. Safety supported the opening of off-island crew sleeping quarters, material “laydown” and distribution locations, and field crew activities throughout the restoration. In addition Safety briefs were created each day and safety issues were communicated up and down through the incident structure. Incidents were reviewed individually as well as collectively to see if any trends could be identified.

Safety began demobilization on Monday, September 5 with full demobilization Tuesday, September 6.

b. Health

Health Management’s mission during storms is to provide medical services to employees and foreign crews in the form of first aid and prescription assistance.

Health Management personnel began preparations and scheduling on Thursday, August 25 and reported to their storm assignments on Monday morning at 0600 hours. The Medical Unit leader operated out of the Logistics Center to stay informed of developing events.

Three Nurse Practitioners (NPs) were on hand each day to provide medical services to employees and foreign crews. One NP was stationed at the National Grid medical office in Hicksville. Two others provided mobile coverage out of the Brentwood and Riverhead yards. Each was available to travel to crew locations if needed. In addition to NP coverage, lists of Long Island Hospitals, Trauma Centers, Burn Centers, and local walk-in clinics were made available to crew leaders.

As foreign crew dormitories were opened at Bay Shore HS, Suffolk County Community College, and Nassau Coliseum, NPs were redeployed to provide late night and early morning coverage at these locations. NPs were equipped with AED devices as well as stocks of first aid supplies.

Environmental

c. Environmental

On Thursday, August 25, Environmental participated in the LIPA storm call and following the confirmation that hurricane preparation was to begin started the 72 hour checklist. Notifications were made to Emergency Response Contractors, Environmental Consultants, the NYS Department of Environmental Conservation and the oil spill team. Environmental personnel were contacted and instructed to report to Hicksville on Monday morning following the event with critical personnel reporting Sunday, August 28 after the event. In addition, the primary environmental clean-up contractor was instructed to have crews and equipment report to the Hicksville yard for staging.

The Environmental organization set up the existing 24 hour spill pager in Hicksville. Fourteen members responded to spills, made government notifications and visited spill sites throughout the restoration effort. Approximately 173 spills were reported to Environmental by the System Operator, field personnel, response crews and regulatory personnel. All spills were responded to and verified by Environmental and/or consultants or clean up contractors. Environmental provided status reports to the restoration management team throughout the event. Spill follow up activities and restoration continued into the early weeks of September.

Conclusions

- The strong focus on safety proved invaluable, with no significant injuries experienced during the restoration effort. This was especially commendable given the greatly expanded field work force that supported the effort.
- Combined Safety, Health and Environmental presence throughout the process beginning with foreign crew briefings and including field and dormitory support worked well to support effort.
- The incident command structure for SHE functioned as designed and provided single voice to Operations throughout the effort.
- Cooperative relationship was maintained with OSHA during storm with joint staging and field visits made. This later evolved into OSHA independent field visits to help maintain focus on importance of safety, health and the environment throughout the restoration process.
- While improved, work zone traffic protection still requires enhancements to ensure field forces are capable and equipped to consistently work safely regardless of the size of the workzone effort. Such enhancements will also help to ensure the safety of the public. Specifically, ensuring proper work zones safety will prevent customers or members of the public from entering the work zone and endangering themselves or the crews.
- Training previously provided to field damage assessment personnel (Supplemental Survey personnel) proved beneficial in properly securing damage locations (i.e., providing proper of containment of downed wires to protect the public (i.e., use of caution tape)). Opportunities to provide additional training in this area should be targeted to the appropriate personnel.

6.5 Information Services (IS)

Since weather forecasts predicted a significant event, the normal pre-storm preparations for IS were exercised before the storm. All major IS systems were tested prior to the event and the full IS support team was mobilized.

During this event, National Grid's computing infrastructure experienced a 330% increase in the number of transactions processed than would occur during a normal day. On this peak day, approximately 8 times the normal number of file accesses for each of the four divisions took place.

The outage management system (CARES) experienced no unplanned service or performance disruptions for the duration of the restoration effort. The peak number of concurrent CARES users was 369 compared to 60 users on an average day. As a result of lessons learned from major events in 2010, significant mainframe infrastructure upgrades were deployed in 2011. These improvements enabled the mainframe capacity to increase to 220% of normal enabling the system to handle the increased demands of the storm.

The most significant IS issues during this event were in the processing of customer calls and contacts. There were three main areas of concern. The first was in the Verizon system capacity to route calls to the CAC through their network. This resulted in customers receiving a "fast busy" signal when calling. The second was with calls to the 800 numbers not being processed when they were routed off-island. The third was with capacity constraints on processing web outage reports. Capacity issues were also experienced with certain cell phone providers when widespread use of cell phones became the "preferred" method among customers to report outages, at times stressing or overloading the cell system capacity.

While efforts were made to perform system readiness testing of internal communications systems prior to the event, no such tests were coordinated with outside service providers. As such, as these issues were identified, close coordination with the service providers allowed temporary fixes to be put in place to correct these situations. Moving forward, efforts will be made to identify opportunities to perform such testing as appropriate and to ensure the proper disaster recovery plans are in place.

On a more permanent basis, corrective measures for all of these issues have been identified and are now being put into place. For the first issue, Verizon completed a network analysis during the event and re configured the routing of calls to the call center eliminating a "bottle neck" in their system. This interim solution will remain in place until a more permanent solution is put in place. The issue with the 800 numbers was determined to be related LIPA's numbers being a local 800 number and many calls, particularly cell calls from the north shore, being routed through the phone system off-Island. The 800 numbers are being converted from local 800 to national 800 numbers to correct this deficiency. The issue with processing web outage reports was found to be in the programming associated with how the application accessed the CARES outage management system. Enhancements have been made to the application to support the ability of the application to scale up in order to support high volumes of transactions.

Conclusions

- The outage management system (CARES) experienced no unplanned service or performance problems during the event.
- Bandwidth limitations with Verizon's 1-800 service to the Call Center resulted in a number of blocked calls. The change from a regional 1-800 number to national number will increase call handling bandwidth and reduce the likelihood of this problem in the future.
- Efforts to identify opportunities for readiness testing with outside service providers prior to a storm event should be investigated. Additionally, the coordination of appropriate disaster recovery plans and procedures must be ensured.

7.0 Communications

Comprehensive and well executed communication plans are essential to the overall success of storm restoration efforts. Storm related communications are far reaching and necessary to keep a host of stakeholder groups, including internal employees, customers, local municipalities and elected officials, media, press and regulatory bodies apprised of the status of the restoration process. Furthermore, as customer expectations continue to grow, it is becoming even more imperative that utilities evolve the way they communicate with these stakeholder groups to provide timely, accurate and above all, useful information. Advances in technology have made many new avenues available and utilities must now employ a variety of communication techniques across different media to ensure that information is provided in a manner that best suits the needs of its affected stakeholders.

As required by Condition “Red”, LIPA’s Storm Communications Procedures were utilized to coordinate actions taken to assure that customers and stakeholders were provided appropriate information. The focus of these procedures is to bring together the Communication Coordination Team that will discuss and prepare information for release. Distributed messages include information related to storm anticipatory actions as well as timely restoration status updates.

Early on, a schedule was established for daily update briefs and regular communications were held with Government Relations personnel that had staffed the Communication Coordination Center (CCC). The President of the Long Island Jurisdiction appointed and activated a lead point of contact from the T&D electric operations to work with the various communications groups throughout the National Grid and LIPA to serve as a liaison to the Operations organization. Initial efforts focused on the development of a press release that summarized the severity of the storm, described actions that had been put in place to prepare for the storm and provided instruction to customers, with a special emphasis on safety. From that point forward, the LI T&D Communications Lead worked in conjunction with the various communications functions to craft on-going restoration updates, web site messaging, talking points for press events, internal employee communications and eventually “thank you” letters to employees and off-island crews and resources that assisted with restoration efforts.

As part of the overall management of restoration activities, storm update calls were held regularly throughout the process. At these meetings/calls, all organizations supporting the restoration efforts (i.e., operations, logistics, customer relations, communications, etc.) provided updates on their individual activities, shared information concerning restoration plans and received timely and consistent information regarding the progress of restoration efforts. This proved to be a valuable opportunity for communications personnel to acquire pertinent information on restoration related activities and ensure the consistency of messaging across all areas that were communicating to customers, employees, media, public officials, etc.

Immediately following these calls, a Communications Coordination call was held to further discuss and strategize subsequent communications activities. These calls, while helpful in coordinating communications activities were less effective than desired as many of the Operations personnel needed for the calls were tied up addressing issues that resulted from the prior call. Given the need for the combined input of Operations and Communications personnel to ensure the

most effective communications, consideration should be given to including these discussions as part of the Operations Update Call.

During the execution of the Storm Restoration Plan, various functional were involved in the communications process. These included Employee Communications and Brand, Operations, Customer Relations, Media Relations, Major Accounts, and Government Relations. Working together, these groups deployed a host of activities to communicate information about the storm, the status of its restoration efforts, and other key messages. Examples included internal e-mail communications to employees, press releases, press conferences, interviews with media outlets, direct communications with customers, and the use of the company's web site. Figure 7.1 provides an overview of the various communications channels utilized in the communications process.

Our response followed a process that ensures a high degree of coordination and consistency in messaging. Communication tools were adapted to get customers as much information as available via multiple channels

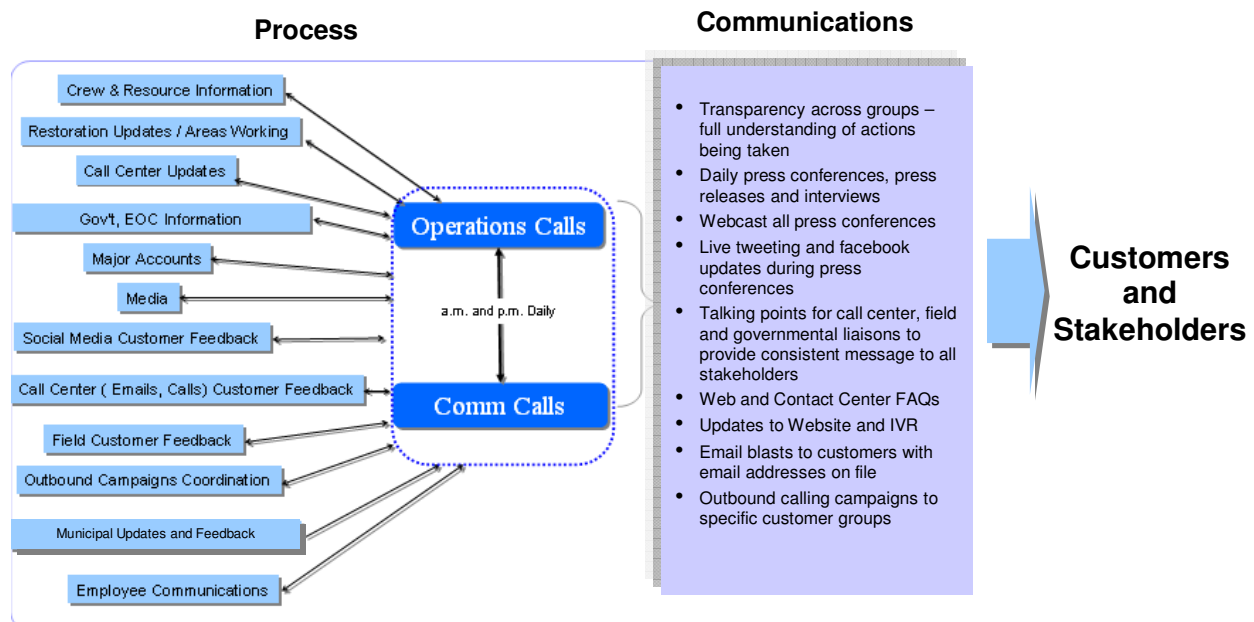


Figure 7.1

In reviewing the overall storm restoration communications process, many positives were identified. Specifically, there was strong coordination among the varied communications groups referenced above and a number of new technologies/mediums such as an enhanced Storm Center web-site, text messaging, e-mail, Facebook and twitter were utilized to communicate with customers. Additionally, as part of the outreach process, focused efforts were made to communicate with areas of public health and safety (i.e., hospitals, water districts, sewage pumping stations, etc.) to ensure the appropriate dissemination of information and proper attention to restoring such facilities.

Public school districts were also provided a heightened focus, with prioritized restoration and proactive communication to school administrators and facilities personnel. During restoration

efforts, Major Account representatives also maintained communications with managed customers directly affected by a power outage in order to provide updates on restoration status.

The Call Center also played an extremely critical role in the communications process with customers. Customer messages and scripts were updated continuously to provide Call Center personnel with the most up to date information. Staffing levels were managed in accordance with customer call volume and when incoming calls exceeded available resources, the 21st Century High Volume Interactive Voice Response System was utilized to quickly and effectively record and process outage reports from customer calls. Finally, proactive outbound calls were made to customers to communicate status updates on restoration activities and to provide estimates of restoration times for affected customers when such information became available.

LIPA's Headquarters also performed a number of call related activities to support the storm restoration process. The headquarters team answered over 6,200 customer calls on the 1-877-ASK-LIPA number and at the main number during the storm. The calls, while predominately comprised of customers looking for estimated restoration times, also involved addressing escalated calls received from customers that were looking to speak with management. The HQ team worked beginning Sunday August 28 at 0600 hours and 24 hours/day through Friday September 2, with additional support provided through September 4.

In spite of the many positives aspects of communications, efforts fell short in providing the desired restoration information in terms of frequency of updates on progress and projections, visibility to where repair crews were working and customer/area specific outage restoration information. This led to frustration among customers as the event progressed. As customers frustrations grew, many reached out to their local elected officials for information, who in turn looked to LIPA for such information on their behalf. The unavailability of this information, coupled with a less than adequate frequency of communications with elected officials further exacerbated this situation.

Conclusions

- While certain aspects of the communications efforts were successful, there are always opportunities to improve the process. In particular, customers continue to expect more timely and accurate information regarding restoration efforts and are looking for utilities to adopt new ways of communicating with them by taking advantage of advances in technology (i.e., cell phones, text messages, etc.). Efforts underway to expand the use of text messaging and provide web enablement for mobile devices will be valuable tools in enhancing the current process.
- Efforts fell short in providing the desired restoration information in terms of frequency of updates on progress and projections, visibility to where repair crews were working and customer/area specific outage restoration information. Efforts to improve the ability to provide such information during major storms are underway and involve short term systems enhancements, as well as the deployment of a new outage management system (OMS) that is targeted for implementation next year.

- Opportunities exist to better educate customers on the overall restoration process and for improved communications with Towns and Municipalities during storms. Efforts should be taken to identify means to improve the process and effectiveness of such communications.

a. Customer Relations/Customer Messaging

Beginning Wednesday, August 24 through Thursday, August 25, approximately 8,000 outbound calls were made to 5,000 to customers with Critical Health Care devices to advise them of the impending storm and encourage them to be prepared to make alternate arrangements in the event they were without power for an extended period of time as a result of the storm. Multiple calls were made to customers to assure a personal contact could be made.

In conjunction with Condition Red being declared as of Thursday August 25, all Customer Area personnel were advised that vacations were cancelled and they were placed on mandatory 12-hour shifts. Additionally, a supplemental workforce was called in to assist. Staffing at the Call Center was enhanced to a peak of 320 employees on the phones for the 24/7 duration of the storm. Increased staffing began at 1700 on Saturday, August 27. By 1230 on Sunday, August 28 the Call Center had tripled regular staffing utilizing every desk in the Center. Additionally, customer walk-in offices were closed from Monday, August 29 through Tuesday, September 6 to free up this additional staff to handle customer calls and better serve customer inquiries.

At the onset of the storm, the High Volume IVR was activated to handle the surge in outage calls in an effort to collect basic outage information in a timely, efficient, and effective manner, allowing the more critical calls (wire down, police, fire, essential service calls) to be handled by the Customer Service Representatives (CSRs). The High Volume IVR also helped to maintain reasonable answer rates and hold times. In general, 20 to 40% of all affected customers typically call during a storm event, with the majority of them calling within 30 minutes of when their outage occurs. This results in extremely high volumes of calls during the early phase of major storm events and results in incoming call volumes far beyond the capability of manned call centers without IVR capabilities. Nonetheless, while the High Volume IVR is a great tool to receive customer calls and rapidly collect customer outage information, restoration procedures look to migrate off this system as quickly as possible such that customers can have direct interaction with a Customer Service Representative. Thus, as the volume of incoming calls became manageable, migration off of the High Volume IVR began Tuesday, August 30, moving all customer calls to the CSRs. In support, on Monday, August 29 and periods of Tuesday, August 30 billing calls were suspended, turning full priority to addressing customer outage calls.

On Sunday, August 28, Call Center Representatives answered 44,811 calls of the total 355,372 calls received. This was the single highest day ever for both representative and IVR handled calls for LIPA. For the period August 28 through September 4, a record 909,250 calls were received, with the Representatives answering 191,416 of the calls. Peak call volume of over 355,000 total calls occurred on Sunday, August 28. The Call Center maintained a 95% Answer Rate throughout the duration of the storm. A summary of calls by date is included in Figure 7.2 below.

DAY	DATE	CALLS ANSWERED	% ANSWERED	ASA (sec)
Sat	08/27/2011	5,983	96.4%	163
Sun	08/28/2011	352,425	99.2%	68
Mon	08/29/2011	215,972	99.2%	61
Tue	08/30/2011	113,024	99.3%	29
Wed	08/31/2011	75,036	96.5%	100
Thu	09/01/2011	60,201	96.0%	131
Fri	09/02/2011	48,296	95.5%	149
Sat	09/03/2011	20,979	99.3%	19
Sun	09/04/2011	10,206	99.9%	2
Mon	09/05/2011	5,979	95.7%	186

Figure 7.2

On Sunday, August 28 and Monday, August 29 bandwidth limitation with Verizon's 1-800 service to the Call Center resulted in a large number of blocked calls. Customers affected by this limitation therefore were forced to call back a number of times before they could get through to report their electrical outage. In addition, customers calling from certain cell phones were unable to reach this 1-800 number as the prefixes of the number they were calling from was blocked through the regional service. Upon recognition of the problem, National Grid and LIPA personnel immediately escalated the concern to the highest levels of management at Verizon and notified the PSC of the concern who too engaged the issue. By Tuesday August 30, fixes had been put in place to mitigate these limitations. Subsequently, a more permanent enhancement to the Call Center's 1-800 service was put in place in October, upgrading the existing regional 1-800 number to a national number to increase call handling bandwidth and reduce the likelihood of blocked calls in the future.

During restoration, the management of customer messaging was a key focus within the Call Center. Customer Service Representatives (CSRs) were provided updated customer talking points twice a day. A desktop ticker message was also sent when important information was available. Additionally, an internal web-based log of all pertinent communications was established, providing CSRs a quick way to access information.

