

APPENDIX P

**GOVERNOR MALLOY PRESS RELEASE, *GOV. MALLOY ANNOUNCES STORM
DISASTER PREPAREDNESS & RECOVERY INITIATIVES***

Governor Dannel P. Malloy



STATE OF CONNECTICUT GOVERNOR DANIEL P. MALLOY

January 11, 2012

GOV. MALLOY ANNOUNCES STORM DISASTER PREPAREDNESS & RECOVERY INITIATIVES

New Initiatives Will Lead to Tougher Standards for Utilities, Improved Communication and Better Training for State and Local Officials and Utilities

(HARTFORD, CT) – Governor Dannel P. Malloy today announced a package of storm preparedness and recovery initiatives to enhance and augment the ability of the state, municipalities and its partners to better prepare for and respond to natural disasters and intense weather situations.

The Governor's initiatives include both legislative proposals in addition to changes to administrative procedures and are concentrated on improving operations in four individual policy areas: performance; management and communications; preparedness and training; and infrastructure strengthening. The Governor announced the recommendations in Simsbury, an area of the state that was particularly impacted by the October Nor'easter, with Lieutenant Governor Nancy Wyman and First Selectman Mary Glassman.

"The impact of last year's intense, record-breaking weather on our state – structurally, financially and emotionally – is something I hope we don't have to experience again anytime soon. But the fact is, a situation like that can present itself at anytime, and it's something we must be prepared for and be ready to respond to," Governor Malloy said. "With that in mind, I've directed state agencies to begin implementing several changes to procedures and will work with lawmakers on adopting legislative changes to allow our state, municipalities and its partners to better respond to natural disasters."

Lt. Governor Wyman said, "Despite the very real hardships and frustration that these storms produced, the people of Connecticut showed incredible patience and resilience in dealing with them. These initiatives show that the Governor and I are committed to making sure that our residents never again have to endure that level of distress. By improving our infrastructure and the preparation of the state, our municipalities and the utilities, we will be able to provide our residents with a greatly improved response the next time we face these kinds of catastrophic events."

A portion of what the Governor announced today includes proposed legislation that will authorize the Public Utilities Regulatory Authority (PURA) to establish performance benchmarks for utility companies. These new benchmarks will establish penalties for companies if they fail to make the proper preparations in advance of a storm or if they don't complete the repairs that are required afterward in a reasonable amount of time. The package will also demand that state agencies, utility companies and municipal governments conduct a real-time training exercise to improve performance during and after an event such as the ones Connecticut recently experienced. This will be the largest state-sponsored exercise in recent history.

"The new regulations that PURA will implement for utility companies will provide a clear incentive for proper preparation and timely repairs," Governor Malloy said. "And the improved training exercises will help our state and local governments to better respond in a time of crisis. We can't know exactly what emergency is coming next, but we can learn from past experience and improve. The initiatives we're announcing today are the first step toward that goal."

Governor Malloy is directing relevant state commissioners and agency heads to immediately begin meeting and devising a plan through the Division of Emergency Management & Homeland Security (DEMHS) Advisory

Council that will most effectively implement these changes, some of which are already being executed. He stressed that the initiatives announced today are not the only actions the administration will be taking on this issue. In the coming months, the Governor will continue working with legislators, commissioners, municipalities, utility companies, non-profits and other partners to propose additional steps to improve preparedness and recovery efforts.

Performance

- Introduction of legislation that authorizes the Public Utilities Regulatory Authority (PURA) to develop performance standards for all utilities' responses to emergencies, storms and natural disasters. Standards would address planning, hazard mitigation, staffing and equipment, response times and recovery efforts. Failure to meet the standards should result in penalties.
- Work with utilities to improve mutual assistance.

Management & Communication

- Use the existing DEMHS Statewide Advisory Council for DESPP-DEMHS to convene state agency commissioners to delve into and review these recommendations, and to ensure that administration responses and actions are coordinated.
- Work to permanently fill the position of Deputy Commissioner for Emergency Management and Homeland Security of DESPP in the next 60 days. The Deputy Commissioner will work with the DESPP Commissioner and OPM to fill priority positions such as the Exercise, Training & Special Projects Manager and Planning Director positions in a timely fashion.
- In all future emergencies, this administration will continue the practice of daily conference calls between the Governor and municipal CEOs as outlined in the State Response Framework.
- DESPP-DEMHS is currently pursuing funds to expand United Way of Connecticut 2-1-1's communication capacity.
- Charge OPM to lead and synthesize GIS (Geospatial Information Systems) information and work with DESPP-DEMHS to implement its use. Coordinate with the Critical Infrastructure staff of DESPP-DEMHS to work collaboratively with OPM and relevant stakeholders.
- Charge the Department of Administrative Services (DAS) and its Bureau of Enterprise Systems & Technology (BEST) to make available to key state agencies ArcGIS Server system in the next 90 days, and then to all agencies as part of a phase-in. DAS-BEST should work to eliminate barriers and redundancies that prohibit the use of the system. DAS-BEST and OPM have been working towards this roll-out since the summer.
- Exploring a cross agency enforcement team with the Department of Energy & Environmental Protection (DEEP) and PURA instead of creating a brand new division to better utilize existing resources; management and administration of poles and wires will be handled as part of an enforcement team.