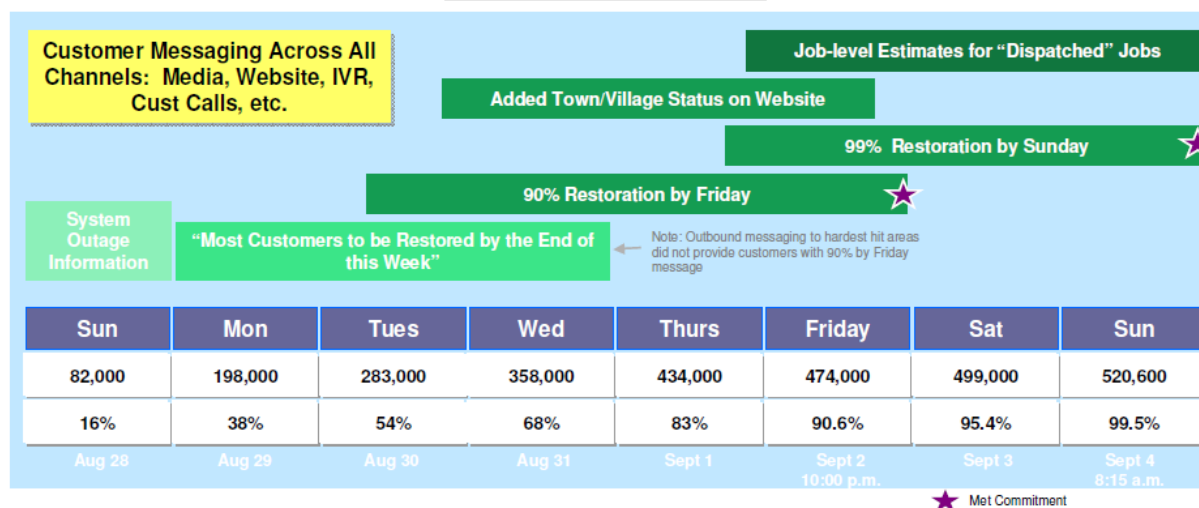
Given the widespread devastation and damage to the T&D system, customer specific estimates were not available within the system and there was a lack of job specific information for the Representatives to provide to customers. In its absence, a communications protocol was followed with "system level information" being provided until such time that more customer specific information was available. Figure 7.3 summarizes the different messaging utilized throughout the process.

Messaging to Customers provided more detailed information as the restoration process progressed and as additional information could be provided

Pre-Storm

- Safety and Storm Preparedness and
- General information regarding potential hurricane damage

Storm Messaging Timeline



Key Messages: Additional messaging conveyed

Figure 7.3

In recognition of their on-going interaction with the public, talking points were also provided on a daily basis to all field personnel. These talking points highlighted key storm statistics and recovery efforts, while providing safety messaging and tips on effectively interacting with the public. This consistent information and that provided to CSRs also helped to provide "rumor control" as all public facing personnel involved in the restoration process had access to the most up-to-date and consistent information.

LIPA's web site was also utilized extensively to communicate with the public, media and other stakeholder groups. In particular, messaging and web site banners were updated on a frequent basis, providing storm safety information and restoration progress. In addition, information and links to local shelters, emergency response organizations and disaster relief organizations (i.e., Red Cross) were provided to assist customers that visited the web site looking for such information. Efforts were made to publicize and encourage customers to utilize the web site through all press conferences, press releases and media interviews.

While an effective tool to communicate overall restoration progress and allow customers to report an electrical outage, LIPA's Storm Center (See Figure 7.4), provided only limited information regarding restoration status. This limitation was tied to lack of availability of such information which again was attributed to wide-spread damage and resulting non-centralized dispatch of crews which precluded the ability to link specific customers with the outage job being worked. This resulted in increasing frustrations among customers, increased repeat calls to the Customer

Assistance Center and the engagement of elected officials on behalf of their constituents to solicit restoration updates.

Storm Center Website was returned early Saturday 9/3 to normal status, enabling enhanced customer communication and restoration information

- Outage System pulled information straight from CARES, updating Storm Center directly.
- As specific restoration estimates were available, the website was updated to provide customer-specific information for jobs dispatched or completed

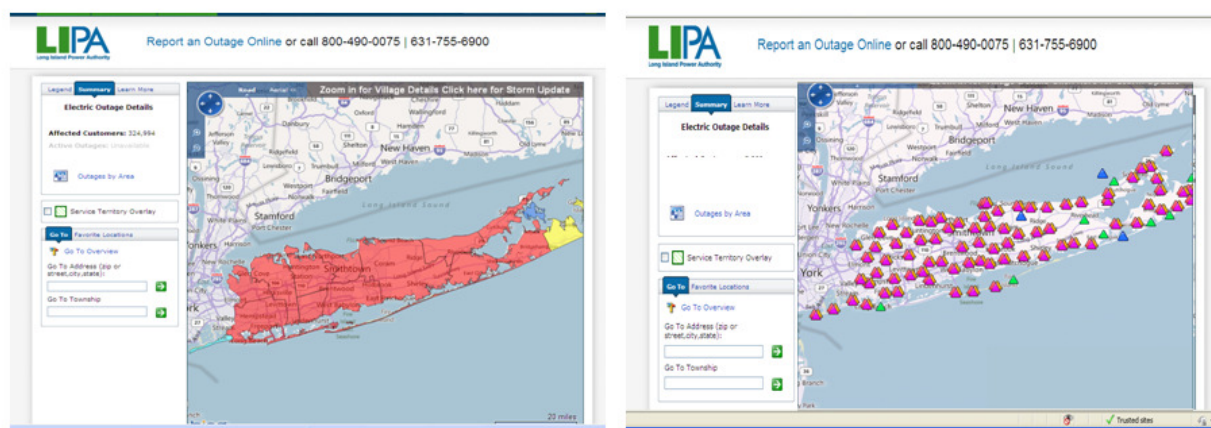


Figure 7.4

Lessons learned from the March 2010 Nor'easter had highlighted a need to provide customers better information on the status of their outages and storm response in general. As a result, a significant effort was completed to revamp LIPA's Storm Center website. These significant enhancements allowed for the display of outage data including outage location, size, and restoration estimate. The website receives data directly from the Outage Management System (OMS) and plots the associated jobs directly on a map of the service territory and also includes tabular summaries of outage statistics. During development of the enhancements, it was recognized that during a major event, there are limitations on the data available directly from the OMS. In response, features were added to support the display of high level data during major events. The elevated traffic levels during these events were also considered and the system was deployed in a cloud environment so that it could be scaled to support demand. As a result, the website was able to remain in service with no reported performance problems in supplying customers the limited summary data available at the town and village level.

Even with these enhancements, the level of information available to customers and stakeholders did not meet customer needs or expectations as it became limited by the customer specific information that was available from the OMS. Improvements across both the restoration process and supporting information systems are being considered to address this deficiency. A key enabler for improvements in customer communications is new Outage Management System that is currently under development. This system will help to address the aforementioned limitation by

more effectively including “system connectivity”. This will enable a more efficient association of system damage to the affected customers which would lead to better restoration estimates and messaging.

Although not customer specific, LIPA’s Storm Center web pages were updated on a consistent basis, providing information on restoration progress by town. By mid-week, customers visiting the Storm Center web site were able to obtain information on total outages by town, including updates on the number of customers that had been restored.

In spite of the limitations on customer specific outage information, in total, over 800,000 outbound calls were initiated to customers to set expectations, validate outage information and provide restoration estimates as they became available. An illustration of the specific information communicated at various stages during the process is reflected in Figure 7.5.

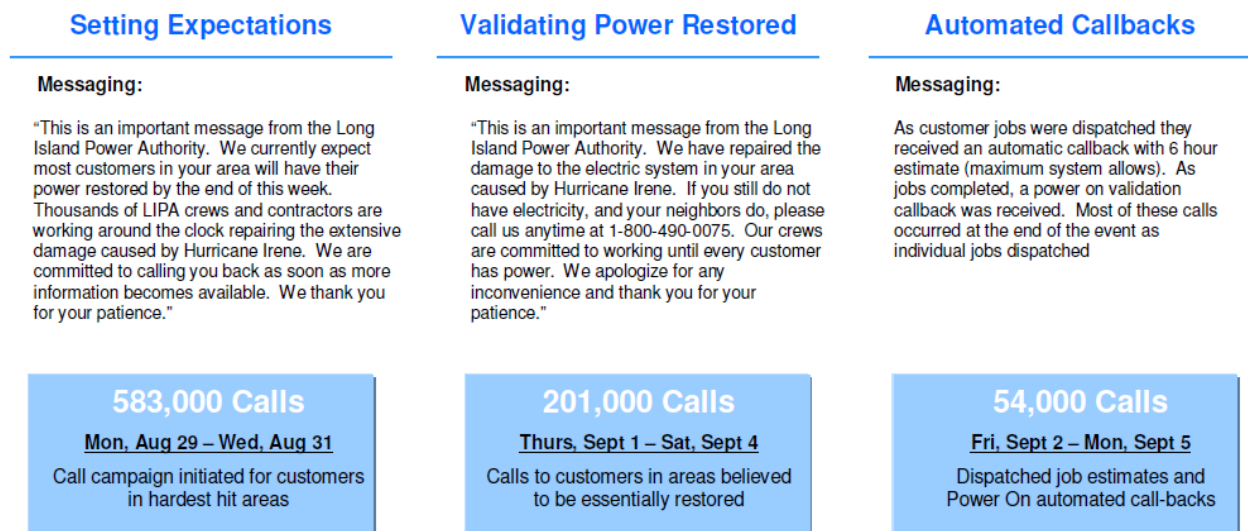


Figure 7.5

Automated outbound phone messaging was used extensively throughout the event to communicate restoration times to customers. The following is a summary of these messages:

- Proactive communications with major customers to provide updates and set expectations.
- Direct contact with critical facilities (hospitals, nursing homes, schools, water districts, water sewage, etc.). Close coordination with these groups to ensure we set priorities based on critical customer needs, including ensuring all schools and universities had power by opening day. (Proactive outreach to all school districts, whether power on or not, to ensure conditions safe for them to open).
- E-mail blasts to 280,000 customers for whom LIPA had e-mail addresses on file.

- Approximately 800,000 outbound calls to set customer expectations regarding high level restoration projections, validate “power-on” after restoration was essentially complete in specific areas and provide restoration estimates upon job dispatch.
- Website was updated multiple times daily to provide general outage information early on and more specific customer restoration information as it became available as well as continued safety information (i.e., safety around downed wires).
- Developed a Town and Village listing on the website to provide more specific information regarding areas hardest hit and restoration progress.
- Developed FAQs based on real-time customer feedback and posted on website, social media, used in talking points, media interviews and other channels to provide consistent messaging.
- Call Center Interactive Voice Response (IVR) updated five times daily or more to provide customers with latest restoration information.
- Media interviews and social media used to provide restoration information and respond to customer inquiries.
- Real time responses to social media inquiries. Responded to over 1,000 tweets. Experienced nearly 800,000 Facebook interactions/page views.
- Webcast all press conferences and live tweeting and Facebook updates during every press conference to ensure real time access.

Conclusions

- Increasing customer expectations and technological advancements necessitate enhancements to current communications processes. Processes and systems need to be adapted to provide customers with area specific restoration estimates in heavily damaged areas.
- Need to continue to investigate means to adapt how we provide “normal day” type of information to our customers in an event of Island-wide damage. Planned system enhancements and adoption of a new OMS should provide some additional capability.
- LIPA’s web site was an effective means of providing storm related information.
- In spite of the limited customer specific information available, LIPA’s Storm Central web site functioned well.
- Outbound calls were used widely to communicate with customers as information became available.
- Development of a web-based link for all pertinent communications to CSRs created a fast, easy way for front-line employees to find information for customers instead of shuffling papers (See Exhibit 13).
- The high Volume IVR was a great tool in handling the increased call volume. Efforts should continue to minimize its use and transition calls to live CSRs as soon as possible.
- Annual refresher communication to all employees explaining ‘restoration priorities and seven potential damage locations with pictures should be provided so that they maintain this understanding.
- E-mails were an effective means of providing customers storm updates during Hurricane Irene. An increased emphasis should be placed on providing daily updates via email and obtaining additional e-mail addresses and cell phone numbers from customers.

- While a major focus was made to address the needs of Critical Care customers, additional efforts should be made to confirm that all customer lists are accurate and up-to-date.

b. Government Relations

As with the management of all large storms, effective communications and coordination with public and elected officials is a necessity. As key public figures, it is important that elected officials have a good understanding of LIPA's plans and restoration approach, and they are well versed in communicating this and other important emergency response information to their constituents. Public officials are routinely looked upon by their constituents to provide up-to-date storm restoration information and in many cases are asked by such constituents to intervene on their behalf when restoration times are prolonged. Additionally, elected officials often have access to key information and resources that are essential to the restoration process. Specifically, coordination of activities with towns and municipalities related to road clearing and tree removal are an important aspect of the restoration process, especially when LIPA's electrical equipment is involved. LIPA has a true appreciation of this dynamic and in response, has a dedicated organization to address such needs both prior to and during storm restoration efforts.

Operating out of the Communications Coordination Center, resources from Government Relations, Community & Customer Management, Media Relations, Emergency Preparedness and Customer Relations are brought together to provide two-way communication with elected officials. These officials are provided direct access to the individuals within the room and are expected to utilize this access to report or inquire about significant storm related issues affecting their towns, villages or constituents. The assigned resources are available to answer all requests and expedite any necessary actions to address such concerns.

Government Relations maintains and regularly updates emergency contact information for state, county, and local public officials and staff members. This contact information was used as needed during and following the storm in coordination with LIPA's Government Relations. With the threat of the impending storm, procedural contacts were made with the NYISO, PSC and DOE regarding storm preparations. Additionally, a letter on storm preparations was faxed to governmental agencies and elected officials, while personal contact was made with County Executives, Town Supervisors, Mayors and others.

The Communications Coordination Center (CCC) was activated at 0600 hours on Sunday, August 28 with a full staffing complement of personnel. The municipal phone lines were staffed 24/7 throughout the duration of the storm and remained open until Monday, September 5 after which all municipal calls were handled by Customer Relations through the Customer Assistance Center.

Over 1,600 contacts were handled by CCC Government Relations staff which included direct calls to the municipal hotline, e-mails from elected officials and local municipalities, direct calls made to both LIPA and National Grid Government Relations, and customer issues referred through the Governor's Office. This number does not include the many calls received and handled directly by Major Accounts, which include hospitals, nursing homes, schools, water districts, sewers, restaurants, etc.

All response actions conducted in CCC Government Relations were completed under the direction of LIPA's Government Relations. The communications organization participated in informational calls with municipalities that were hosted by the County Offices of Emergency Management (OEMs). While these calls were helpful to local officials, the sporadic schedule of the calls was not adequate for maintaining communications to many Villages and Towns. Additionally, many municipal officials stated that they do not regularly coordinate their activities through the County OEMs.

Accordingly, LIPA adapted to these fluid conditions and implemented a daily email/fax update to municipalities. E-mail blasts providing daily storm updates were sent to elected officials and municipal governments. Nonetheless, while these e-mail updates were provided on a regular basis, limitations on available information led to increasing frustrations among elected officials. As customers grew anxious due to the lack of customer specific outage information, many reached out to their elected officials for such information. They in turn reached out to LIPA and too became frustrated with the lack of such detailed information.

Further complicating the CCC was the large influx of calls that was further exacerbated when certain governmental officials provided the private phone number to the CCC to their constituents. This phone number was established for the sole use of elected officials and is not intended for use by the public. The CCC has neither the appropriate resources or staffing to support this high volume of customer inquiries as such calls must be directed to the Customer Assistance Center. Personnel requests by elected officials also became overwhelming and must be better managed in the future.

With the increasing volume of calls to the CCC, the growing number of special requests and pressure from the media and government relations, it became evident that opportunities exist to more clearly designate and communicate the "Centralized" LIPA Leadership for Government/Municipal activities. In particular, it is important that the incident command structure, roles and protocols for the CCC operation be more clearly conveyed as in certain instances during the restoration process, there was a perceived void in leadership in the CCC and some confusion to roles within the operation. Additionally, shortly after the storm, LIPA hired four new district managers that will now be integrated with the Government Relations process. The addition of these personnel and clarification of their roles will also help to enhance the overall process.

Finally, as the result of a building fire and the resulting renovation, the CCC had been deployed to temporary workspace earlier in the year. The temporary workspace became a challenge as it was could not accommodate all CCC personnel within one area, making command and control of this function more difficult.

Conclusions

- Outreach to public officials and local municipalities was not satisfactory. Specifically the information available and frequency of communications with elected officials fell short of meeting their needs. Given the ever growing appetite for information, there is merit in increasing proactive storm update communications with elected officials.

- Elected officials from all levels of LIPA's service territory should be briefed prior to a major storm to manage expectations and open lines of communications.
- LIPA has committed to implementation of a daily municipal call which would focus on restoration efforts and not be dependant on other organizations (i.e., OEMs).
- Daily storm updates should be provided to the CCC Government Relations staff at the start of every shift.
- The CCC received a large number of elected official requests that were of a routine nature, i.e., either reporting outages or asking when the power would be restored. Such requests are not intended to be directed to this command center and as such, it is recommended that a more efficient process for handling these routine inquiries be identified in the future (i.e., route directly to the Call Center).
- The large number of personal requests from elected officials further compromised the integrity of the CCC operation and introduced inefficiencies to the restoration process.
- The dedicated telephone number for the CCC was compromised and led to a very high number on non-municipal customer calls, overwhelming the ability to effectively communicate with municipal officials in many instances.
- Elected officials must be reminded of the intent of the Command Center and the appropriateness of the requests that should be directed here. Routine requests that would be better handled in the Call Center divert resources in Room 210 from handling the more critical or higher priority issues.
- Opportunities exist to re-examine the command structure of the CCC to ensure the proper structure, leadership and authority is in place and clearly understood.

c. Community & Customer Management – Major Accounts

Commencing Monday, August 22, Community & Customer Management – Major Accounts supported preparation and restoration efforts. The primary role of Major Accounts is to effect communications with managed business customers to prioritize restoration to the extent possible, and to advise customers of restoration status, allowing them to make informed business decisions. The Community Relations activities of Community & Customer Management were focused on enhancing LIPA communications with local community and business groups, as well as governmental agencies.

During the week of August 22, Major Accounts attended the debrief sessions on the storm tract and updated all appropriate customer files so that they were ready if storm were to hit Long Island. On Thursday, August 25, in coordination with the Communications Team, an e-mail blast was sent to all Major Account customers stating the general hurricane preparedness and safety messaging, we also reminded customers to operate and test emergency generation, make sure an adequate fuel supply was secured and to make provisions for fuel tank refills, as well as securing dry ice to prevent product damage. Also, starting Thursday, August 25 and carrying forward to Friday, August 26, each Account Executive made personal phone calls to their customers. On Friday, August 26, those outbound calls continued until complete.

On the evening of Friday, August 26, a second email was sent out. In addition to general hurricane preparedness and safety messaging, we included a hurricane warning message. Customers were also informed that we were going to man local substations. Therefore, we introduced our

supplemental staffing plan which identified alternate contacts to follow-up with Major Account customers to address outages and ongoing power restoration concerns. Customers were reminded to first report an outage to the Call Center. They are then asked to call their Account Executive or their alternate. Three land line phone numbers were also provided for follow-up and problem resolution. These land lines were manned 24/7 starting Sunday, August 28 at 0600 hours in the Communications Command Center. This coverage remained in place until 2200 Sunday night, September 4.

On Saturday August 27, a coordination meeting was conducted with the Account Executives and their alternates. The intent of this meeting was to exchange all necessary and pertinent customer contact and data information. Process and protocol details were also reviewed so that everyone had clarity and definition regarding their roles. The intent was to have a seamless service level for the customer. From Saturday evening, August 27 until Sunday morning, both Account Executives and alternates were monitoring CARES messages and making sure Major Account outages were recorded in SPMS or were forwarded information to Communications Coordination Center personnel for system entry.

On Sunday, August 28, at 0600 hours, Major Accounts joined other staff in the Communications Coordination Center in Hicksville as well as Call Center in Melville to begin damage assessment/information gathering and communication coordination. Throughout the day, MAEs reached out proactively to their customers to keep them informed of the status of the LIPA system and to be made aware of any significant customer outages. Special priority was given to critical care customers (defined segments are hospitals, nursing homes, sewage treatment plants, water pumping stations, college/universities, public and private K-12 schools). An Excel file for each customer and facility including name, address, grid number, account number, circuit number, rate class and contact names and phone numbers was maintained. As Sunday progressed, it became apparent that due to the extensive damage in many areas, there would be a number of facilities that would not have power restored for several days. Prioritization was given to critical care customers and the Customer Care Coordinator lead the process. These customers were prioritized as follows: Hospitals, Nursing homes, Water pumping stations and sewage treatment plants. Priority consideration was then given to colleges/universities as some higher education facilities planned to open between Monday, August 29 and Thursday, September 1. Simultaneously, we started prioritization with public and private K-12 schools. Priority was given to Amityville Middle School as they planned to open September 1.

All critical care customers in the segments listed above were back on line by Sunday, September 4. The highest priority critical care segment, hospitals, was back on line by Tuesday, August 30.

On Thursday, September 1, all known and registered Nursing Homes had power restored and there was a full out effort on the Public School market to get power restored for the upcoming first day of school. A list of Water Districts and Waste Water Treatment Plants without power were identified and provided to Operations for targeted restoration. A special effort was made with regard to Private Schools to identify those that were still without power.

On Friday, September 2, a significant effort to restore power to any remaining Public and Private Schools was undertaken to make sure that all schools could open on time the following week. All

Public School districts were called by the MAEs to identify any remaining issues or safety concerns. Restoration to the Water Districts and Waste Water Treatment Plants was going well. All Public Schools had power restored by the end of the day. A list of Supermarkets without power were identified and provided to Operations for targeted restoration.

On Saturday, September 3, repair crews were targeting the remaining issues and safety concerns throughout the Public School system to ensure that schools would have no problems with the first day of school. MAEs worked with their customers through many momentary outages and additional system problems as new outages periodically occurred as the system repairs were being made.

On Sunday, September 4, a list of remaining MAE customers with outages, issues or concerns were finalized and MAEs worked with Operations to ensure that all customers were restored. The Water Districts and Waste Water Treatment Plants took a lot of effort because of many problems with single phase problems and back-up generator problems.

To verify restoration, MAEs worked closely with Operations to determine prioritization for those critical care customers with the greatest need (i.e. backup generation not working, etc.) Our analysts actively viewed status updates in SPMS so we could communicate back to the customers. For those outages under local control, MAEs had direct access to group coordinators and then in turn, communicated status updates to customers. A third layer of outage communication was filed verification in some instances (i.e. K-12 schools) because they were not open and in some instances, outbound phone communication could not be made as the customers were not readily available.

To confirm restoration, even though we had notification via SPMS or operations, we proactively contacted every critical care customer to verify power was back on and that no other issues needed to be addressed. To further support local communities and schools, we proactively called every Long Island public and private school district to determine whether they had a recorded outage or not. The intention was to make sure power was on and also to ensure conditions around the school grounds and property were safe, clear of any downed lines or leaning poles.

Major Accounts maintained coverage in the Communications Coordination Center, 24/7 through 2200 Sunday, September 4. The Room was again opened on Monday, September 5 at 0600 and permanently closed operation by 1400.

Conclusions

- Major Account coordination worked reasonably well.
- Pre-planning notification of customers went as planned.
- Focused and heightened efforts with areas of public health and safety helped ensure appropriate dissemination of information and proper attention to restoration.
- While restoration of nursing homes was effectively addressed, opportunities exist to revisit the segment list to ensure it is comprehensive and appropriately captures all facilities to be proactively managed during storms.

- The decision of having the MAEs within the Communications Coordination Center was helpful and a continuous dialog expedited the response time. Furthermore, the close relationship with operations to determine prioritization for those critical care customers did expedite the process and allowed quick response to the managed customers.
- Account management should be expanded to smaller accounts during storms for critical customer groups such as schools and nursing homes.
- Consider creation of a dedicated line for critical care Major Account customers.

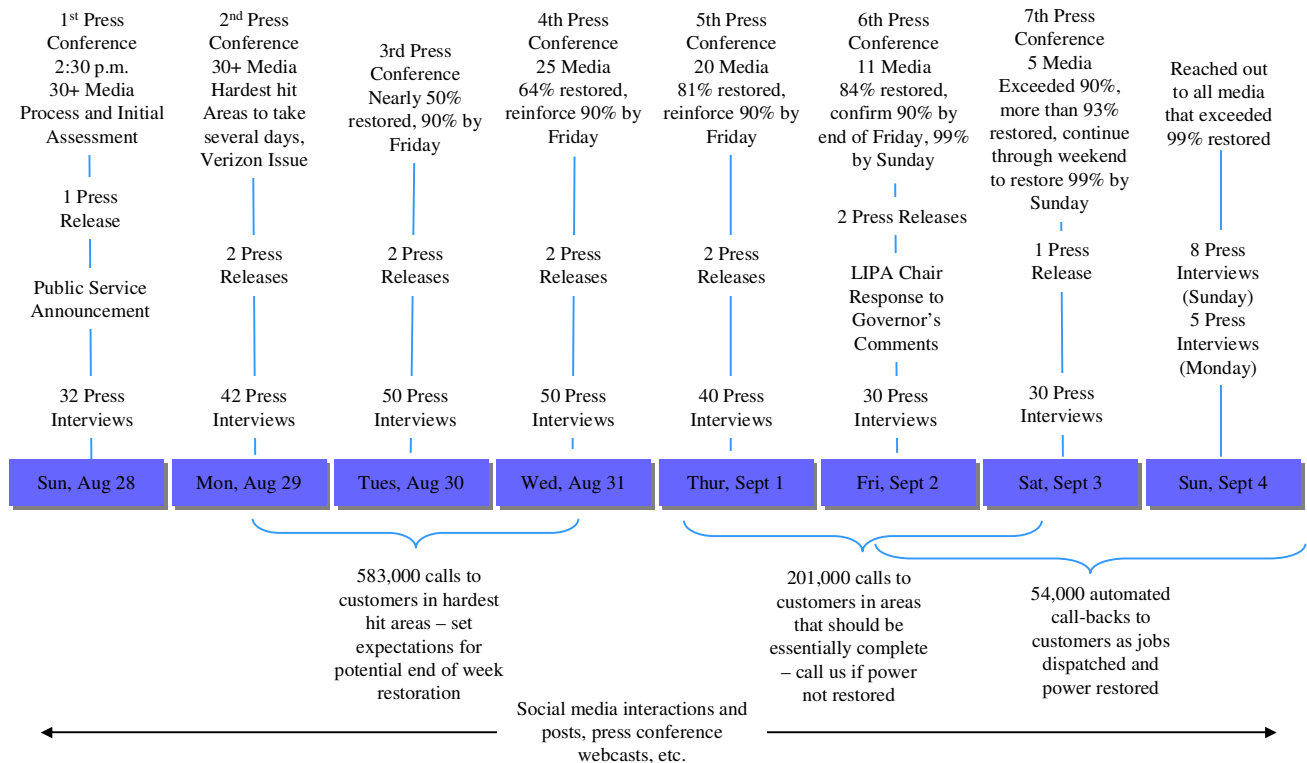
d. Media Relations

National Grid's Media Relations personnel worked closely with LIPA Media Relations to support media efforts during the storm. Specific actions included the coordination of press conference logistics (and associated media conference calls), working with the media in attendance on various issues (including helping to provide location shots), proactively gathering storm media coverage, and developing key talking points and safety messages for executive leadership to use at the press conferences. In addition, they helped to draft press release materials, providing LIPA template storm press material to help them as they crafted press releases throughout the event. Furthermore, Media Relations personnel worked with local reporters to respond to information requests and remained in constant contact working side by side with LIPA's media team and provided any support that was needed.

Beginning on Sunday, August 28 and continuing through Saturday, September 3, daily press conferences were held to provide updates on storm restoration activities. All press conferences were held at the Hicksville facility and were well attended due to the proactive outreach by the LIPA media relations team. Media outlets represented included: Newsday, News 12, WABC-TV, WNBC-TV, FOX5NY, News 12 (live broadcast 4 consecutive days), FIOS1 TV, WCBS-TV, WPIX TV, TV-55, WCBS radio, WOR radio, New York Times, LI Herald newspaper group, LI Press, Patch.com, and the NY Post. Mr. Hervey, COO LIPA, shared the podium with National Grid's President of Long Island Jurisdiction, John Bruckner. Mr. Hervey's remarks predominately focused on providing progress updates on storm restoration efforts while Mr. Bruckner's remarks addressed operational updates. Many of the briefings were broadcast "live" by News 12, Long Island's primary cable news channel. Live tweeting and Facebook updates were used during press conferences beginning August 30.

A timeline summarizing press conferences, press releases and is summarized in figure 7.6.

Key Outage and Restoration Information Timeline*



* Note additional information provided at press conferences, related to safety, crew information, etc.

Figure 7.6

Conclusions

- Holding daily press conferences with the ability for all media to attend or call-in on conference line provided the media with timely information.
- Need to assess the Daily Press briefings to understand whether we communicated the “right” information to manage all constituent expectations and whether we need to think about areas where we need to focus on “customer speak” as opposed to utility jargon.
- Dissemination of press releases twice daily provided percent and numbers restored in addition to pertinent messaging needed to communicate with customers.
- Deployment of social media (twitter and Facebook) provided the opportunity to communicate with customers in real time and provided additional information to customers regarding crew deployment, types of damage jobs in areas and percent restored by town, village and hamlet.
- “By the Numbers” fact sheets provided a broad perspective on the overall restoration effort and was a useful tool for reporters and used as a visual at the press conference.
- Arranging for media to follow T&D crews and conduct interviews proved beneficial.
- Opportunities to better set customer expectations by providing pre-storm duration estimates (number of days). Supplement with enhanced education of customers on the restoration process, logistics and expectations for customer-level estimates in major events.

- Field locations should also be considered for press conferences to provide additional visibility of storm damage and restoration efforts.
- Need more formalized process regarding the identification of crew and damage locations to be visited by media.

e. Employee Communication & Brand

Ranging from editorial support (field talking points, emails), National Grid Infonet design and placement, and arranging for photography and video services, Employee Communication & Brand (EC&B) provided support and advice from the onset of the storm preparations on Thursday, August 25 through the distribution of the employee thank you cards/emails from the National Grid US Executive Team at the conclusion of the storm efforts. This support included:

- Initial email to all employees on Thursday, August 25
- More than 30 updates (corporate e-mails and field talking points distributed to employees from Wednesday, August 24 through Sunday, September 4)
- Hurricane Irene internal web site built and posted on National Grid Infonet. Storm updates posted on the site twice daily. Additionally, photo galleries of the damage and restoration created for all regions of National Grid: LIPA, NE and UNY. Video clips as well as media clips posted on this site throughout the duration of the storm.
- Developed field talking points twice daily and sent to Communication team for distribution to field employees
- Provided storm updates twice daily on employee telephone hotline.
- Coordinated video and photography services
- Worked with National Grid Customer area to develop multi-purpose video on National Grid overall storm response: LIPA, NE and UNY.
- Assisted in the production of thank you cards from National Grid senior management that was mailed to all employees.

Conclusions

- Many employee communications vehicles worked well, including the employee emergency hotline, e-mail communications with updates, Intranet storm web site, and the internal company video on the Irene storm response.
- Opportunity to better educate employees on overall restoration process (prior to storm)
- Opportunities exist for better distribution of field crew talking points and enhanced field messaging (i.e., timing, level of detail, frequency, etc).
- Can further standardize use of pre-established templates to collect and communicate pertinent storm data.
- Better coordination is needed with the Safety organization with respect to the photography/video approval process.

8.0 Post Storm Survey and System Maintenance

On Tuesday, September 13, all personnel normally assigned to a Console or Substation Survey Operations were mobilized to perform a 100% system wide survey of the LIPA electric distribution system. This was done to ensure that all damage locations had been identified and appropriate corrective action initiated. The survey took two days to complete. As a result of this survey effort, 771 damage locations were identified and documented. Identified substandard conditions included such equipment issues as broken insulators, slack in primary/secondary lines, broken cross arms, wire off insulators, as well as areas requiring tree trim work or the removal of tree limbs resting on power lines. These locations were then prioritized for field correction. All work was completed by November 1, 2011.

As a result of these proactive efforts, LIPA's T&D system has been reinforced and returned to its pre-storm condition and configuration. This has helped to limit post-storm interruptions that could have subsequently occurred as a result of existing damage or substandard conditions on the system. LIPA's experience with the recent October Nor'easter illustrated the benefits of such efforts. In the wake of this storm which brought over 2.5" of rain, sustained winds of 30 MPH with gusts in excess of 55 MPH, the electrical system performed exceptionally well, with just over 20,000 customer outages experienced.

Over the years, LIPA has also taken aggressive steps to upgrade and improve the reliability performance levels of its transmission and distribution systems. Efforts to improve reliability are designed to mitigate significant specific causes of interruptions. While no reliability improvement program is 100% effective because of external influences, e.g., storm damage or vehicular accidents, a supplemental approach to improve reliability is to implement reliability programs that 1) limit the number of customers interrupted and 2) minimize outage duration.

Reliability is defined as the frequency and duration of interruptions as experienced by Customers. LIPA's goal is to maintain first quartile system performance as compared nationwide to Investor Owned Utilities (IOUs) while also redirecting some capital and maintenance programs to improve pockets of poorer performance.

LIPA has several reliability improvement programs in place to control significant causes of customer interruptions and to reinforce the distribution system infrastructure. Exhibit 15 provides a summary of each of LIPA's reliability programs.

Conclusions

- Post-storm survey proved valuable in helping to identify any remaining sub-standard conditions on the T&D system.
- The system's performance during the recent Nor'easter of October 2011 reinforced the benefit of dedicated post-storm survey and construction efforts to reinforce the system and bring it back to its pre-storm condition.

9.0 Storm Review Committee

A Storm Review Committee comprised of personnel from the various company organizations and functional areas that participated in the restoration effort (see Exhibit 16) was established to document and memorialize the actions taken in response to Tropical Storm Irene. The Committee has also conducted a thorough performance review across all organizations, including processes and systems utilized in the restoration, and has assembled a comprehensive listing of observed strengths and opportunities to improve future storm performance.

To solicit feedback from stakeholders involved in the restoration effort, the Committee issued a post-Storm Survey questionnaire which resulted in almost 1,000 responses. Furthermore, focus groups involving personnel who performed various storm functions were conducted to gather verbal feedback, with an emphasis on identifying lessons learned. Additional feedback was collected from customers and various external stakeholder groups from across Long Island (i.e., government and public officials) through a number of outreach vehicles both during and immediately following the storm. Lessons learned were then summarized and categorized into key topical areas, such as Operations, Logistics, Communications, Training, etc.

LIPA and National Grid also participated in a series of Municipal Round Table meetings and engaged in significant outreach with local and regional elected officials to proactively solicit feedback on performance during the storm restoration with an emphasis on identifying key opportunities to enhance the overall process. These meetings proved to be a valuable, gaining insight from village and town mayors, emergency management personnel and public safety officials.

Lessons learned were analyzed and prioritized according to the perceived impact of the change and time required for implementation. Based on this analysis, many of these opportunities will be acted on in one of three ways, namely:

- Operational issues addressed locally
 - Items addressed by local supervision, one time incident, etc.
- Issues covered by existing policies/procedures/practices
 - Such information to be disseminated to employees to provide clarity on how the identified issues are handled as part of existing policies/procedures/practices
 - Reinforce through future training and drills
- Opportunities that are needed to be explored further
 - Develop action plans as appropriate

In response to this review, both short and longer term improvement plans have been established and launched. Among other improvements, short term initiatives to be introduced by the end of the year are focused on improving communications with customers and elected officials, and identifying opportunities to better coordinate efforts with towns and municipalities with respect to road clearing and the restoration of traffic signals at critical intersections. Longer term initiatives targeted for completion by mid-year 2012 will expand upon these and other efforts while introducing certain technological enhancements to further improve emergency storm response.

The outcome of the review and any actions adopted will be communicated to all affected employees to ensure visibility to the changes. Any appropriate training required from the introduction of such changes will also be provided in a timely fashion to ensure proper preparation for subsequent events.

Conclusions

- As practice, after action reviews are performed to further improve the process going forward.
- All stakeholders demonstrated a clear desire to improve the process and have been actively engaged in the review.
- Efforts are well underway to adopt certain short term initiatives which would better position LIPA for a more effective response should a storm be experienced in the near term. Longer term initiatives targeted for completion in 2012 will continue to enhance the emergency response process.

10.0 Summary

Tropical Storm Irene was the biggest storm to hit Long Island in over 25 years, leaving approximately 523,000 customers without power. Damage was widespread across the Island as a result of the heavy rains, flooding and strong winds that toppled trees, taking down numerous wires and poles. Nonetheless, in just over one week, all customer outages were restored, even though LIPA was forced to execute its restoration plan for the majority of the restoration period with only half of the requested levels for these resources given the large demand for high voltage resources up and down the east coast. Of particular note, no major injuries were sustained, even with the large workforce deployed to the field to support the effort, which underscores the strong focus on safety.