Preparedness & Training

- DESPP-DEMHS plans to hold a real-time exercise that all five DEMHS regions will participate in some capacity before September.
- Explore amending the Good Samaritan Law or Title 28 to allow community providers to provide sheltering services to the general public in a declared state of emergency.
- DESPP-DEMHS plans to start an Energy & Utility Work group which will address enhance planning and communications, and will become a permanent committee of the DEMHS Advisory Council in accordance with the process provided to the Governor in response to the Witt Report.
- DESPP-DEMHS plans to expand the role of the existing Interoperable Communications Work Group to coordinate and enhance emergency communications.
- DEMHS is converting many of the task forces that were used successfully in the two storms into work groups under the DEMHS Advisory Council. DEMHS has already convened a State Mass Care work group that is working to address the recommendations; Nonprofit Liaison Deb Heinrich is already collaborating with this work group.
- DESPP-DEMHS in collaboration with the Connecticut Conference of Municipalities (CCM) will provide training on municipal roles and responsibilities in an emergency at a CEO workshop in March and collaborate with municipal leaders and emergency directors for a May 1 CCM conference on emergency preparedness.

Infrastructure Strengthening

- Increase Department of Transportation tree maintenance by \$1 million for road/tree safety.
- Ask PURA to open a docket in an expeditious fashion to address utilities' tree trimming plans to prevent excessive infrastructure damage before the next storm.
- Explore a potential partnership between DEEP's Forestry Unit and PURA to work collaboratively on tree trimming – a partnership enabled by the DEEP merger.
- Develop a pilot program for microgrids in city centers and the use of energy improvement districts.

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Contact: David Bednarz

David.Bednarz@ct.gov

860-524-7315 (office)

860-770-9792 (cell)

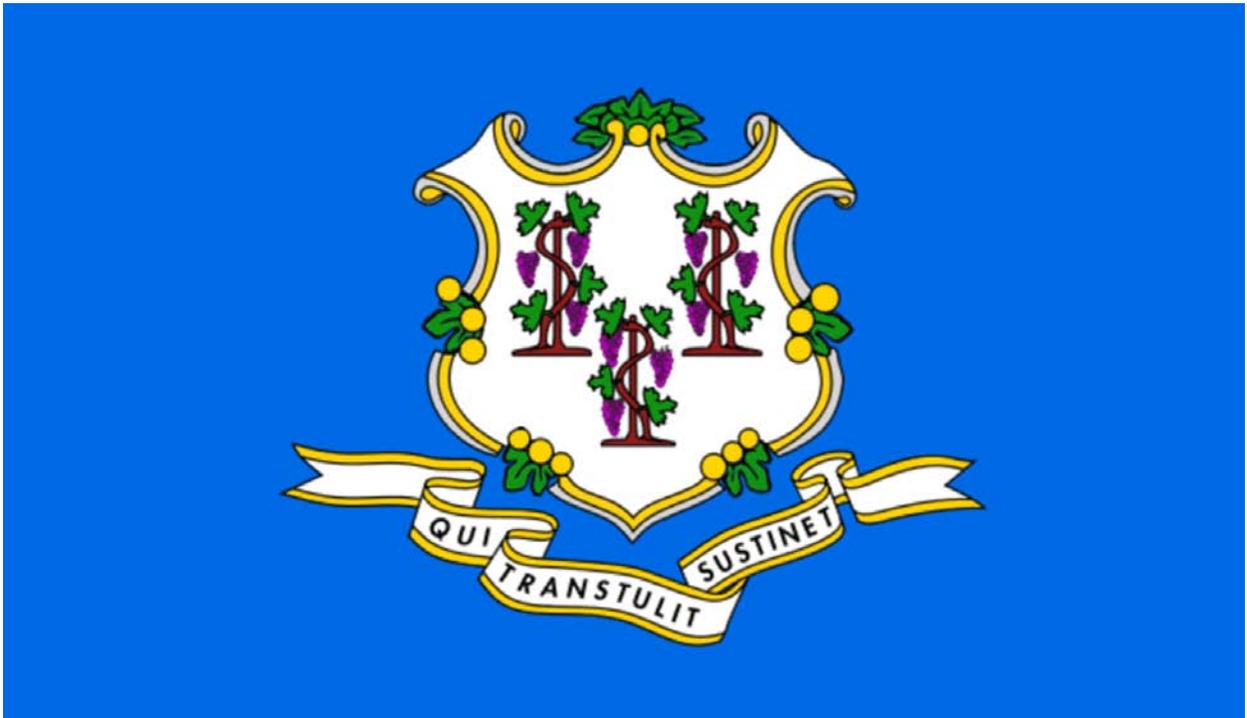
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APPENDIX Q

WITT ASSOCIATES, *CONNECTICUT OCTOBER 2011 SNOWSTORM POWER RESTORATION REPORT*

Connecticut October 2011 Snowstorm Power Restoration Report



Prepared by:
Witt Associates
December 1, 2011

WITT
A S S O C I A T E S

About Witt Associates:

Witt Associates is a public safety and crisis management consulting firm based in Washington, D.C., with consultants located throughout the country. Witt Associates has unrivaled experience and hands-on knowledge of emergency preparedness, response, recovery, and mitigation. Witt Associates bridges government agencies and non-profits with industry and citizens as they assist state and local governments to prepare for and recover from disasters and crisis.