Overall, there was a tremendous response and engagement from all employees, who clearly were the biggest asset when it came to storm response. The National Grid/LIPA workforce has always taken great pride in storm response, and as an organization has always risen to the challenge of these situations. The co-location of National Grid's Gas, Generation and Shared Services organizations on Long Island and in downstate NY also proved invaluable, quickly providing access to approximately 4,000 additional employees from outside the Long Island Transmission & Distribution organization to support the restoration effort, the absence of which would have led to a much longer and less efficient restoration process.

This storm also demonstrated the benefit of thorough preparation as LIPA was able to effectively deploy resources when the storm hit. By Sunday afternoon, all substations had been mobilized with storm restoration personnel having previously picked up their laptops, maps and storm kits. Substations were staffed and each person knew their role as a result of the thorough training activities and dedication to proper preparation (SACs, ASACs, PC Operators and Survey Personnel).

The ability of National Grid to mobilize its own off-Island resources and to leverage relationships in the Mutual Aid organization and Contractor communities was also a key asset in bringing over 2,000 electrical line workers to LIPA's service territory to assist with the restoration. This proved extremely beneficial given the large demand for such resources up and down the east coast of the United States. Additionally, the improvements made in the Foreign Crew Management systems, process, and roles as a result of lessons learned from the March 2010 Nor'easter played a large role in enabling the efficient processing and managing of these resources.

The Lodging Team's ability to draw from their extensive hotel database (developed during recent storms) and the utilization of established contracts put in place with many of the major hotels facilitated the lodging of thousands of off-Island crews. The deep database enabled the Lodging group to aggressively pursue and exhaust all hotel options on Long Island and in Queens. The single night peak was 1,985 hotel rooms reserved for a total of 3,216 beds across 78 hotels. Established contracts with hotels had the advantages of pre-set pricing, paperwork processing time savings, etc.

The deployment of available National Grid Generation and Gas labor resources co-located on Long Island to supplement Logistics field resources was also key in properly meeting the crew

arrival timelines. Excellent communication, collaboration, planning, and coordination between Logistics HQ, the American Red Cross, the Nassau and Suffolk OEMs, the MSD and Gas crews, and Fleet Services were critical in our ability to pick up, transport, and set up a total of 2,286 cots, each with blankets, bed sheets, pillows, pillow cases, towels, hygiene products, etc. within the required timeframe to accommodate the large influx of foreign crews arriving over the Labor Day weekend. The sleeping accommodations at each designated shelter location were completed within 4 - 6 hours.

Fleet's overnight truck/vehicle refueling operations took a great deal of coordination and fuel tanker resources. By utilizing the four in-house 2,000 gallon tankers, the one 2,000 gallon and one 4,000 gallon tanker deployed from National Grid's UNY region, and by tapping into their fuel contractor's labor and fuel tanker resources, Fleet was able to dispense fuel to over 2,800 off-island crew vehicles/units at 80 different sites (hotels, staging sites, temporary shelter housing locations, etc.) across Long Island. That is in addition to the fueling of the LIPA fleet located throughout the operating yards. Fleet dispensed a total of 253,152 gallons of fuel during the restoration effort.

Inventory Management (IM) closely and continuously tracked their inventory levels of poles, transformers, and other key materials. IM issued over 1,500 storm kits, 200 miles of cable, 859 poles, and 1,051 transformers, and also deployed and staffed 4 mobile storerooms at staging sites. By utilizing the established material contracts with their suppliers, and by leveraging their vendor relationships, IM successfully replenished their material stock levels as needed throughout the restoration effort. For example, poles were delivered same day as requested, with similar rapid responses from the transformer and wire suppliers. IM also had vendors deliver poles directly to crew work locations/staging sites.

The 4 mobile storerooms pre-packed with storm related materials, coupled with the use of pre-packaged commonly utilized line hardware allowed quick set up of the staging areas and provided crews with the materials required to complete their restoration efforts. The 4 mobile storerooms were strategically deployed to the East Hampton Airport, Brookhaven Airport, Bethpage State Park, and Christopher Morley Park / Nassau Coliseum staging areas.

An enhanced storm kit drop off process eliminated foreign crew truck traffic congestion during restoration storm kit drop off and thereby expedited the demobilization and departure of the foreign crews. The process was expedited by offering multiple storm kit drop-off sites to choose from and by staggering the drop off times, a lesson learned from the March 2010 Nor'easter. Foreign crews were directed to have a single truck drop off their crews' kits at the location closest to their last job location or closest to their departure location (i.e. operating yards, substations, staging sites, shelter locations, etc.) as opposed to a drop-off at one or two designated locations as was done in the past. The ability to utilize our Gas Physical Assist labor and vehicle resources to supplement our Inventory Management resources enabled us to be able to pick up the storm kits at dozens of sites across LI and transport them back to our operating yards in a very timely manner.

In many cases, communications efforts worked well. Focused efforts were made to communicate with areas of public health and safety (i.e., hospitals, nursing homes, water districts, sewage pumping stations, etc.) to ensure the appropriate dissemination of information and proper attention

to restoring such facilities. Public school districts were also provided a heightened focus, with prioritized restoration and proactive communication to school administrators and facilities personnel. Additionally, LIPA successfully launched the use of new communications mediums, including a more robust Storm Center Web Site, text messaging and the use of both Facebook and Twitter.

LIPA's Call Center also functioned at levels never experienced before. Record levels of calls were handled, and all available information was consistently communicated to customers and other stakeholder groups. Coordinated efforts with Major Account customers kept these customer groups informed of restoration progress and regular updates were provided to the broader customer base through daily press conferences and press releases.

Nonetheless, as with all storm responses, there are always opportunities to improve performance and both LIPA and National Grid continually look for opportunities to learn from their experiences and adopt changes that will enhance the overall process going forward. During Irene, it became extremely evident that we must continue to evolve the way in which they communicate with their stakeholder groups to provide timely, accurate and above all, useful information. Advances in technology have made many new avenues available and we must continue to exploit the capabilities of their current means of communications while exploring the adoption of a variety of communication techniques across different mediums to ensure that information is provided in a manner that best suits the needs of its affected stakeholders. Additionally, opportunities exist to improve upon the ability to provide more customer specific restoration information and estimated times of restoration. Efforts are currently underway to exploit such opportunities and will continue to be pursued to ensure that all available information is effectively communicate to all affected stakeholder groups.

Opportunities also exist for enhanced communications with Towns, Municipalities and elected officials. Given the ever growing appetite for information, there is merit in increasing proactive update communications. Consideration is being given to providing a "municipal briefing" on a scheduled basis, either through a conference call, e-mail communication or web site update, as well as to better educating elected officials on LIPA's overall restoration approach and processes.

Finally, based on experiences from Irene, we will work with the EOCs and local towns and villages to establish a formalized process to prioritize and address critical needs relative to issues of general public safety. In short, there appears to be opportunities to improve the process when addressing public roadway access, debris removal, downed wires and traffic signals.

Overall, the performance in responding to Irene reaffirmed the Company's ability to restore a large number of electrical outages in a safe and expeditious manner. Moving forward, efforts must be undertaken to ensure that current restoration activities are properly aligned with the needs of customers, elected officials and towns and municipalities to affect an even more successful restoration effort. Recent efforts to solicit and collect feedback from these stakeholder groups has provided a good platform of opportunities to be further evaluated and introduced to further improve the overall restoration process.

11.0 Recommendations

Being the largest storm event in almost twenty six years there has been a very active and engaged performance review taking place on various levels across the many organizations that participated in the storm restoration effort. Specific actions are being developed for each of the following opportunities with accountability and project schedules being developed. As these opportunities are executed they will be undertaken with a focus on remaining flexible and responsible to the needs of our customers

While many opportunities were highlighted throughout the report, the following describes some of the key opportunities to further enhance future storm response:

Communications

- The impact of changing customer expectations and technological advancements with regard to communications must be continuously reviewed, analyzed and incorporated in restoration process as appropriate. Opportunities exist to expand our operational approach to include a more encompassing view of customer needs. Efforts should be made to continue to acknowledge technological advancements that provide opportunities for expanded and enhanced communications with customers and build upon current efforts in these areas (i.e., cell phones, texting, social media, etc).
- Investigate means to provide additional and enhanced information to customers. Develop methods to adapt how we provide “normal day” type of information to our customers in an event of Island-wide damage. These opportunities include better communication of field intelligence gathered at substation level as well as consideration of improvements across both the restoration process and supporting information systems to address this deficiency. A key enabler for improvements in customer communications is new Outage Management system that more effectively maintains system connectivity. This would enable a more efficient association of system damage to the affected customers which would lead to better estimates and messaging.
- Opportunities exist to enhance the process to provide additional information to elected officials. Proactive education campaign (pre-storm) with elected officials to better communicate restoration process and set expectations. LIPA should implement National Grid’s existing policies for communicating with public officials that utilize such tools as daily “Municipal Calls” prior to the onset of the weather event as well as for the hosting of continued and regular and daily update calls throughout weather event, reference materials on what we do during storms and relevant contact information and data sources for use when responding to their constituents.
- There is a need to adopt an agreed to protocol on the management of “Special Requests” from elected officials, including publication of a new municipal telephone number, impressing upon municipal officials need to not share this number with individual customers.

- The initiation of regular communications with field employees through the use of field talking points provided a means for timely and consistent messaging. Opportunities exist for better coordination of such talking points to enhance this field messaging (i.e., timing, level of detail, frequency, etc) and should be investigated.

Operations

- The “Storm Resource Decision Matrix” needs to be re-examined to ensure optimal effectiveness relative to the timing that off-Island support resources are requested. Further consideration should be given to the type of event, timing of its arrival and most importantly, the effect of its projected path on the demand for such resources.
- Efforts should be undertaken to establish a formalized process to prioritize and address critical needs relative to issues of general public safety (i.e., Public roadway access, debris removal, downed wires and traffic signals).
- Opportunities exist to reexamine how we respond to major storms and whether recovery procedures are accurate and reflective of what we do and what we need to do. In particular, need to assess where we could better coordinate recovery efforts with municipalities and other interested parties critical to public health and safety (e.g. telecommunications, LIRR, evacuation centers, etc) to ensure alignment of objectives and associated activities.
- The effectiveness of the ERIPs should be reevaluated to ensure they meet all stakeholder expectations with respect to communication and timeliness of electric restoration. This will ensure the improvement of overall storm plan through the most effective dissemination of information available and the incorporation of the latest appropriate technology.

Education/Training

- Many employees in non-operational positions lack understanding of the overall restoration process and priorities. There is an opportunity to better educate employees on overall restoration process (prior to storm) so they can more effectively communicate with customers.
- Efforts should be undertaken to enhance the understanding of the Critical Care Customer Program among Long Island residents, elected officials and emergency response organizations so as to better manage expectations as to the program’s intent.

- The effectiveness of the customer education program needs to be reevaluated. Pre-storm duration estimates should be provided based on the expected intensity of the storm (number of days) and there is a need to better educate customers on the restoration process, logistics and expectations for customer-level estimates in major events.
- Efforts should be undertaken to provide additional training to re-emphasize the role and responsibility of all employees across the organization in providing customers and key stakeholders improved outage recovery information

Logistics

- Efforts should be made to reduce any confusion resulting from the different policies that individual hotel chains follow regarding holding room reservations, their check-in/check out processes, etc. The varying hotel policies were forcing the Lodging group to call each hotel on a daily basis to validate our reserved bed count numbers. Procurement/Lodging will hold meetings with major hotel general managers to establish consistent policies/protocols that are to be implemented during storm events.
- Preparations should be made for the potential of limited available temporary shelter housing sites for a storm that hits during the school year and/or a storm which results in County residents occupying designated emergency shelters (i.e. Nassau Coliseum). Real Estate is in the process of contacting LI school districts, colleges / universities, and other potential temporary housing sites (churches, closed Catholic schools, etc.) to secure commitments for use of identified facilities where we can set up cots for foreign line crews (after all available hotel beds have been used) post a severe storm that impacts LI during the school year and/or when County emergency shelters are unavailable for our use.

Exhibits

Exhibit 1 – National Weather Service Rainfall and Wind Summary for Tropical Storm Irene

Exhibit 2– Emergency Restoration Organization – Operations

Exhibit 3 – Emergency Restoration Organization Communications

Exhibit 4 – Emergency Restoration Organization – Logistics Support

Exhibit 5 – Drill Schedule

Exhibit 6 – Transmission Outages

Exhibit 7 – Substation Outages

Exhibit 8 – Distribution Outages

Exhibit 9 – Daily EOC Updates and list of substations in Local Control

Exhibit 10 – Off-Island Contractors Supporting the Storm Restoration

Exhibit 11 – Map of Material Staging Areas, Temporary Lodging and Crew Processing sites

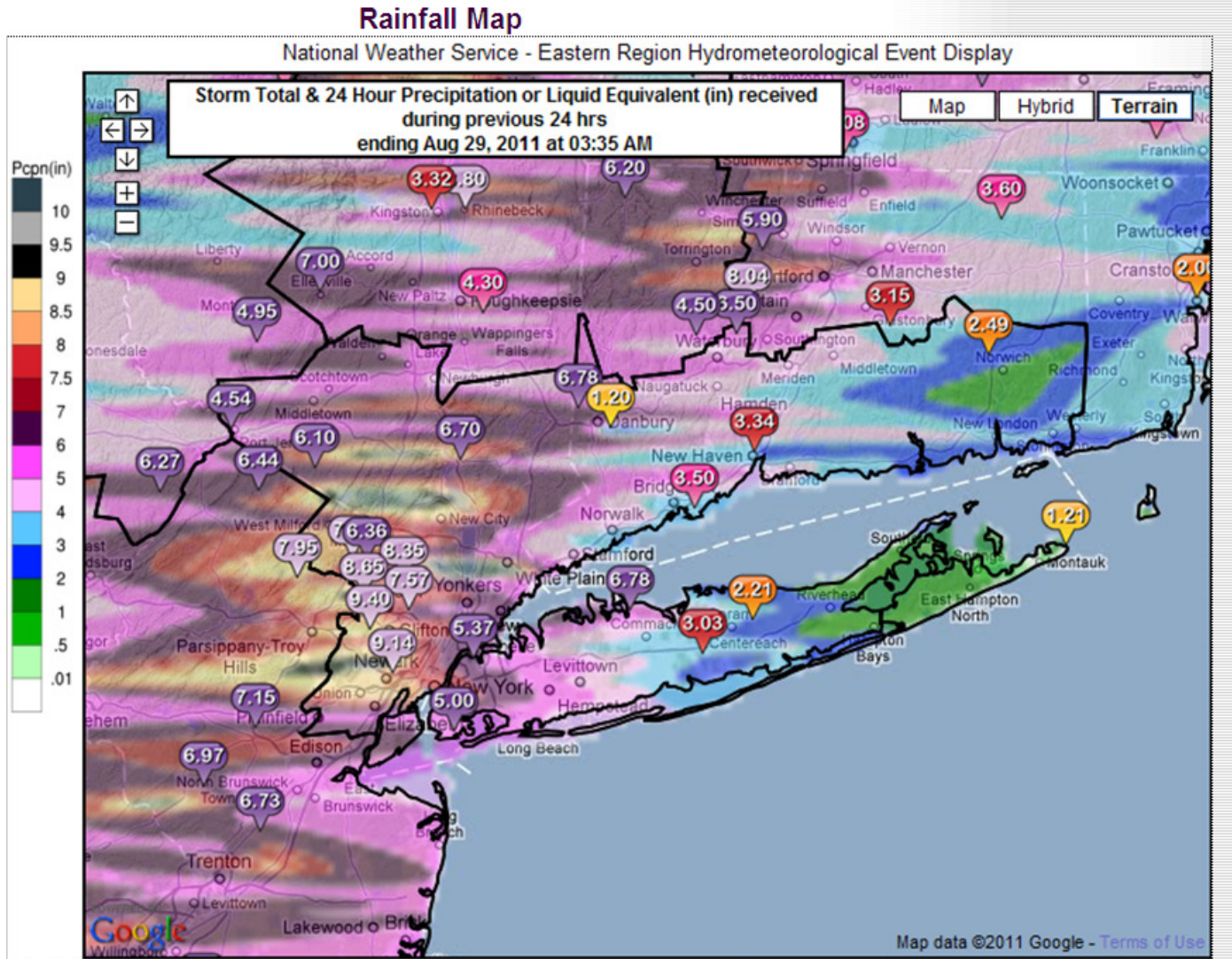
Exhibit 12 – Temporary Shelter at Suffolk County Community College

Exhibit 13 – Storm Communication Samples

Exhibit 14 – LIPA Reliability Improvement Programs

Exhibit 15 – Tropical Storm Irene After-Action Review Team

National Weather Service Rainfall and Wind Summary



Wind Gust Map with Point Data

National Weather Service - Eastern Region Hydrometeorological Event Display

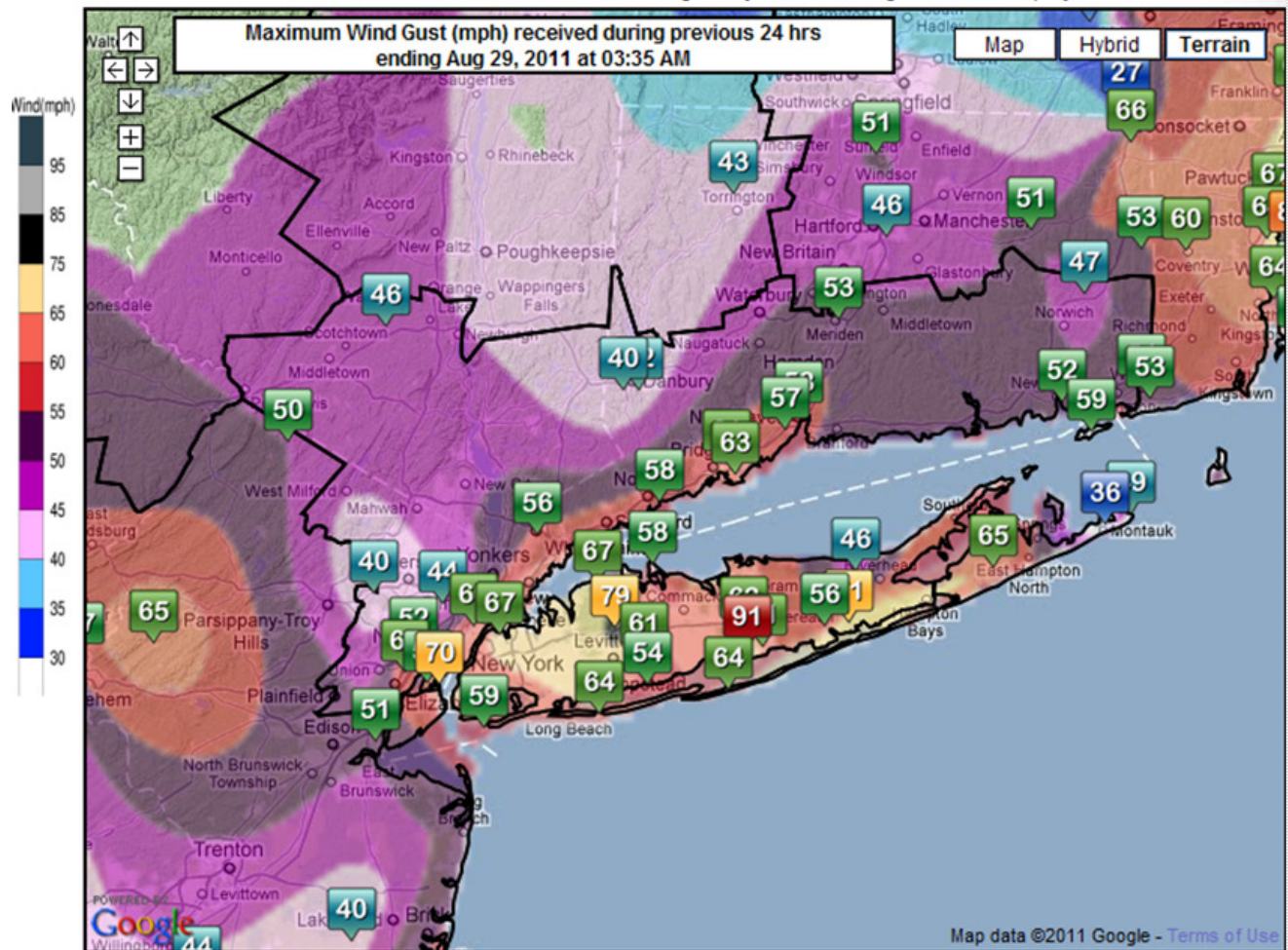


Exhibit 2

Emergency Restoration Organization - Operations

Chart 010

Operations Control - System Headquarters - Emergency Restoration Organization - Chart 010

10/03/11

Note: Numbers (011, 051, 890, etc.), refer to chart that shows all personnel assigned to that location.

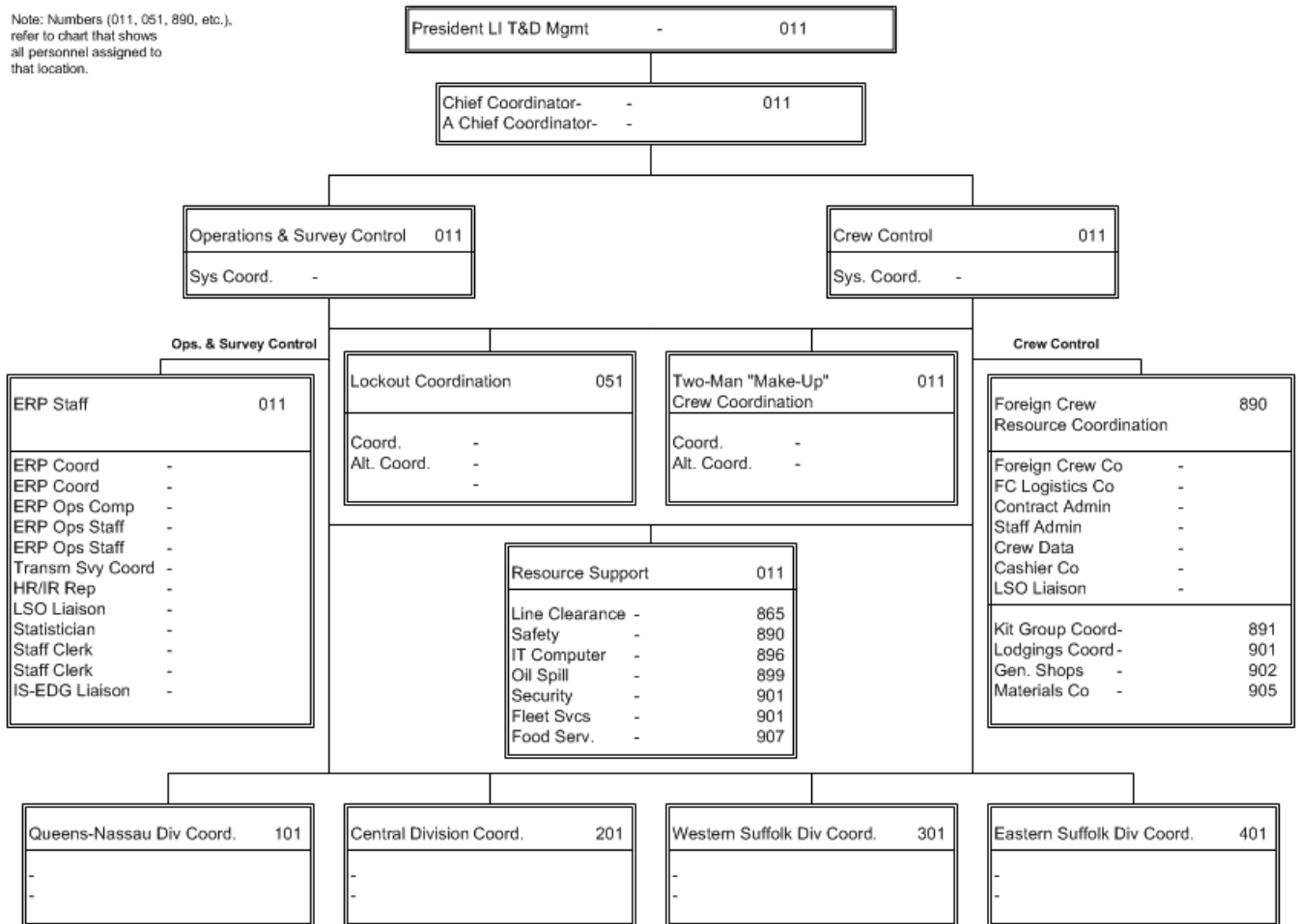


Exhibit 3

Emergency Restoration Organization - Communications

Chart 500

Communications Control - Emergency Restoration Organization - Chart 500

10/3/11

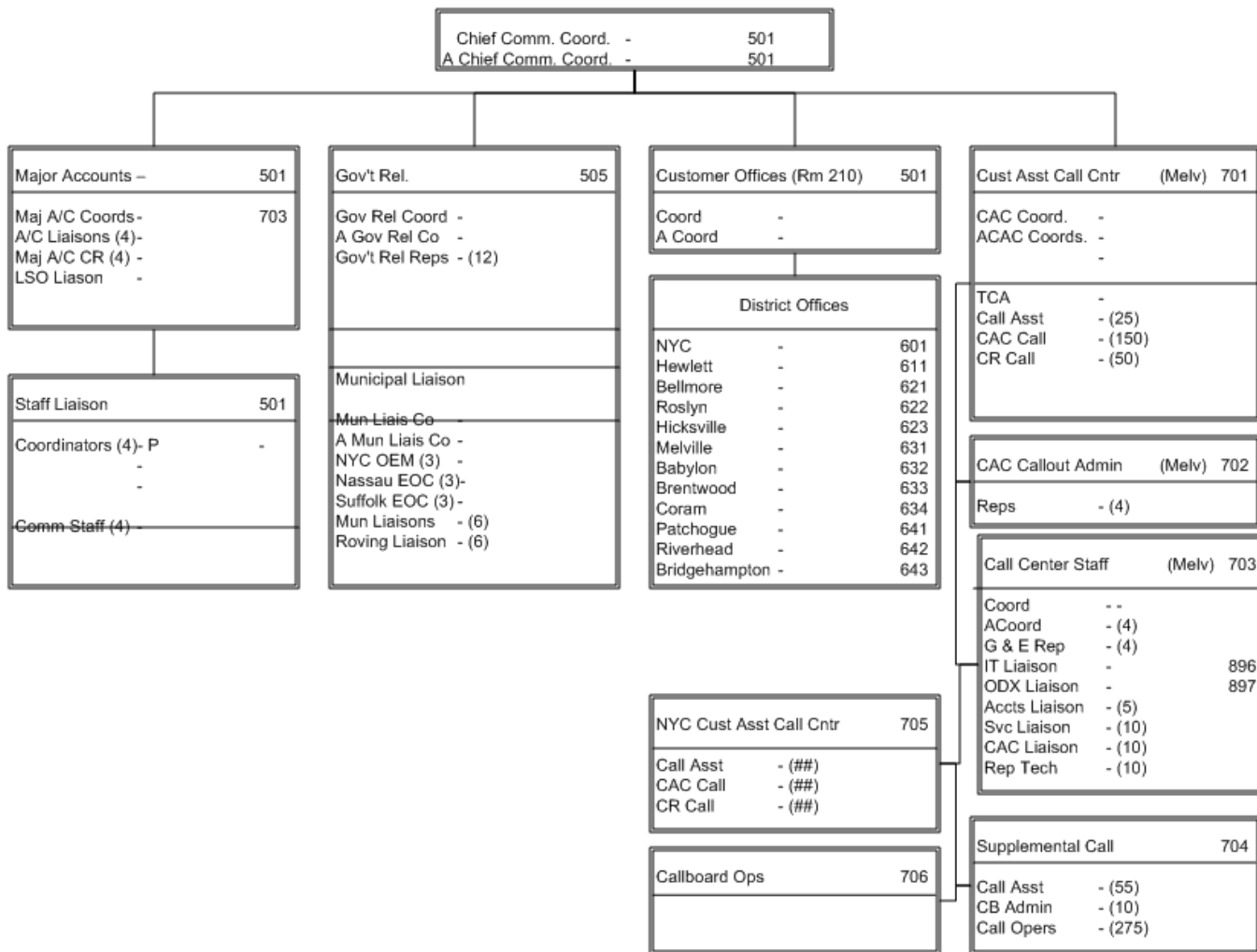


Exhibit 4

Emergency Restoration Organization – Logistics Support

Chart 900

Logistics Support - Emergency Restoration Organization - Chart 900

10/3/11

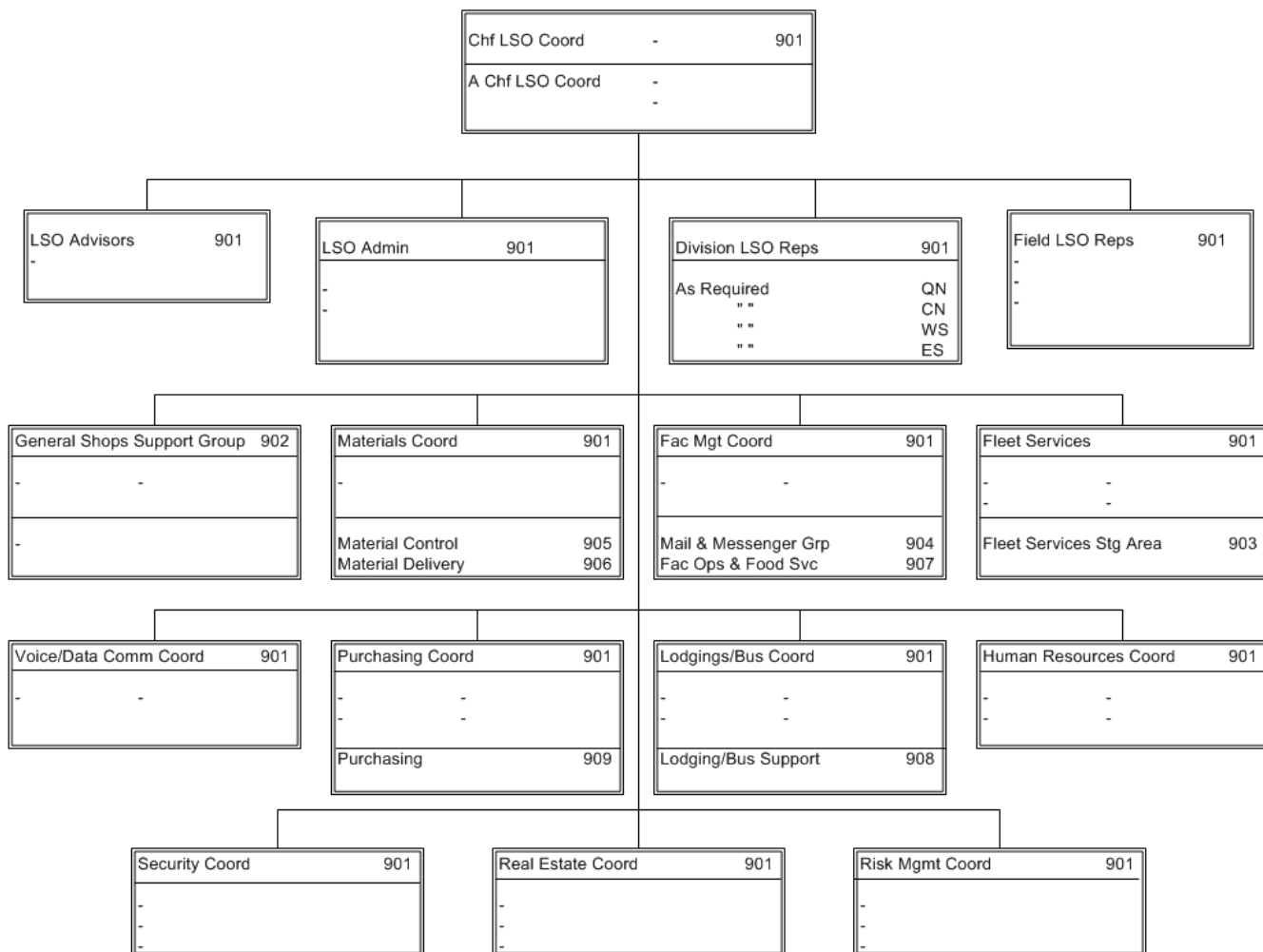


Exhibit 5
Drill Schedule

Drill	Date
Foreign Crew Coordination Exercise	February 1, 2011
Pre-Exercise Strategy, Orientation & Training Meetings	March 8 - 10 & 14 - 15, 2011
Central Division Console & Substation Exercise	March 29 through April 15 2011
Eastern Suffolk Division Console & Substation Exercise	April 28 through May 13, 2011
Queens-Nassau Division Console & Substation Exercise	May 17 through May 26, 2011
Western Suffolk Division Console & Substation Exercise	June 7 through June 24, 2011
LIPA/National Grid Executive Hurricane Tabletop Exercise	July 13, 2011

Exhibit 6

Transmission Outages

Transmission Line Outages - by Voltage

09/22/2011 10:25

<i>Circuit</i>	<i>Destination</i>	<i>From</i>	<i>To</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
23KV								
23-619	GREENLAWN - HALESITE	6UL	6B	08/28/11 4:47	08/28/11 19:08	1	0 : 14 : 21	861
23-620	GREENLAWN - HUNTINGTON VILLAGE	6UL	6GL	08/28/11 10:10	08/28/11 18:02	1	0 : 7 : 52	472
23-736	CAPTREE - SW 526	7U		08/27/11 19:29	08/28/11 20:57	1	1 : 1 : 28	1528
23-738	CAPTREE - ROBERT MOSES	7U	7KM	08/27/11 19:29	08/28/11 20:57	1	1 : 1 : 28	1528
23-743	WATSON - SW 583 - SW 5708	7MM		08/28/11 20:00	08/29/11 12:38	1	0 : 16 : 38	998
23-748	BAYPORT - F.I. PINES	7RM	7HM	08/28/11 20:00	08/29/11 13:09	1	0 : 17 : 9	1029
23-749	FAIR HARBOR - OCEAN BEACH	7AM	7LM	08/27/11 18:15	08/28/11 22:02	1	1 : 3 : 47	1667
23-752	OCEAN BEACH - F.I. PINES	7LM	7HM	08/27/11 17:14	08/29/11 13:09	1	1 : 19 : 55	2635
23-879	EASTPORT - MABS 545	8T		08/28/11 8:28	08/29/11 15:17	1	1 : 6 : 49	1849
23 KV Totals		Outages	9	Restored	9	Remaining	0	8 : 17 : 27
33KV								
33-308	FAR ROCKAWAY - ARVERNE	2H	2AR	08/28/11 7:28	08/29/11 12:13	1	1 : 4 : 45	1725
33-321	CENTRAL AVE - V.S. - SW 553	2W	2K	08/28/11 4:11	08/28/11 22:58	1	0 : 18 : 47	1127
33-340	FLORAL PARK - BELLEROSE	3B	G12	08/28/11 5:40	08/28/11 13:12	1	0 : 7 : 32	452
33-341	FLORAL PARK - BELLEROSE	3B	G12	08/28/11 5:40	08/28/11 13:12	1	0 : 7 : 32	452
33-342	FLORAL PARK - BELLEROSE	3B	G12	08/28/11 5:40	08/28/11 13:12	1	0 : 7 : 32	452
33-343	FLORAL PARK - BELLEROSE	3B	G12	08/28/11 5:40	08/28/11 13:12	1	0 : 7 : 32	452
33-428	GREENFIELD - BARRETT	4E	2WB	08/28/11 18:34	08/29/11 15:45	1	0 : 21 : 11	1271
33 KV Totals		Outages	7	Restored	7	Remaining	0	4 : 2 : 51