Witt Associates is uniquely positioned to bring together policy architects and technical experts in public safety, with leaders from all levels of government and private sector partners to forge solutions to emergency management challenges.

Our team includes seasoned crisis and emergency management leaders with significant experience to provide consultation on key issues of public safety. The team is proficient in the details of emergency management, committed to the responsibility of the profession, and understands how crisis and emergency management work fits into a larger political and social climate.

Disclaimer and Disclosure:

This report prepared by Witt Associates was requested by the State of Connecticut. The opinions, findings, conclusions, and recommendations are provided solely for the use and benefit of the requesting party. Any warranties (expressed and/or implied) are specifically waived. Any statements, allegations, and recommendations in this report should not be construed as a governing policy, or decision, unless so designated by other documentation. The report is based on the most accurate data available to Witt Associates at the time of publication, and therefore is subject to change without notice.

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I. Executive Summary

The northeastern United States was struck by an unusual pre-Halloween snowstorm on October 29, 2011. The wet snow – more than 12 inches in some areas -- stuck to the still leaf-laden trees bringing down limbs, branches and, in some cases, full trees. Fallen trees caused substantial damage to power lines, including some transmission lines, and blocked roads. More than 3 million electric utility customers lost power in the region. Eight deaths related to the snowstorm were reported in Connecticut. The snowstorm and power outage resulted in significant economic losses in Connecticut.

North Central Connecticut was hit especially hard, challenging the capabilities and coordination of electricity providers and public sector response. Almost 70 percent of Connecticut Light and Power's (CL&P) 1.2 million customers, lost power. Customers of The United Illuminating Company (UI), serving the coastal area, were not hit as hard, with a total of 52,000 of its 350,000 customers affected at some time during the outage.

This *Connecticut October 2011 Snowstorm Power Restoration Report* provides an independent assessment of the preparedness, response, and restoration efforts and offers recommendations for how capabilities to address such events can be improved.

The October 2011 snowstorm resulted in 809,097 CL&P customers being without power at some time during the 11-day outage; many suffered multiple outages. The duration of the power outage in some of the most heavily impacted areas caused inconvenience and frustration among the public and municipal officials. Community frustration was exacerbated by CL&P's communications with the general public and state and local officials.

This report provides a brief summary of the outage event, describes the methodology used to create this expedited evaluation, and presents key findings and recommendations for improving power restoration response. It is intended to provide a basis for further examination of key issues and improvement planning by the state, municipalities and utility providers. Although the performance of both CL&P and UI were reviewed and summarized here, the primary focus of this effort is on the CL&P service territory.

The October snowstorm resulted in the largest restoration effort in CL&P's history. Despite the length and extent of the service outages, and the effect on customers in the affected service areas, there were successes in CL&P's power restoration effort. The company's internal forecast model accurately predicted power would be fully restored by Wednesday, November 9, although an unprecedented army of mutual aid workers from other utilities was required to do so. No serious injuries or deaths were reported associated with the restoration effort. Municipalities reported that power restoration crews, once they arrived in their communities, generally functioned well and efficiently. Stakeholders also praised the assistance from power company customer service representatives in answering phone lines in a timely fashion, with an average wait time of less than

45 seconds;¹ this is frequently not the case in such a wide-scale event. CL&P's recently created Town Liaison program, while not completely successful in its implementation, is recognized as positive in concept.

UI outages were smaller in number and in proportion to their total customers. After the October snowstorm, all UI customers were restored by the night of Wednesday, November 2.

Summary of Issues

Findings and recommendations in this report address a number of issue areas:

- CL&P was not prepared for an event of this size. The worst-case scenario in the company's emergency response plan considered outages over 100,000 customers, or less than 10 percent of their total customer base. More than two-thirds of its customers lost power as a result of the October snowstorm.
- Preparedness, including planning, training, and exercise, for a widespread power outage and/or infrastructure damage event is inadequate across all sectors.
- CL&P did not lean forward by pre-staging adequate restoration resources in advance of the October 29 snowstorm; this delayed the recovery effort in the first days.
- As is the case with most electric utilities, CL&P is dependent on contractors and mutual aid from other utilities to address a large-scale outage. Several factors contributed to initial delays in auxiliary staffing for this event. The company was able to almost fully restore power by Wednesday, November 9, by bringing in thousands of crews later in the event.
- CL&P developed an internal stretch goal to restore power to 99 percent of all customers by Sunday, November 6. Without vetting internally, the company announced this date as a public performance commitment. This announcement, and a subsequent commitment to restore 99 percent of all customers in each of 149 municipalities by November 6, unnecessarily contributed to increased customer frustration and challenges for municipal governments.
- Northeast Utilities (NU), CL&P's parent company, did not provide sufficient executive leadership during this restoration effort, allowing one individual to oversee the restoration effort, serve as the primary liaison at the state Emergency Operations Center, and be the public spokesperson.
- When power was restored for individual customers, CL&P's real-time situational awareness and ability to communicate restoration status to customers, was delayed by as much as 12 hours as data was not updated in the system until crews returned from their shifts. This hampered coordinated decision-making and accurate communication regarding power restoration activities.
- Although a good idea in concept, CL&P's Town Liaison program had not been fully developed at the time of the snowstorm and was not consistently effective in providing

¹ CL&P Internal Communications Report, November 9, 2011

- a conduit for accurate information between the company and municipal governments, and, in some cases, undermined the company's credibility with local officials.
- CL&P crews and public sector response and emergency management entities in Connecticut generally use radio systems for response communication in the field that are not compatible with each other.
 - While vital to provide needed capabilities, use of external mutual assistance and contract crews presents communication, reporting, and tracking challenges because they often do not have the same communications or field reporting technology as used by local crews.

Overview of Recommendations

The 27 recommendations found in this report can be categorized in several broad themes:

- CL&P should improve its planning, procedures, training, and pre-staging practices to adequately prepare its crews and resources for the scale of incidents it and its customers potentially face by significantly increasing the scale of planning scenarios.
- CL&P needs to develop its management scalability for large-scale incidents by implementing an Incident Command System (ICS) structure that expands with the requirements of the incident.
- CL&P needs to improve its processes for information management, including message vetting, communication, and coordination with local governments, and the dissemination of public information to its customers, external partners, stakeholders, and the media. During a large-scale outage, it can be as important to communicate the restoration plan and progress toward implementation of that plan, as it is to restore power itself.
- CL&P should more closely coordinate and integrate preparedness activities with state and local governments to include ongoing planning, training, and exercise for utility disruption.
- State and local government planning and preparedness should address major power disruption more comprehensively and inclusively, including coordination with utility providers and procedures for damage assessment teams in power and/or utility outage events.

As noted above, the scope of this expedited high-level review is limited to the restoration effort itself. There are several other factors that impact the scale of outages during a major event including system design, hardening, vegetation management, and regulatory issues. We recommend further review of these and other issues.

This review was conducted under extraordinary circumstances; the restoration effort was still ongoing when interviews were conducted. We want to thank the state, local, utility, and labor officials who cooperated in this review. Finally, we want to thank the thousands of workers who cleared the roads and restored the power for individual citizens, their schools, businesses, and

communities. This review appropriately focuses on opportunities for improvement, but we should not overlook the millions of actions that were performed well.

II. Scope and Methodology

A. Scope

The State of Connecticut retained Witt Associates to provide an independent assessment of preparedness, response, and restoration efforts associated with the snowstorm that occurred October 29-30, 2011.

The focus of this assessment is the performance of private utility providers and local and state public sector entities responsible for (1) restoration of electric power transmission and distribution, and (2) emergency preparedness and response related to widespread power outages. This assessment presents an objective and informative identification of problem areas along with recommendations for improvement.

B. Methodology

This assessment is an expedited, high-level report that addresses issues associated with the restoration of power after the October 29, 2011, snowstorm. The assessment included a series of activities in a compressed time frame (November 7 to December 1):

- project initiation and objective setting
- data collection, including document review and analysis
- interviews with local elected officials, as well as public safety, emergency management, public works, and transportation officials and interviews with state agency personnel
- interviews with utility officials
- interviews with labor officials
- assessment report development

In setting the aggressive timeline for the report, Governor Dannel P. Malloy noted the need for expedited review. The report was developed using qualitative and expert analysis of input from individuals in responsible positions in the private and public sectors, as well as document review.

The consultant team reviewed documents relevant to the incident, including but not limited to:

- utility and government emergency response plans
- evaluations of recent power outage events including the March 2010 severe weather and Hurricane Irene (August 2011)
- snowstorm event summaries and response timelines
- weather forecasts
- CL&P and UI presentations to the State Team Organized for the Review of Management of Irene (STORM) Panel and Two STORM Panel
- coverage and outage maps

- utility company mutual aid agreements;
- staffing data and related information providing by CL&P
- press releases
- other documents

(A list of documents reviewed is provided in Appendix B.)

Witt Associates conducted a series of interviews, asking standardized questions to focus the interviews on factors related to power restoration and emergency response, and to provide consistency across interviewers and participants. In addition to directed questions, interviewees also were asked open-ended questions to allow for discussion of the issues and recommendations most relevant or important to their jurisdiction or organization. The team conducted more than 65 interviews with local and state government representatives and executives, operational staff, communications staff, and other personnel from CL&P and UI. A list of interview participants is found in Appendix A.

To analyze the information available, the consultant team applied its expertise in the field of emergency preparedness, response, recovery, and mitigation as well as electric utility operations and restoration. The team also referenced findings and recommendations from previous incident assessment reports. Findings and recommendations contained in this report have been vetted and validated by members of the consultant team, including utility subject-matter experts.

When asked to conduct reviews such as this, Witt Associates finds it effective and helpful for the client to focus on areas that offer the greatest potential for improving future performance. This methodology can have the effect of emphasizing challenges and other negative issues. However, Witt Associates also recognizes strengths and successes in the response and has sought to note effective action where appropriate.