<i>Circuit</i>	<i>Destination</i>	<i>From</i>	<i>To</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
69KV								
69-260	HEWLETT - VALLEY STREAM	2R	2K	08/28/11 15:00	08/29/11 16:50	1	1 : 1 : 50	1550
69-368	NORTH HILLS - MANHASSET	3LG	3D	08/28/11 1:31	08/28/11 17:46	1	0 : 16 : 15	975
69-457	GLENWOOD # 2 - BROOKVILLE	4XH	4J	08/28/11 4:48	08/29/11 19:55	1	1 : 15 : 7	2347
69-467	GLENWOOD #2 - MANHASSET	4XH	3D	08/28/11 5:43	08/28/11 16:46	1	0 : 11 : 3	663
69-473	JERICO - BROOKVILLE	5MK	4J	08/28/11 7:35	08/29/11 12:20	1	1 : 4 : 45	1725
69-484	GREAT NECK - PORT WASHINGTON	3A	3H	08/28/11 4:22	08/29/11 14:08	1	1 : 9 : 46	2026
69-531	ORCHARD - LOCUST VALLEY	4RH	5GK	08/28/11 18:03	08/30/11 21:42	1	2 : 3 : 39	3099
69-533	OYSTER BAY - SYOSSET	5H	5K	08/28/11 8:05	08/28/11 21:18	1	0 : 13 : 13	793
69-552	NEW SOUTH RD - SYOSSET	5X	5K	08/28/11 4:15	08/31/11 18:15	1	3 : 14 : 0	5160
69-566	BELLMORE - MASSAPEQUA	5R	5U	08/28/11 9:28	08/31/11 20:36	1	3 : 11 : 8	4988
69-572	PLAINEDGE - MASSAPEQUA	5G	5U	08/28/11 1:09	08/28/11 20:16	1	0 : 19 : 7	1147
69-574	BELLMORE - NORTH BELLMORE	5R	5RK	08/28/11 1:32	08/28/11 22:51	1	0 : 21 : 19	1279
69-651	RULAND ROAD - SOUTH FARMINGDALE	6U	7UM	08/28/11 2:27	08/29/11 17:10	1	1 : 14 : 43	2323
69-657	SOUTH FARMINGDALE - STERLING	7UM	7J	08/28/11 4:01	08/29/11 11:53	1	1 : 7 : 52	1912
69-660	PILGRIM - BRENTWOOD	6DL	7B	08/28/11 10:09	08/29/11 19:33	1	1 : 9 : 24	2004
69-667	WOLF HILL - GREENLAWN	6W	6UL	08/28/11 2:22	08/29/11 8:13	1	1 : 5 : 51	1791
69-670	ELWOOD - PULASKI	6RL	6P	08/28/11 9:54	08/28/11 16:15	1	0 : 6 : 21	381
69-671	SMITHTOWN - INDIAN HEAD	6D	6HL	08/28/11 6:52	08/29/11 11:23	1	1 : 4 : 31	1711
69-672	SMITHTOWN - NESCONSET	6D	6L	08/28/11 16:20	08/28/11 20:44	1	0 : 4 : 24	264
69-673	NESCONSET - HOLBROOK	6L	8D	08/28/11 4:45	08/28/11 18:06	1	0 : 13 : 21	801
69-755	PINELAWN - RULAND ROAD	7T	6U	08/28/11 4:11	08/29/11 1:35	1	0 : 21 : 24	1284
69-764	BRIGHTWATERS - WEST BRENTWOOD	7WM	7F	08/28/11 8:37	08/28/11 15:25	1	0 : 6 : 48	408
69-769	BRENTWOOD-BRIGHTWATERS	7B	7WM	08/28/11 7:55	08/29/11 7:36	1	0 : 23 : 41	1421
69-772	BRIGHTWATERS - WATSON	7WM	7MM	08/28/11 9:12	08/29/11 19:00	1	1 : 9 : 48	2028
69-773	BRENTWOOD - ABS 598	7B		08/28/11 8:52	09/01/11 17:50	1	4 : 8 : 58	6298
69-780	SAYVILLE - WATSON	7R	7MM	08/28/11 7:39	08/29/11 23:53	1	1 : 16 : 14	2414
69-780	SAYVILLE - WATSON	7R	7MM	08/30/11 0:09	08/31/11 11:12	2	1 : 11 : 3	2103

Circuit	Destination	From	To	Date/Time Off	Date/Time On	Repeat Count	Duration DD:HH:MM	Total Min	
69-847	WILLIAM FLOYD - BROOKHAVEN	8WF	8ER	08/28/11 10:11	08/30/11 18:48	1	2 : 8 : 37	3397	
69-848	BROOKHAVEN - WILLIAM FLOYD	8ER	8WF	08/28/11 10:15	08/28/11 10:16	1	0 : 0 : 1	1	
69-855	MORICHES - EASTPORT	8RX	8T	08/28/11 5:14	08/28/11 19:24	1	0 : 14 : 10	850	
69-877	STONY BROOK - PORT JEFFERSON	8MR	8F	08/28/11 5:01	08/30/11 14:33	1	2 : 9 : 32	3452	
69-878	FLOWERFIELD - STONY BROOK	6KL	8MR	08/28/11 6:13	08/29/11 17:11	1	1 : 10 : 58	2098	
69-879	FLOWERFIELD - SMITHTOWN	6KL	6D	08/28/11 16:21	08/29/11 12:18	1	0 : 19 : 57	1197	
69-881	PORT JEFFERSON - MOUNT SINAI	8F	8QR	08/28/11 4:58	08/30/11 19:56	1	2 : 14 : 58	3778	
69-887	RIVERHEAD - TUTHILL	9A	8JR	08/28/11 18:46	08/29/11 21:08	1	1 : 2 : 22	1582	
69-889	JAMESPORT - PECONIC	8JA	8B	08/28/11 9:35	08/28/11 13:06	1	0 : 3 : 31	211	
69-956	RIVERHEAD - JAMESPORT	9A	8JA	08/28/11 6:33	08/28/11 7:48	1	0 : 1 : 15	75	
69-957	PECONIC - SOUTHOLD	8B	8J	08/28/11 11:10	08/28/11 18:15	1	0 : 7 : 5	425	
69-957	PECONIC - SOUTHOLD	8B	8J	08/29/11 22:32	08/30/11 17:18	2	0 : 18 : 46	1126	
69-965	DEERFIELD - BRIDGEHAMPTON	9DF	9R	08/28/11 9:10	08/29/11 0:50	1	0 : 15 : 40	940	
69-969	E.HAMPTON - BRIDGEHAMPTON	9L	9R	08/28/11 9:10	08/29/11 0:29	1	0 : 15 : 19	919	
69 KV Totals		Outages	41	Restored	41	Remaining	0	50 : 15 : 46	72946
138KV									
138-362	E. GARDEN CITY - ROSLYN	4H	4B	08/28/11 10:07	08/30/11 15:32	1	2 : 5 : 25	3205	
138-559	LOCUST GROVE - SYOSSET	5B	5K	08/28/11 4:19	08/30/11 19:02	1	2 : 14 : 43	3763	
138-661	PILGRIM - RULAND	6DL	6U	08/28/11 4:07	08/29/11 12:36	1	1 : 8 : 29	1949	
138-890	RIVERHEAD - WILDWOOD	9A	8DR	08/28/11 10:12	08/28/11 21:33	1	0 : 11 : 21	681	
138 KV Totals		Outages	4	Restored	4	Remaining	0	6 : 15 : 58	9598
System Wide Totals									
System Wide Totals		Outages	61	Restored	61	Remaining	0	70 : 4 : 2	101042

Note: Two transmission lines Sayville-Watson and Peconic-Southold experienced two outages and are appropriately delineated in the "Repeat Count" column.

Exhibit 7

Substation Outages

Substation Outages - System Wide

09/22/2011 10:25

<i>Substation</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
3D MANHASSET	08/28/11 5:43	08/28/11 16:50	1	0 : 11 : 7	667
3H PORT WASHINGTON	08/28/11 5:44	08/29/11 15:45	1	1 : 10 : 1	2041
4J BROOKVILLE	08/28/11 7:35	08/29/11 12:57	1	1 : 5 : 22	1762
5GK LOCUST VALLEY	08/28/11 18:03	08/28/11 21:18	1	0 : 3 : 15	195
5H OYSTER BAY	08/28/11 18:03	08/28/11 21:18	1	0 : 3 : 15	195
6B HALESITE	08/28/11 10:06	08/28/11 19:46	1	0 : 9 : 40	580
6D SMITHTOWN	08/28/11 6:53	08/29/11 0:47	1	0 : 17 : 54	1074
6GL HUNTINGTON VILLAGE	08/28/11 10:06	08/28/11 20:26	1	0 : 10 : 20	620
6HL INDIAN HEAD	08/28/11 9:50	08/28/11 17:03	1	0 : 7 : 13	433
6KL FLOWERFIELD	08/28/11 6:53	08/29/11 12:18	1	1 : 5 : 25	1765
6L NESCONSET	08/28/11 6:52	08/28/11 18:06	1	0 : 11 : 14	674
6M DEPOSIT	08/28/11 9:50	08/28/11 17:01	1	0 : 7 : 11	431
6P PULASKI	08/28/11 9:54	08/28/11 16:26	1	0 : 6 : 32	392
6X WEST NECK	08/28/11 10:06	08/28/11 20:27	1	0 : 10 : 21	621
7AM FAIR HARBOR	08/27/11 18:15	08/28/11 22:02	1	1 : 3 : 47	1667
7HM FIRE ISLAND PINES	08/27/11 17:14	08/29/11 13:09	1	1 : 19 : 55	2635
7KM ROBERT MOSES	08/27/11 19:29	08/28/11 20:57	1	1 : 1 : 28	1528
7KM ROBERT MOSES	08/28/11 21:59	08/28/11 22:02	2	0 : 0 : 3	3
7LM OCEAN BEACH	08/27/11 18:15	08/28/11 22:02	1	1 : 3 : 47	1667
7U CAPTREE ISLAND	08/27/11 19:29	08/28/11 20:57	1	1 : 1 : 28	1528
7U CAPTREE ISLAND	08/28/11 21:59	08/28/11 22:02	2	0 : 0 : 3	3
8B PECONIC	08/28/11 10:10	08/28/11 13:06	1	0 : 2 : 56	176
8MR STONY BROOK	08/28/11 5:01	08/29/11 17:11	1	1 : 12 : 10	2170
8WR ORIENT POINT	08/28/11 14:21	08/29/11 0:56	1	0 : 10 : 35	635
System Wide Totals					
Outages		24	Restored	24	Remaining
				0	
				16 : 7 : 2	23462

Note: Two substations, 7KM and 7U experienced two outages as a result of switching and are appropriately delineated in the "Repeat Count" column.

Exhibit 8

Distribution Outages

Feeder Lockouts - System Wide

09/22/2011 10:25

<i>Feeder</i>	<i>Substation</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
2AB-517	2AB CORONA AVENUE	08/28/11 3:58	08/28/11 18:18	1	0 : 14 : 20	860
2AB-519	2AB CORONA AVENUE	08/28/11 4:05	08/28/11 14:43	1	0 : 10 : 38	638
2AB-525	2AB CORONA AVENUE	08/28/11 0:49	08/28/11 18:19	1	0 : 17 : 30	1050
2AB-526	2AB CORONA AVENUE	08/28/11 16:04	08/29/11 4:51	1	0 : 12 : 47	767
2G-412	2G ROCKAWAY BEACH	08/28/11 8:46	09/09/11 13:32	1	12 : 4 : 46	17566
2H-377	2H FAR ROCKAWAY	08/28/11 7:28	09/09/11 9:45	1	12 : 2 : 17	17417
2M-599	2M LONG BEACH	08/28/11 11:33	08/29/11 11:13	1	0 : 23 : 40	1420
2MA-571	2MA WOODMERE	08/28/11 8:14	08/29/11 1:14	1	0 : 17 : 0	1020
2WB-559	2WB BARRETT	08/28/11 8:17	08/28/11 15:26	1	0 : 7 : 9	429
2Z-482	2Z ATLANTIC BEACH	08/27/11 23:34	09/03/11 11:46	1	6 : 12 : 12	9372
3A-148	3A GREAT NECK	08/28/11 15:56	08/28/11 22:48	1	0 : 6 : 52	412
3A-149	3A GREAT NECK	08/28/11 12:18	08/28/11 18:31	1	0 : 6 : 13	373
3A-151	3A GREAT NECK	08/28/11 3:22	08/28/11 19:12	1	0 : 15 : 50	950
3A-354	3A GREAT NECK	08/28/11 7:36	08/28/11 12:45	1	0 : 5 : 9	309
3AG-66	3AG LAKE SUCCESS	08/28/11 3:04	08/28/11 20:49	1	0 : 17 : 45	1065
3AG-69	3AG LAKE SUCCESS	08/28/11 4:09	08/29/11 13:23	1	1 : 9 : 14	1994
3BG-67	3BG KINGS POINT	08/28/11 6:21	08/29/11 16:43	1	1 : 10 : 22	2062
3D-384	3D MANHASSET	08/28/11 2:20	08/28/11 22:01	1	0 : 19 : 41	1181
3D-388	3D MANHASSET	08/28/11 0:43	08/31/11 19:29	1	3 : 18 : 46	5446
3D-389	3D MANHASSET	08/28/11 2:04	08/29/11 20:34	1	1 : 18 : 30	2550
3H-80	3H PORT WASHINGTON	08/28/11 16:40	08/29/11 18:36	1	1 : 1 : 56	1556
3H-81	3H PORT WASHINGTON	08/28/11 4:54	08/28/11 14:20	1	0 : 9 : 26	566
3J-295	3J WHITESIDE	08/28/11 1:49	08/28/11 20:35	1	0 : 18 : 46	1126
3J-5P1	3J WHITESIDE	08/28/11 3:44	08/28/11 16:09	1	0 : 12 : 25	745
3J-5P1	3J WHITESIDE	08/28/11 19:45	08/28/11 20:35	2	0 : 0 : 50	50
3J-5P3	3J WHITESIDE	08/28/11 12:02	08/28/11 17:53	1	0 : 5 : 51	351

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Feeder	Substation	Date/Time Off	Date/Time On	Repeat Count	Duration DD:HH:MM	Total Min
3KG-296	3KG HERRICKS	08/28/11 1:53	08/30/11 17:01	1	2 : 15 : 8	3788
3KG-297	3KG HERRICKS	08/28/11 3:44	08/28/11 12:38	1	0 : 8 : 54	534
3KG-297	3KG HERRICKS	08/28/11 15:16	08/28/11 16:34	2	0 : 1 : 18	78
3R-48	3R WEST HEMPSTEAD	08/28/11 9:31	08/29/11 17:20	1	1 : 7 : 49	1909
3W-2	3W GARDEN CITY PARK	08/28/11 2:21	08/29/11 8:51	1	1 : 6 : 30	1830
4AH-137	4AH CARLE PLACE	08/28/11 2:58	08/28/11 11:52	1	0 : 8 : 54	534
4AH-137	4AH CARLE PLACE	08/28/11 11:55	08/28/11 13:37	2	0 : 1 : 42	102
4B-116	4B ROSLYN	08/28/11 10:46	08/31/11 7:55	1	2 : 21 : 9	4149
4B-5P9	4B ROSLYN	08/28/11 2:15	08/29/11 10:36	1	1 : 8 : 21	1941
4D-122	4D COUNTRY LIFE PRESS	08/28/11 4:14	08/29/11 13:07	1	1 : 8 : 53	1973
4D-123	4D COUNTRY LIFE PRESS	08/28/11 7:26	08/30/11 8:15	1	2 : 0 : 49	2929
4E-287	4E GREENFIELD	08/28/11 17:42	08/28/11 23:34	1	0 : 5 : 52	352
4E-289	4E GREENFIELD	08/28/11 1:59	08/28/11 16:32	1	0 : 14 : 33	873
4GH-4P8	4GH GLEN HEAD	08/28/11 8:23	08/29/11 4:27	1	0 : 20 : 4	1204
4GH-4P9	4GH GLEN HEAD	08/28/11 18:09	08/30/11 8:37	1	1 : 14 : 28	2308
4GH-853	4GH GLEN HEAD	08/28/11 4:19	08/30/11 20:48	1	2 : 16 : 29	3869
4H-237	4H EAST GARDEN CITY	08/28/11 9:22	08/29/11 11:48	1	1 : 2 : 26	1586
4H-252	4H EAST GARDEN CITY	08/28/11 18:51	08/29/11 7:42	1	0 : 12 : 51	771
4H-383	4H EAST GARDEN CITY	08/28/11 10:23	08/29/11 13:40	1	1 : 3 : 17	1637
4J-398	4J BROOKVILLE	08/28/11 4:16	08/30/11 11:58	1	2 : 7 : 42	3342
4J-491	4J BROOKVILLE	08/28/11 6:51	08/31/11 18:28	1	3 : 11 : 37	5017
4K-15	4K HEMPSTEAD	08/28/11 6:27	08/29/11 11:20	1	1 : 4 : 53	1733
4K-20	4K HEMPSTEAD	08/28/11 1:50	08/28/11 2:32	1	0 : 0 : 42	42
4K-20	4K HEMPSTEAD	08/28/11 2:50	08/28/11 15:13	2	0 : 12 : 23	743
4M-162	4M BALDWIN	08/27/11 23:05	08/29/11 16:58	1	1 : 17 : 53	2513
4M-164	4M BALDWIN	08/28/11 5:27	08/28/11 11:54	1	0 : 6 : 27	387
4M-37	4M BALDWIN	08/28/11 17:40	08/29/11 14:41	1	0 : 21 : 1	1261
4M-43	4M BALDWIN	08/28/11 5:49	08/28/11 15:57	1	0 : 10 : 8	608

<i>Feeder</i>	<i>Substation</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
4MG-435	4MG MITCHELL GARDENS	08/28/11 17:32	08/29/11 13:58	1	0 : 20 : 26	1226
4RH-317	4RH ORCHARD	08/28/11 4:21	08/28/11 15:25	1	0 : 11 : 4	664
4RH-322	4RH ORCHARD	08/28/11 18:04	08/29/11 16:04	1	0 : 22 : 0	1320
4S-307	4S STEWART MANOR	08/28/11 8:40	08/29/11 10:30	1	1 : 1 : 50	1550
4UH-332	4UH NEW CASSEL	08/28/11 2:26	08/28/11 17:10	1	0 : 14 : 44	884
4X-3P3	4X BAR BEACH	08/28/11 6:58	08/28/11 18:32	1	0 : 11 : 34	694
4X-6P2	4X BAR BEACH	08/28/11 1:50	08/28/11 15:24	1	0 : 13 : 34	814
4X-6P2	4X BAR BEACH	08/28/11 18:03	08/28/11 19:03	2	0 : 1 : 0	60
5B-213	5B LOCUST GROVE	08/28/11 4:15	09/12/11 9:25	1	15 : 5 : 10	21910
5B-372	5B LOCUST GROVE	08/28/11 4:18	08/30/11 13:26	1	2 : 9 : 8	3428
5B-373	5B LOCUST GROVE	08/28/11 4:42	08/30/11 20:00	1	2 : 15 : 18	3798
5B-374	5B LOCUST GROVE	08/28/11 4:36	08/29/11 19:52	1	1 : 15 : 16	2356
5B-375	5B LOCUST GROVE	08/28/11 4:19	08/29/11 11:51	1	1 : 7 : 32	1892
5B-376	5B LOCUST GROVE	08/28/11 16:49	08/28/11 20:46	1	0 : 3 : 57	237
5D-278	5D LEVITTOWN	08/28/11 0:21	08/28/11 19:34	1	0 : 19 : 13	1153
5D-279	5D LEVITTOWN	08/28/11 4:41	08/29/11 11:05	1	1 : 6 : 24	1824
5G-112	5G PLAINEDGE	08/28/11 3:49	08/28/11 13:49	1	0 : 10 : 0	600
5G-173	5G PLAINEDGE	08/28/11 9:01	08/28/11 23:03	1	0 : 14 : 2	842
5GK-224	5GK LOCUST VALLEY	08/28/11 4:22	08/30/11 14:30	1	2 : 10 : 8	3488
5GK-225	5GK LOCUST VALLEY	08/28/11 4:36	08/29/11 18:51	1	1 : 14 : 15	2295
5GK-4K6	5GK LOCUST VALLEY	08/28/11 7:54	08/29/11 2:55	1	0 : 19 : 1	1141
5H-71	5H OYSTER BAY	08/28/11 5:23	08/30/11 18:17	1	2 : 12 : 54	3654
5H-76	5H OYSTER BAY	08/28/11 4:36	08/28/11 12:17	1	0 : 7 : 41	461
5H-78	5H OYSTER BAY	08/28/11 4:30	08/30/11 16:32	1	2 : 12 : 2	3602
5H-79	5H OYSTER BAY	08/28/11 9:11	08/30/11 14:33	1	2 : 5 : 22	3202
5K-9	5K SYOSSET	08/28/11 19:25	08/29/11 13:34	1	0 : 18 : 9	1089
5L-352	5L WOODBURY	08/28/11 18:29	08/29/11 20:24	1	1 : 1 : 55	1555
5M-89	5M NEWBRIDGE ROAD	08/28/11 8:07	08/30/11 12:06	1	2 : 3 : 59	3119

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<i>Feeder</i>	<i>Substation</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
5MK-244	5MK JERICHO	08/28/11 1:26	08/29/11 8:10	1	1 : 6 : 44	1844
5RK-262	5RK NORTH BELLMORE	08/28/11 7:31	08/28/11 14:25	1	0 : 6 : 54	414
5RK-264	5RK NORTH BELLMORE	08/28/11 1:35	08/28/11 21:31	1	0 : 19 : 56	1196
5RK-265	5RK NORTH BELLMORE	08/28/11 10:10	08/29/11 1:56	1	0 : 15 : 46	946
5SK-1N5	5SK PLAINVIEW	08/28/11 2:53	08/28/11 19:53	1	0 : 17 : 0	1020
5SK-346	5SK PLAINVIEW	08/28/11 1:00	08/31/11 17:32	1	3 : 16 : 32	5312
5U-8K7	5U MASSAPEQUA	08/28/11 4:33	08/28/11 22:32	1	0 : 17 : 59	1079
5U-97	5U MASSAPEQUA	08/29/11 12:05	08/29/11 12:10	1	0 : 0 : 5	5
5X-247	5X NEW SOUTH ROAD	08/28/11 18:04	08/28/11 22:30	1	0 : 4 : 26	266
5X-267	5X NEW SOUTH ROAD	08/28/11 1:40	08/28/11 12:30	1	0 : 10 : 50	650
6B-2P7	6B HALESITE	08/29/11 13:02	08/29/11 19:48	1	0 : 6 : 46	406
6BL-259	6BL BETHPAGE	08/28/11 1:25	08/28/11 14:00	1	0 : 12 : 35	755
6BR-2N5	6BR BAGATELLE ROAD	08/28/11 4:11	08/29/11 17:49	1	1 : 13 : 38	2258
6D-634	6D SMITHTOWN	08/28/11 5:34	08/30/11 11:23	1	2 : 5 : 49	3229
6DL-838	6DL PILGRIM	08/28/11 5:04	08/28/11 21:35	1	0 : 16 : 31	991
6DL-839	6DL PILGRIM	08/28/11 9:42	08/29/11 4:29	1	0 : 18 : 47	1127
6J-1P1	6J COMMACK	08/28/11 7:32	08/28/11 22:19	1	0 : 14 : 47	887
6J-1P2	6J COMMACK	08/28/11 7:49	08/29/11 4:03	1	0 : 20 : 14	1214
6J-898	6J COMMACK	08/28/11 4:06	08/28/11 21:56	1	0 : 17 : 50	1070
6K-448	6K STATE SCHOOL	08/28/11 5:33	08/29/11 8:39	1	1 : 3 : 6	1626
6L-4H5	6L NESCONSET	08/28/11 4:47	08/30/11 4:29	1	1 : 23 : 42	2862
6L-969	6L NESCONSET	08/28/11 2:13	08/30/11 12:51	1	2 : 10 : 38	3518
6Q-665	6Q OAKWOOD	08/28/11 8:13	08/29/11 20:18	1	1 : 12 : 5	2165
6Q-667	6Q OAKWOOD	08/28/11 6:35	08/30/11 7:53	1	2 : 1 : 18	2958
6RL-765	6RL ELWOOD	08/28/11 9:18	08/28/11 14:18	1	0 : 5 : 0	300
6U-696	6U RULAND ROAD	08/28/11 4:10	08/28/11 18:41	1	0 : 14 : 31	871
6UL-4K2	6UL GREENLAWN	08/28/11 2:51	08/29/11 18:57	1	1 : 16 : 6	2406
6UL-4K3	6UL GREENLAWN	08/28/11 3:30	08/30/11 18:46	1	2 : 15 : 16	3796

Page 4 of 7

<i>Feeder</i>	<i>Substation</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
6UL-4K4	6UL GREENLAWN	08/28/11 9:44	08/28/11 16:09	1	0 : 6 : 25	385
6UL-855	6UL GREENLAWN	08/28/11 7:35	08/29/11 11:46	1	1 : 4 : 11	1691
6UL-857	6UL GREENLAWN	08/28/11 8:09	08/29/11 18:38	1	1 : 10 : 29	2069
6UL-874	6UL GREENLAWN	08/28/11 6:49	08/28/11 19:54	1	0 : 13 : 5	785
6W-802	6W WOLF HILL	08/28/11 4:12	08/29/11 12:15	1	1 : 8 : 3	1923
6X-1P7	6X WEST NECK	08/28/11 1:51	08/28/11 23:32	1	0 : 21 : 41	1301
7D-808	7D WEST BABYLON	08/28/11 1:48	08/28/11 14:29	1	0 : 12 : 41	761
7D-9H8	7D WEST BABYLON	08/28/11 15:16	09/13/11 18:26	1	16 : 3 : 10	23230
7DM-788	7DM CENTRAL ISLIP	08/28/11 21:57	08/28/11 22:05	1	0 : 0 : 8	8
7EM-819	7EM DEER PARK	08/28/11 7:58	08/28/11 20:16	1	0 : 12 : 18	738
7F-778	7F WEST BRENTWOOD	08/28/11 11:47	08/28/11 18:29	1	0 : 6 : 42	402
7H-872	7H BABYLON	08/28/11 12:14	08/28/11 15:54	1	0 : 3 : 40	220
7J-862	7J STERLING	08/28/11 9:43	09/04/11 19:39	1	7 : 9 : 56	10676
7J-866	7J STERLING	08/28/11 4:03	08/28/11 20:08	1	0 : 16 : 5	965
7J-868	7J STERLING	08/28/11 7:16	08/29/11 19:59	1	1 : 12 : 43	2203
7J-883	7J STERLING	08/28/11 4:35	08/29/11 1:13	1	0 : 20 : 38	1238
7J-884	7J STERLING	08/28/11 7:57	08/29/11 15:15	1	1 : 7 : 18	1878
7MM-879	7MM WATSON	08/28/11 7:18	08/28/11 16:14	1	0 : 8 : 56	536
7S-7P8	7S TECH PARK	08/28/11 8:06	08/29/11 17:19	1	1 : 9 : 13	1993
7S-8H2	7S TECH PARK	08/28/11 7:22	08/28/11 9:20	1	0 : 1 : 58	118
7UM-655	7UM SOUTH FARMINGDALE	08/28/11 1:14	08/29/11 10:38	1	1 : 9 : 24	2004
7WM-772	7WM BRIGHTWATERS	08/28/11 9:01	08/28/11 12:10	1	0 : 3 : 9	189
7WM-775	7WM BRIGHTWATERS	08/28/11 7:16	08/28/11 11:25	1	0 : 4 : 9	249
7XM-999	7XM GREAT RIVER	08/28/11 13:08	08/28/11 17:56	1	0 : 4 : 48	288
7Z-495	7Z LINDENHURST	08/28/11 4:39	08/29/11 14:41	1	1 : 10 : 2	2042
7Z-623	7Z LINDENHURST	08/28/11 1:48	08/28/11 12:20	1	0 : 10 : 32	632
7Z-642	7Z LINDENHURST	08/28/11 21:49	08/30/11 1:17	1	1 : 3 : 28	1648
7ZM-832	7ZM PINES	08/28/11 10:54	08/28/11 15:51	1	0 : 4 : 57	297

<i>Feeder</i>	<i>Substation</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
8A-711	8A RONKONKOMA	08/28/11 2:33	08/29/11 4:03	1	1 : 1 : 30	1530
8A-712	8A RONKONKOMA	08/28/11 10:32	08/28/11 18:07	1	0 : 7 : 35	455
8B-7K5	8B PECONIC	08/28/11 5:15	08/29/11 17:08	1	1 : 11 : 53	2153
8B-7K6	8B PECONIC	08/28/11 5:57	08/30/11 15:11	1	2 : 9 : 14	3434
8D-736	8D HOLBROOK	08/28/11 5:23	08/28/11 20:55	1	0 : 15 : 32	932
8DR-428	8DR WILDWOOD	08/28/11 6:31	08/28/11 22:10	1	0 : 15 : 39	939
8DR-641	8DR WILDWOOD	08/28/11 4:51	08/29/11 11:20	1	1 : 6 : 29	1829
8E-824	8E CENTEREACH	08/28/11 8:33	08/28/11 18:31	1	0 : 9 : 58	598
8E-827	8E CENTEREACH	08/28/11 7:21	08/28/11 19:14	1	0 : 11 : 53	713
8G-973	8G HOLTSVILLE	08/28/11 5:47	08/28/11 13:47	1	0 : 8 : 0	480
8J-684	8J SOUTHOLD	08/28/11 3:19	08/28/11 4:15	1	0 : 0 : 56	56
8J-891	8J SOUTHOLD	08/28/11 6:11	08/30/11 0:08	1	1 : 17 : 57	2517
8JA-624	8JA JAMESPORT	08/28/11 4:18	08/28/11 20:43	1	0 : 16 : 25	985
8JR-961	8JR TUTTHILL	08/28/11 8:41	08/28/11 10:25	1	0 : 1 : 44	104
8M-5P7	8M MILLER PLACE	08/28/11 7:20	08/28/11 21:20	1	0 : 14 : 0	840
8Q-6K3	8Q NORTH SHORE BEACH	08/28/11 17:35	08/28/11 20:48	1	0 : 3 : 13	193
8Q-6K4	8Q NORTH SHORE BEACH	08/28/11 9:55	08/29/11 0:36	1	0 : 14 : 41	881
8RR-927	8RR CORAM	08/28/11 4:00	08/28/11 20:22	1	0 : 16 : 22	982
8RR-931	8RR CORAM	08/28/11 10:08	08/29/11 18:15	1	1 : 8 : 7	1927
8WR-776	8WR ORIENT POINT	08/28/11 4:14	08/29/11 19:25	1	1 : 15 : 11	2351
8XR-645	8XR RIDGE	08/28/11 20:02	08/28/11 23:44	1	0 : 3 : 42	222
8XR-924	8XR RIDGE	08/28/11 9:39	08/29/11 12:00	1	1 : 2 : 21	1581
9B-721	9B SOUTHAMPTON	08/28/11 8:08	08/29/11 19:07	1	1 : 10 : 59	2099
9B-913	9B SOUTHAMPTON	08/28/11 6:35	08/29/11 17:52	1	1 : 11 : 17	2117
9C-5K6	9C CANAL	08/28/11 9:17	08/30/11 14:52	1	2 : 5 : 35	3215
9D-943	9D QUOQUE	08/28/11 6:01	08/28/11 18:17	1	0 : 12 : 16	736
9DF-2K3	9DF DEERFIELD	08/28/11 9:52	08/29/11 18:07	1	1 : 8 : 15	1935
9E-934	9E BUELL	08/28/11 12:31	08/30/11 9:54	1	1 : 21 : 23	2723

<i>Feeder</i>	<i>Substation</i>	<i>Date/Time Off</i>	<i>Date/Time On</i>	<i>Repeat Count</i>	<i>Duration DD:HH:MM</i>	<i>Total Min</i>
9EU-6H8	9EU EAST HAMPTON	08/28/11 12:29	08/28/11 19:14	1	0 : 6 : 45	405
9K-942	9K CULLODEN POINT	08/28/11 20:01	08/29/11 20:02	1	1 : 0 : 1	1441
9L-767	9L EAST HAMPTON	08/28/11 12:29	08/28/11 12:33	1	0 : 0 : 4	4
9L-782	9L EAST HAMPTON	08/28/11 12:29	08/28/11 12:33	1	0 : 0 : 4	4
9R-627	9R BRIDGEHAMPTON	08/28/11 8:27	08/30/11 13:01	1	2 : 4 : 34	3154
9R-939	9R BRIDGEHAMPTON	08/28/11 12:57	08/29/11 16:33	1	1 : 3 : 36	1656
9U-679	9U MONTAUK	08/28/11 9:31	08/28/11 17:43	1	0 : 8 : 12	492
9Z-694	9Z AMAGANSETT	08/28/11 8:54	08/29/11 17:37	1	1 : 8 : 43	1963
9Z-807	9Z AMAGANSETT	08/28/11 4:36	09/04/11 10:08	1	7 : 5 : 32	10412
System Wide Totals		Lockouts 175	Restored 175	Remaining 0	244 : 8 : 4	351844

Note: Five distribution circuits, 3J Whiteside, 3KG Herricks, 4AH Carle Place, 4K Hempstead and 4X Bar Beach, experienced two outages and are appropriately delineated in the “Repeat Count” column

Exhibit 9

Daily List of Substations in Local Control – Nassau County

Nassau County Substations	Local Control								
	08/28/11	08/29/11	08/30/11	08/31/11	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11
ROCKAWAY BEACH/NEPONSET	N	N	N	N	N	C	C	C	C
FAR ROCKAWAY/HARVERNE	N	N	N	N	N	C	C	C	C
BROADWAY/CEDARHURST	N	N	N	C	C	C	C	C	C
WOODMERE/GREEN ACRES	N	Y	Y	Y	N	C	C	C	C
HEWLETT/PROSPECT	N	N	N	N	N	C	C	C	C
BARRETT	N	Y	Y	Y	Y	Y	Y	N	C
PARK PLACE/LONG BEACH/ATLANTIC BEACH	N	N	N	N	N	N	N	C	C
VALLEY STREAM/LYNBROOK/MALVERNE	Y	Y	Y	Y	Y	Y	Y	N	C
CORONA AV/CENTRAL AV	N	Y	Y	Y	Y	Y	Y	N	C
BALDWIN	N	Y	Y	Y	Y	Y	Y	N	C
GREENFIELD/ROOSEVELT	N	N	N	C	C	C	C	C	C
FLORAL PARK/STEWART MANOR	N	N	N	C	C	C	C	C	C
WHITESIDE/ELMONT	N	Y	Y	Y	Y	Y	Y	N	C
WEST HEMPSTEAD/LAKEVIEW/HEMPSTEAD	Y	Y	Y	Y	Y	Y	Y	N	C
MITCHELL GARDENS	N	N	N	N	N	N	C	C	C
EAST GARDEN CITY/COUNTRY LIFE	Y	Y	Y	Y	Y	Y	N	C	C
GREAT NECK/KINGS POINT	N	N	N	N	N	N	N	N	C
MANHASSET	N	Y	Y	Y	N	Y	Y	C	C
PORT WASHINGTON/BAR BEACH	Y	Y	Y	Y	Y	Y	Y	N	C
LAKE SUCCESS	Y	Y	Y	Y	Y	Y	Y	N	C
NORTH HILLS	N	N	N	C	C	C	C	C	C
ROSLYN	N	N	N	Y	Y	Y	Y	N	C
HERRICKS/GARDEN CITY PARK	N	N	N	C	C	C	C	C	C
CARLE PLACE	N	N	N	C	C	C	C	C	C
ORCHARD	N	N	N	N	N	N	N	N	C
GLEN HEAD	N	Y	Y	Y	Y	Y	Y	N	C
LOCUST VALLEY	N	Y	Y	Y	Y	Y	Y	N	C
OYSTER BAY	N	Y	Y	Y	Y	Y	Y	N	C
BROOKVILLE	N	Y	Y	Y	Y	Y	Y	N	C
SYOSSET/WOODBURY	Y	Y	Y	Y	Y	Y	Y	N	C
LOCUST GROVE	N	Y	Y	Y	Y	Y	Y	N	C
NEW CASSEL	N	N	N	N	N	N	C	C	C
JERICHO	N	N	N	C	C	C	C	C	C
NEWBRIDGE ROAD	Y	Y	Y	Y	Y	Y	Y	N	C
NEW SOUTH ROAD	N	N	N	N	N	N	C	C	C
LEVITTOWN	N	N	N	N	N	N	N	N	
BETHPAGE	N	N	N	N	N	N	C	C	C
PLAINVIEW	N	N	N	N	N	N	N	N	C
SOUTH FARMINGDALE	N	N	N	C	C	C	C	C	C
BELLMORE	Y	Y	Y	Y	Y	Y	Y	N	C
NORTH BELLMORE	N	N	N	N	N	N	N	N	C
PLAINEDGE	N	Y	Y	Y	Y	Y	Y	N	C
MASSAPEQUA	N	N	N	N	N	N	N	N	C
STERLING	N	N	N	N	N	N	C	C	C
# of Substations in LOCAL CONTROL	8	20	20	21	19	20	19	0	0
# of Substations in SURVEY	36	24	24	15	17	12	8	24	0
# of Substations in CLOSED	0	0	0	8	8	12	17	20	43