C. Acknowledgements

Witt Associates acknowledges the assistance of local and state officials, CL&P and UI officials, labor and others in providing access and information in a timely manner. The consultant team appreciates the time and valuable input of the individuals interviewed for the assessment, who were forthcoming and thoughtful in the information and opinions they provided, despite in most cases having just experienced a long and difficult snowstorm response and power restoration. Witt Associates would like to emphasize the extraordinary actions and efforts of those involved in the power restoration effort in both the public and private sectors, including line crews, public works personnel, and utility company and government emergency management staff. They worked diligently, many in hazardous or challenging conditions, to return Connecticut's communities back to normal operations in what was the largest power outage event in the state's history. Many individuals performed as best they could in adverse circumstances.

III. Summary of Events

The northeastern United States, including the State of Connecticut, experienced an early season snowstorm on October 29-30, 2011, that resulted in more than 809,097 individual CL&P customers² without power at some time (807,228 at the peak of the outage), a portion of whom remained without power for a week to 11 days. Peak outages in UI's service area were approximately 19,000, and total outages 52,000³. While the region is accustomed to significant winter snowfall, the snowstorm dumped 12 inches or more of wet, heavy snow on parts of Connecticut and its neighboring states at a time when foliage remained on many trees. As a result, the snowstorm caused major damage to trees and power lines, blocking roads and creating widespread power outages. Eight snowstorm-related fatalities were reported. The snowstorm and power outage resulted in significant economic impacts in the state, including response and debris removal costs and lost business days.

Predictions for Early Snow

Weather forecasts for Connecticut at midweek before the storm warned of the potential for heavy, wet snow. By Friday morning, October 28, weather subscription services were issuing winter weather alerts, with forecasts predicting up to eight inches of snow beginning on Saturday afternoon, October 29. The Connecticut Department of Emergency Services and Public Protection sent notices of weather forecasts to local governments and others (see Appendix C), and its Department of Emergency Management and Homeland Security (DEMHS) communicated with local governments and utilities including electric power and some telecommunications providers. On Friday DEMHS began holding Unified Command conference calls or meetings, which included utility representatives, as well as conference calls with municipalities. Some local governments began preparing public works and snow removal crews for the weekend's work.

The two private electricity providers⁴ in the state, CL&P, a subsidiary of Northeast Utilities, and UI, began placing crews on standby Friday morning, October 28. In addition, CL&P pre-positioned 30 contractors who had been working on transmission lines for anticipated distribution line damage. According to CL&P, this was the first time in its history crews had been pre-positioned. CL&P

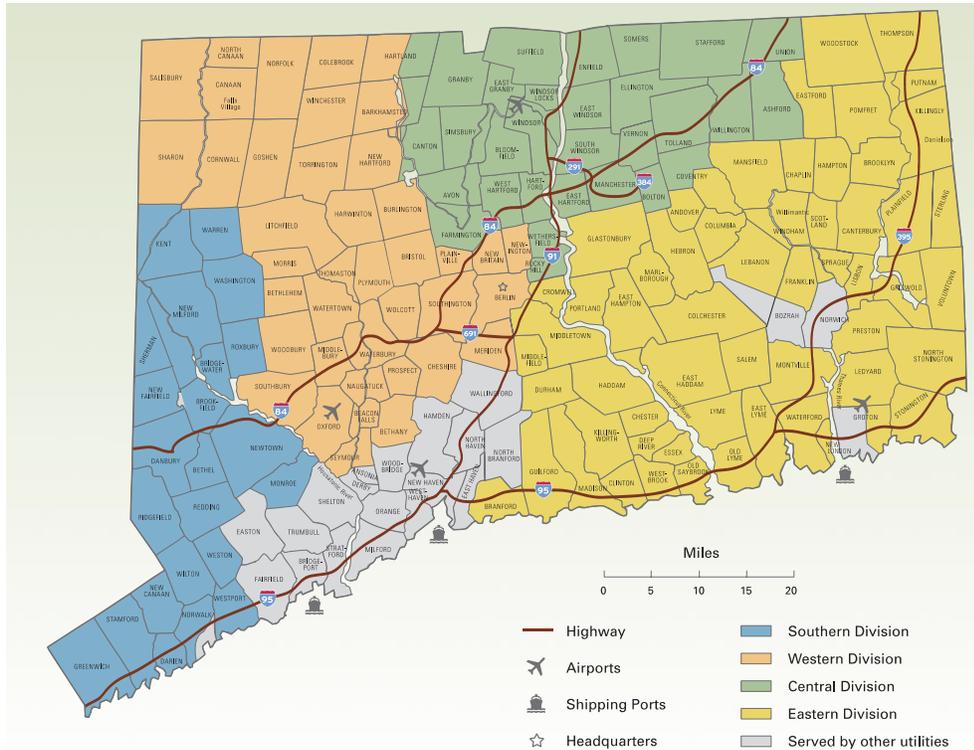
² A customer is defined based on meters and billing; it can be a residence housing one individual or a family, an apartment complex housing several families, or an individual business or multiple facilities under one account. In general, the number of individual persons affected by a large-scale power outage exceeds the number of utility customers.

³ For comparison, in a total service area of approximately 350,000, during Irene UI had a peak of 158,000 customers out, and a total of 201,000.

⁴ Two towns are served by Norwich's municipal utility.

provides electricity to approximately 1.2 million customers, with UI serving approximately 350,000 customers, primarily in south-central and southwestern coastal areas of Connecticut.

Figure 1. CL&P Coverage Area



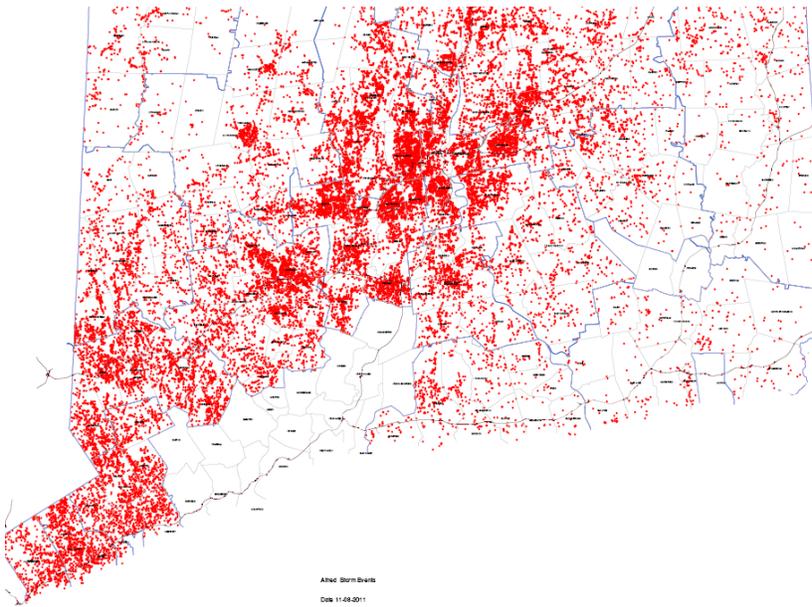
Cracking Branches, Widespread Power Outage

Although snow had not been forecast to begin falling until the afternoon of Saturday, October 29, it began before noon on Saturday, becoming heavy by midday, and continuing through Sunday. By the overnight hours on Saturday, the heavy snow began taking its toll on trees, with limbs sagging and breaking – issuing loud cracks heard in many neighborhoods – and taking out power lines and poles as they fell. A state that only two months prior had experienced record power outages because of Hurricane Irene (August 28, 2011) was about to experience another major power emergency, and this one would prove to be far worse.

Much of the state was impacted by the power outage; hardest hit areas included the north central part of the state, including the Farmington Valley. CL&P reports indicated a total of approximately 25,000 “trouble spots”⁵. This is the highest number in CL&P’s history. (See Figure 1.)

⁵ A trouble spot is a location where there is damage to electrical transmission / distribution system components requiring crew response to make conditions safe for the public, repair damage, and restore power.

Figure 2. Trouble Spots from October Snowstorm



CL&P Trouble Spots From October Snowstorm

- ~25,500 trouble spots (almost 60% more than Irene); repaired over 11 days
- CL&P estimated 205,000 crew hours of restoration work during incident
- Most significant damage experienced in north-central portion of state

Source: CL&P Report to Two STORM Panel

In heavily impacted locations, the severity and breadth of damage from the snowstorm created challenges for municipalities' tree- and road-clearing

crews and CL&P's restoration operations. There were thousands of locations of downed trees and power lines, and in many cases, this resulted in challenges related to making sure that downed lines were not live – “cut, clear and make safe” in power company terminology – before local public works crews could remove trees and clear roads.

Interviews with CL&P personnel indicated the company devoted its resources heavily to cut, clear, and make-safe operations for the first three days following the storm, and it attempted to deploy at least one crew to each town in its service area to support this. As a result, a full focus on actual power restoration did not begin until Wednesday, November 2, according to an interview with CL&P systems operations management. In addition, getting from place to place was difficult because of the number of roads blocked by downed trees and, often, power lines. Areas served by UI were less severely impacted. A total of 52,000 UI customers lost power (with a peak of 19,000 outages at one time). All UI service was restored by the close of Wednesday, November 2.

Projecting and Communicating Restoration Times

Early in the outage, CL&P officials, using outage reports and computer models designed for planning power-restoration activities, projected Wednesday, November 9, as the date for full restoration to all customers. However, as customers complained about the length of time without electricity, CL&P set an aggressive internal goal – based on the restoration curve projected by its restoration model – to restore 99 percent of its customers who were without power by midnight Sunday, November 6. Although not vetted internally, this internal target was communicated to the public through statements to the media on November 1.

On November 4, CL&P's president and chief operating officer reiterated the target but stated more specifically that all of the municipalities served by CL&P would be 99 percent restored by midnight Sunday. This is numerically different and was a more difficult goal than the general 99 percent target. Some CL&P liaisons assigned to the most affected towns were skeptical that each town could be restored to 99 percent by Sunday, although they typically maintained unity of message in their communications.

When this projection, which had been viewed as a promise by both customers and towns, was not met, customers and local officials in towns still below 99 percent were frustrated. Through these statements, CL&P created unnecessary expectations on the part of customers and their elected officials, resulting in cynicism regarding power company operations and statements and adding to anger about the duration of the outage.

A recently implemented Town Liaison program, through which CL&P placed liaisons with each municipality during the outage, had mixed results. In some towns, liaisons communicated reliable information between CL&P operations and the towns. In others, however, the presence of liaisons raised municipal officials' expectations of communication and coordination, and the assigned liaisons were not sufficiently integrated with restoration operations to meet these expectations.

Frustration

Local government officials and residents in towns that still had power outages were frustrated by the uncertainty regarding the time by which power would be restored, which challenged planning for shelter operations, continuity operations, and emergency and human services. Some town officials were told they would get power crews in their area on specific days and the crews did not appear. Municipal emergency officials communicated damage assessments and top priorities for restoration through their CL&P town liaison; however, many reported delays in addressing their priorities, and they described a failure on CL&P's part to explain these delays.

CL&P's Restoration Effort

A new CL&P Emergency Plan (June 2011) was in place, but many corrective actions identified in the intervening Hurricane Irene outage had not yet been implemented. Because of the recency of the plan update, the company had not had time to engage in significant training or exercise of the new version of the plan.

CL&P, which served most of the outage area, brought in contract and mutual aid crews from other states and Canadian provinces. Both CL&P and UI are members of the Northeast Mutual Assistance Group (NEMAG), a collection of northeastern electricity providers that have an agreement under which they can send resources to assist in another state in power emergencies. CL&P also is a member of the New York Mutual Assistance Group (NYMAG). CL&P called up some contract crews on Friday, October 29, and requested mutual assistance crews on Saturday, about the same time as

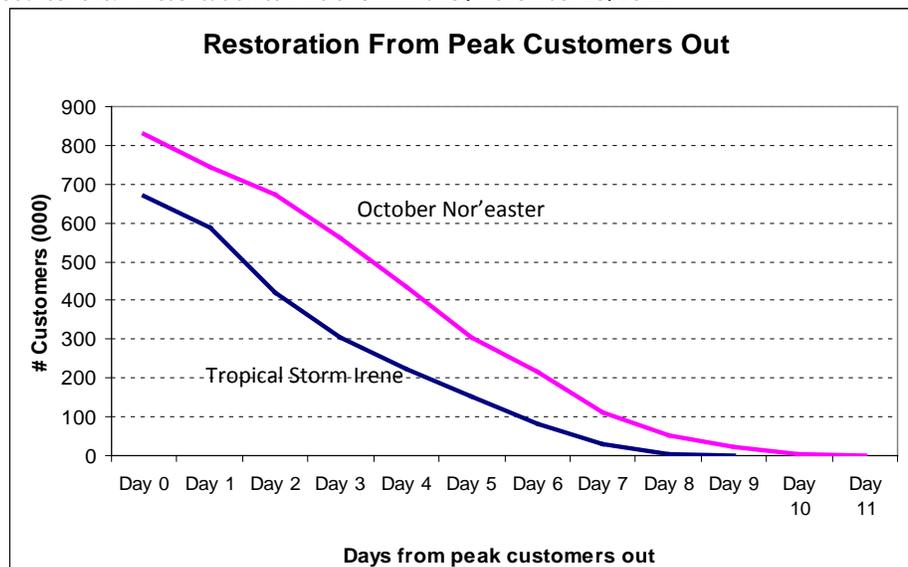
other companies in the region also identified the need for mutual assistance. Prior to the snow starting, states in the region were not releasing crews.

CL&P reported delays in some mutual assistance reaching the state, which was likely complicated by the regional nature of the incident and competition for resources (multiple nearby states were also affected). CL&P reported the number of tree, line, and service crews that worked in the restoration effort totaled 2,917 (internal and external)⁶.

Restoration involved addressing transmission backbone and infrastructure damage as well as distribution lines. It is unusual to lose transmission lines as trees are cleared to provide much wider right-of-ways; but in several cases, the weight of the snow brought down full trees onto transmission lines. In some areas, portions of the system had to be rebuilt.

Figure 3. Restoration Curve

Source: CL&P Presentation to Two STORM Panel, November 15, 2011



Gradually, power was restored to the 149 municipalities without power; the 99 percent overall restoration benchmark was reached shortly after the original projection date of Sunday, November 6 (though not for every town). The last CL&P customers to be brought back online were restored on November 9, as the company's model had initially predicted. Restoration of more than 809,000 outages in 11 days is not inconsistent with industry benchmarks. However, there are factors that could have reduced the time required for restoration.

While the power outage was widespread and challenging, it is noted that there were no fatalities or major injuries reported at the time of this report associated with either CL&P or UI's restoration efforts.

⁶ CL&P Presentation to Two STORM Panel, November 15, 2011.

Evaluating the Response

Governor Dannel P. Malloy requested an emergency declaration for affected areas of the state, which President Barack Obama approved on October 31, 2011. On November 11, 2011, after a preliminary damage assessment that estimated eligible costs at \$27 million, Governor Malloy requested a major disaster declaration, which was granted on November 17. The declaration will make assistance available to local governments for debris removal, infrastructure repair, and mitigation projects.

Governor Malloy added review of the snowstorm outage to the responsibilities of the STORM Panel he established after Hurricane Irene. Many municipal and state government agencies and the utility companies noted that they will review their response capabilities and adjust plans and resource planning in light of the incident.

Additionally, on November 4, Governor Malloy retained the services of Witt Associates to perform an independent assessment of utility companies' response to the snow event. The Connecticut Public Utilities Regulating Authority (PURA) also initiated an investigation of restoration performance in response to both Irene and the snowstorm. The Attorney General's Office called for the investigation to be broadened to include telecommunications and cable services as well. On November 17, CL&P announced several personnel changes, including the resignation of its president and chief operating officer, and the establishment of a position of senior vice president of emergency preparedness.

IV. Findings and Recommendations

The primary objective of this review is to identify what went well and where improvement is warranted. Where appropriate, we offer recommendations to enhance Connecticut’s resiliency for the next significant outage event.

The findings and recommendations listed in this section were developed based on analysis of interviews conducted with more than 65 key personnel (see Appendix A) and through document review (see Appendix B). Members of the consultant team attended the November 9 Two STORM Panel meeting and reviewed summaries from other meetings of the panel. Findings and recommendations are organized by issue area, generally progressing from preparedness through response (including coordination and communication). A section noting issues outside the scope of this report is found in section IV.H.



Each issue section describes background regarding the issue, a simple statement of findings, and one or more recommendation regarding that finding. Recommendations are numbered for ease of reference for corrective action planning and monitoring.

A. Preparedness Across All Sectors

Issue: Preparedness – including planning, training, and exercise – for a widespread power outage and/or infrastructure damage event is inadequate across all sectors.

Background: CL&P underestimated in its planning the potential scale of a worst-case power outage event. This underestimate had ripple effects through CL&P’s planning for personnel, equipment, and coordination needs.

Figure 4. CL&P Event Classifications from CL&P Emergency Response Plan

| Level | Characteristics | Outages | Expected Duration | Frequency |
|-------|--------------------|----------|-------------------|-----------------|
| I | Small Impact Event | <10,000 | <12 hours | <75/year |
| II | Moderate | <20,000 | 12-24 hours | <25/year |
| III | Serious | <40,000 | 24-48 hours | <10/year |
| IV | Major | <80,000 | 48-72 hours | <5/year |
| V | Extreme | >100,000 | >72 hours | Once in 5 years |

October 2011 snowstorm event >900,000 outages

CL&P’s 2011 Emergency Response

Plan uses a series of five levels, with Level V (the most severe) classified as an extreme event with major system impact at 100,000 or more customers, which is less than 10 percent of CL&P’s total

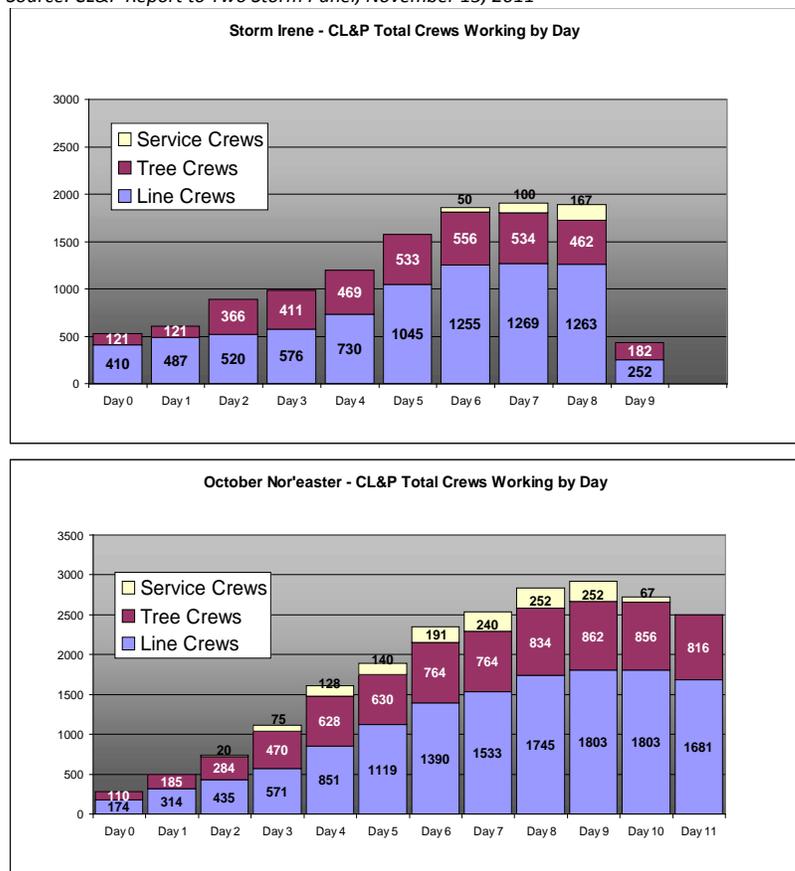
customers, without power and 1800-plus trouble spots. The October 2011 snowstorm exceeded this criteria, resulting in 807,228 users without power at the peak of the outage and more than 25,000 trouble spots. The plan’s classification of service outage events matrix seriously underestimates the potential power outage events that could occur, and for which the company should plan.

Both UI and CL&P are members of the Northwest Mutual