Daily List of Substations in Local Control – Suffolk County

Suffolk County Substations	Local Control									
	08/28/11	08/29/11	08/30/11	08/31/11	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	
WEST NECK/HUNTINTON VILLAGE/HALESITE	N	Y	Y	Y	YNY	YNY	YNY	N	C	
OAKWOOD	N	Y	Y	Y	Y	Y	Y	N	C	
RULAND ROAD/STATE SCHOOL	Y	Y	Y	N	N	C	C	C	C	
ELWOOD	Y	Y	Y	Y	Y	Y	Y	N	C	
WOLF HILL/BAGATELLE	N	N	N	N	N	N	N	N	C	
GREENLAWN	N	Y	Y	Y	Y	Y	Y	N	C	
COMMACK	N	N	N	N	N	N	N	N	C	
PULASKI	Y	Y	Y	Y	Y	Y	Y	N	C	
LINDENHURST	N	N	N	N	N	N	N	N	C	
WEST BABYLON	N	N	N	N	N	N	N	N	C	
BABYLON	Y	Y	Y	Y	Y	C	C	C	C	
PINELAWN/DEER PARK	N	N	N	N	N	N	N	N	C	
PILGRIM/HAUPPAUGE	Y	Y	Y	Y	YN	N	C	C	C	
NESCONSET/FLOWERFIELD	N	Y	Y	Y	Y	Y	Y	Y	C	
SMITHTOWN	N	Y	Y	Y	Y	Y	Y	N	C	
INDIAN HEAD	N	Y	Y	Y	Y	Y	Y	N	C	
BRIGHTWATERS/CAPTREE & FIRE ISLAND	N	N	N	N	N	N	N	N	C	
PINES	N	N	N	N	N	N	C	C	C	
WEST BRENTWOOD/BRENTWOOD	N	N	N	N	N	N	N	N	C	
GREAT RIVER/TECH PARK	N	N	N	N	N	N	N	N	C	
CENTRAL ISLIP	N	N	N	N	N	N	N	N	C	
WATSON	N	N	N	N	N	N	N	N	C	
MAC ARTHUR/BOHEMIA	N	N	N	N	N	N	C	C	C	
SAYVILLE	N	N	N	N	N	N	C	C	C	
RIVERHEAD/TUTHILL/EDWARDS AV	Y	Y	Y	Y	Y	Y	Y	N	C	
JAMESPORT/PECONIC	N	N	N	N	N	N	N	N	C	
SOUTHOLD/ORIENT POINT	N	N	N	N	N	C	C	C	C	
SUFFOLKAIRE/EASTPORT	N	N	N	N	N	C	C	C	C	
TIANA/QUOGUE	Y	Y	Y	Y	Y	Y	C	C	C	
SOUTHAMPTON/CANAL	Y	Y	Y	Y	Y	Y	Y	N	C	
BRIDGEHAMPTON/DEERFIELD	Y	Y	Y	Y	Y	Y	Y	N	C	
BUELL/EAST HAMPTON/AMAGANSETT	Y	Y	Y	Y	Y	Y	Y	N	C	
MONTAUK/HERO/CULLODEN POINT/HITHER HILL	N	N	N	C	C	C	C	C	C	
PORT JEFFERSON/STONY BROOK	Y	Y	Y	Y	Y	Y	Y	N	C	
MOUNT SINAI	N	N	N	N	N	N	N	C	C	
MILLER PLACE/NORTH SHORE BEACH	N	N	N	N	N	C	C	C	C	
WILDWOOD/RIDGE/SHOREHAM	N	N	N	N	N	N	C	C	C	
TERRYVILLE	Y	Y	Y	Y	Y	Y	Y	N	C	
RONKONKOMA	Y	Y	Y	Y	Y	Y	Y	C	C	
CENTEREACH	N	Y	Y	Y	Y	Y	Y	N	C	
CORAM	N	N	N	N	N	N	C	C	C	
HOLBROOK	N	N	N	N	N	N	C	C	C	
PATCHOGUE/BAYPORT	N	N	N	N	N	N	C	C	C	
HOLTSVILLE	Y	Y	Y	Y	N	N	N	C	C	
NORTH BELLPORT	N	N	N	N	N	N	N	C	C	
MORICHES/SOUTH SHIRLEY/MASTIC PARK	N	N	N	N	N	N	N	N	C	
YAPHANK/WILLIAM FLOYD/WEST YAPHANK	N	N	N	N	N	N	C	C	C	
# of Substations in LOCAL CONTROL	14	21	21	20	17	16	15	1	0	
# of Substations in SURVEY	33	26	26	26	27	24	15	26	0	
# of Substations in CLOSED	0	0	0	1	1	6	16	20	47	

Exhibit 10

Off-Island Contractors Supporting the Storm Restoration

Type	Skill	utility /	Company	Total	
Lines	Transmission	Contractor	Fry Electric	9	
		Contractor Total		9	
		Utility	NYPA	32	
		Utility Total		32	
		Transmission Total			41
	High Voltage	Contractor	Asplundh Construction	125	
			BBC Electric	232	
			C&C Power	103	
			Carr & Duff	35	
			Dillard Smith	42	
			Harlan	178	
			Intren	68	
			Kent Powers	101	
			LE Meyers	139	
			Mariachi	19	
			Michels Power	158	
			MJ Electric	21	
			NHPL	96	
			Thayer Power	10	
			Ward Electric	23	
			Xtreme Powerline Construction	94	
			Hydacker Wheatlake	287	
			Contractor Total		1731
			Utility	Commonwealth Edison	32
		Con Edison		81	
		Duke Power		113	
		National Grid		141	
		PSE&G		63	
		Utility Total		430	
		High Voltage Total			2161
		Low Voltage	Contractor	SPE Power	46
			Contractor Total		46
			Utility	Con Edison	51
			Utility Total		51
	Low Voltage Total			97	
Lines Total				2299	
Trees	Tree Trimmers	Contractor	Asplundh Tree	905	
			Burford Trees	156	
			Lewis tree	56	
			Nelson Tree Service	55	
		Contractor Total		1172	
	Tree Trimmers Total			1172	
Trees Total				1172	
Grand Total				3471	

Exhibit 11

Map of Material Staging Areas, Temporary Lodging and Crew Processing Sites



Exhibit 12

Temporary Shelter – Suffolk County Community College



Exhibit 13

Storm Communications

PRO (Procedures Reference Online) was enhanced to include a Hurricane Communications Homepage which housed all communications and reference materials for the Contact Center. This kept information organized and put all relevant communication at employees' fingertips.

Hurricane Communications
Up to The Minute Storm Information

Communications

- [4:30 AM Restoration Update / Talking Points](#)
- [8:30 AM Restoration Update / Talking Points](#)
- [Dispatch & SPMS Update \(9/3\)](#)
- [6:00 PM Restoration Update / Talking Points](#)
- [11:00 AM Restoration Update / Talking Points](#)
- [Appeals to Coaches Queue](#)
- [Continued Professionalism](#)
- [Contact Number for Media Inquiries](#)
- [Hurricane Irene Talking Points Effective 7PM](#)
- [System Operations Liaisons - 9/1/11 @ 4 PM](#)
- [System Operations Division Liaisons 9/1](#)
- [Outbound Calls for Restored](#)
- [10:30 AM Restoration Update / Talking Points](#)
- [LIPA or Customer Equipment Distinctions](#)
- [6:30 PM - Restoration Update / Talking Points](#)
- [Customer Compliments/Feedback](#)
- [Dispatch and Power On Calls Initiated](#)
- [Important Restoration Update / Talking Points](#)
- [Restoration Progress \(8:30 - 3:30 PM\)](#)
- [Outbound Call Restoration Communication](#)
- [Hurricane Irene 1:30PM Press Release](#)
- [Tuesday August 30, 2011 Call Handling Tips](#)
- [Important Restoration Update / Talking Points](#)
- [Security Safeguards - Melville Center](#)
- [Restoration Update - LIPA Web & IVR](#)
- [Customer Outreach 8/29 \(Call & Email\)](#)
- [Clarification RE Restoration Call](#)
- [Hurricane Irene Talking Points \(8/29 - 6:00 PM\)](#)
- [Important Update - 2:30 PM, \(REVISED\)](#)
- [Important Restoration Update / Talking Points](#)
- [UPDATED Liaisons List for Monday 8/29](#)
- [No Gas Conditions](#)
- [Important Update - 2:30 PM, Mon. August 29](#)
- [Helpful Process Reminders](#)
- [IVR message/Customer Office Closed Update](#)
- [LI Appeals Database](#)
- [Hurricane Irene: Up to Date Talking Points](#)
- [Municipality Phone Number Error](#)
- [Busy Signal to IVR \(LI\)](#)
- [Agreement with Fire Department \(LI\)](#)
- [Hurricane Irene - Update](#)
- [Division Liaisons for Saturday Evening](#)
- [Appeals Database](#)
- [List of "Rumor Control" Issues](#)
- [Long Island Gas Customers Urged to Prepare](#)
- [Preparations Continue](#)
- [Hurricane Irene Talking Points](#)
- [Hurricane Irene LIPA's Storm Center Update](#)
- [Hurricane Irene Precaution Alert](#)

Sat 09/03/2011 - 4:29 PM
Sat 09/03/2011 - 6:30 AM
Sat 09/03/2011 - 6:15 AM
Fri 09/02/2011 - 6:00 PM
Fri 09/02/2011-12:02 PM
Fri 09/02/2011-10:48 AM
Thu 09/01/2011-9:12 PM
Thu 09/01/2011-8:49 PM
Thu 09/01/2011-7:00 PM
Thu 09/01/2011-4:00 PM
Thu 09/01/2011-12:29 PM
Thu 09/01/2011-11:39 AM
Thu 09/01/2011-10:45 AM
Wed 08/31/2011-7:44 PM
Wed 08/31/2011-7:10 PM
Wed 08/31/2011-3:25 PM
Wed 08/31/2011-2:07 PM
Wed 8/31/2011-11:23 AM
Tue 08/30/2011 8:15 PM
Tue 08/30/2011 7:25 PM
Tue 08/30/2011 3:00 PM
Tue 08/30/2011 1:34 PM
Tue 8/30/2011 12:16 PM
Tue 8/30/2011 11:17 PM
Mon 08/29/2011 10:00 PM
Mon 08/29/2011 8:03 PM
Mon 08/29/2011 6:38 PM
Mon 08/29/2011 6:32 PM
Mon 08/29/2011-2:30 PM
Mon 08/29/2011 3:28 PM
Mon 08/29/2011 2:21 PM
Mon 8/29/2011 - 1:53 PM
Mon 8/29/2011-12:30 PM
Mon 8/29/2011-12:02 PM
Mon 8/29/2011-12:02 PM
Mon 08/29/2011-6:16 AM
Sun 08/29/2011-8:59 AM
Sun 08/28/2011-4:29 PM
Sun 8/28/2011-12:54 PM
Sun 8/28/2011-12:20 PM
Sun 08/28/2011-8:30 AM
Sat 08/27/2011- 8:20 PM
Sat 08/27/2011- 4:33 PM
Sat 08/27/2011 - 3:51PM
Sat 08/27/2011- 9:54 AM
Sat 08/27/2011- 8:58 AM
Fri 08/26/2011 - 6:22 PM
Fri 08/26/2011 - 7:31 AM
Thurs 08/25/11- 6:51 PM

LIPA Storm Central

- [Outage Map](#)
- [Hurricane Safety Tips](#)
- [Planning for an Emergency](#)
- [Frequently Asked Questions](#)
- [Hurricane Categories & Damage](#)

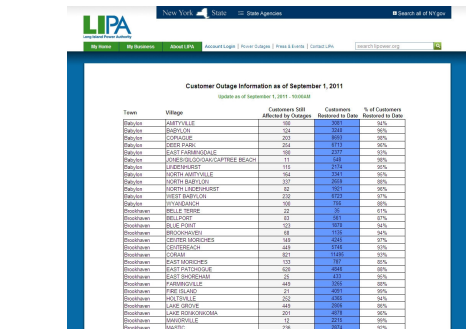
Reference Materials

- [Notes/Reminders for Storm Restoration](#)
- [SPMS Cheat Sheet](#)
- [Overview of Transmission Distribution Lines](#)
- [Identifying Overhead Electric Lines](#) detailed illustration

Solutions Emails

- [Tree Trimming Information \(view\)](#)
- [Generator Safety Information \(view\)](#)
- [In Case of Emergency \(view\)](#)

Screen Shot of PRO Site Hurricane Homepage



- Nearly 2 Million Site Pageviews
- 466,000 Unique Visitors
- 872,000 Visits to Website
- 64,000 Town / Village Listing Pageviews
- 1,725 Outages Reported through website

- As storm hit, Website provided general information regarding areas hardest hit
- Due to the magnitude of outages, the visual presentation on the website was modified
- On Tuesday, a town and village listing was developed to give more specific restoration percentages
- Main homepage messages were updated daily frequently (at least 4 times a day)
- Webcast of press conferences and uploading pictures of damage and restoration efforts

Exhibit 14

LIPA Reliability Improvement Programs

• **Distribution Tree Trim Program** - This program removes trees, limbs and branches near overhead electric lines to adhere to clearance standards that will reduce the probability of a tree caused customer interruption. The program can be broadly categorized by two types of work, namely scheduled and demand (typically associated with service restoration efforts or customer driven work). While both the scheduled and demand portions of the work can improve reliability at the customer level, the more significant impact to mitigating future customer interruptions occurs as a result of scheduled trimming. LIPA trims its distribution circuits on a 3, 5, or 7-year trim cycle, depending on tree density, circuit performance, and tree growth rate. Each year a detailed analysis of tree caused interruptions is performed for all distribution circuits and specific circuit trim cycles are adjusted as appropriate.

• **Circuit Improvement Program** – This program involves a detailed pole-by-pole field survey of selected poor performing circuits. The survey identifies the needed corrective actions for all substandard conditions that are likely to cause customer interruptions. In addition to correcting substandard field conditions, this program also identifies additional measures that can be taken to cost effectively improve electric reliability on a given circuit, like the addition of lightning arresters, replacing armless insulators with cross arm construction, replacing automatic style wire splices with compression splices, etc. Circuits are chosen based on a prioritization of the poorest performing circuits as identified through an in depth analysis of performance attributed to key interruption statistics. The program is optimized by focusing on the mainline of the circuits thereby affecting the most customers in the most cost effective manner possible.

• **Infrared Scans of Distribution Lines** - Infrared scans of distribution lines involves the use of an infrared camera to examine overhead distribution line clamps, taps, splices, and equipment to proactively identify overheating, so that remedial action may be taken before a failure causes an outage. Repairs to identified hot spots are prioritized based on the severity of the overheating detected. LIPA infrared scans all of its highway distribution lines on a two-year cycle.

• **Distribution Automation and Automatic Sectionalizing Unit (ASU) Installation Program** - The Distribution Automation (DA) Program has proven to be a very cost-effective and powerful reliability program. DA involves the installation of supervisory controls on varied distribution equipment (i.e., switches, capacitor banks, reclosers, etc). This automation enables remote monitoring and operation and acts to improve control of the electric system. Specifically, automation helps to provide information to facilitate operation of the electric system, enabling quicker restoration efforts and helping to minimize the number of customers affected by a given event on the distribution system. As part of the Automatic Sectionalizing Unit (ASU) Installation Program, supervisory controlled switches are installed on distribution circuits in a midpoint-tie point configuration. In addition to providing supervisory control of distribution switches (which decreases outage restoration times), it limits the number of customers interrupted when a mainline fault occurs downstream of the ASU by auto-sectionalizing (automatically opening) and avoiding a complete distribution breaker lockout. When a mainline fault occurs upstream of the ASU, the

downstream section of circuit can be rapidly restored by supervisory control using the tie point ASU. As a result of this program, LIPA has one of the most automated distribution systems in the United States. Additionally, this automation has helped place LIPA's T&D system among the most reliable in the country.

- **Underground Cable Testing and Replacement Program** – Three phase underground mainline exit cables and dips are used on distribution circuits to allow distribution feeders to emanate from a substation (i.e. exit cables) or to allow distribution circuits to traverse obstacles or areas where overhead pole lines cannot be used (i.e. dips). These cables operate at either 4kV or 13 kV. In either case, a failure of a portion of the cable results in the interruption of electric service. As part of recent improvements to the program, LIPA now tests the condition of certain cables in order to identify and proactively address potential cable failures. The cable test results are analyzed in conjunction with historical data to better manage LIPA's cable assets in order to reduce impending outages while improving the cost effectiveness of the program. The addition of testing to prior methods that were strictly based on data analysis has helped to improve the efficiency of the program by approximately 40%. In short, the combination of data and testing has improved the overall ability to identify those cables that are likely to fail while allowing others to stay in service that are not in danger of imminent failure.

- **Secondary Network Cable Replacements** - Network facilities provide the highest degree of service reliability, and are typically located at major centers of commerce or areas where a higher degree of service reliability is required, like at large shopping malls, commercial districts, etc. LIPA recognizes the sensitivity of the loads that these networks serve. In 2003, a multi-year program was initiated to install monitoring systems to provide remote monitoring of the status of these networks. Specifically, remote network monitoring systems for secondary networks were installed at Dayton Towers Apartment complex, Smith Haven Mall and Walt Whitman Mall. Future installations are planned at other major shopping malls supplied from network systems. LIPA's commitment to maintaining its secondary networks also includes the replacement of significant sections of primary cable and the installation of additional pad mounted switchgear to facilitate rapid circuit switching and restoration. In 2005, lead cables and manholes were replaced at the South Shore Mall. In 2007, primary cable was replaced in the Smith Haven Mall. In addition, proactive plans are in place to address aging infrastructure in other networks, such as Roosevelt Field and Green Acres Mall, and involve the upgrade of cabling and other equipment as appropriate.

- **Overloaded Distribution Transformer and Fuses Upgrades** - Customer loads can increase over time to a point that the increased customer demand can overload the distribution transformer and cause an outage, especially during high heat periods. Recent summer periods have taxed the distribution system to unprecedented load levels due to the prolonged abnormally high, sustained heat experienced. New peak demand records for the Long Island Control Area were set during two of the past three summers. Transformer loads are reviewed on an annual basis and units evaluated and prioritized based upon the previous summers' maximum customer KWH usage and each transformer's connected kVA. Transformers are then replaced or have their load split prior to the next summer peak load so as to avoid an impending outage. Additional efforts are made to identify and upgrade overloaded distribution fuses up stream of the transformer.

- **Transmission and Distribution Pole Replacements and Reinforcements** - LIPA owns approximately 350,000 wood distribution poles, and approximately 17,000 wood transmission poles with an average age in excess of 30 years. An aggressive pole inspection program was introduced in 1995. The objective of the pole inspection program is to maintain the structural integrity of the pole infrastructure by evaluating in-service poles to ensure they meet required strength criteria. Poles that have deteriorated to the point where structural integrity is questionable are replaced or reinforced. As a cost effective alternative to total replacement, LIPA uses steel truss technology to reinforce select poles. Once installed, the steel truss restores the pole to its original NESC strength requirements. The steel trussing process can be performed at significant cost savings compared to replacing the pole. In 2007, LIPA, in conjunction with the Electric Power Research Institute (EPRI) initiated a study to determine an asset management strategy for its wood pole inspection, reinforcement and replacement program. Such efforts will help to improve the overall cost effectiveness and efficiency of the program through adoption of a strategy which levelizes financial risk over a period of time.

- **System Improvement: Storm Hardening** - LIPA wants to minimize the impact of having a severe storm such as a Category 3 hurricane land on its service territory. LIPA recognizes that a major storm could cause substation floods and significant pole line damage impacting service to a large number of customers. The Company is in the process of formalizing a multi-year system wide Storm Hardening Program whose objective is to minimize system outages during storms and ensure prompt restoration of service to its customers. LIPA is studying all aspects of the design and operation of the T&D system including identification of supplies to critical facilities such as its control centers, identifying areas prone to flooding and substations and transmission lines located in those areas. The major elements of the program will center on three items: durability, resilience and restoration. More specifically, these elements include modifying the system design criteria to include higher strength transmission poles and elevating equipment installed at low lying substations as part of its capital improvement program and ensuring prompt power restoration to critical facilities. Priorities will be established. The program elements will ensure that LIPA control centers are operational. It will also stress LIPA's ability to deliver power from IC units, on-island generators and interconnections, ability to deliver power to energized substations neighboring those prone to flooding, and ability to move power across the system.

Exhibit 15

Tropical Storm Irene After-Action Review Team

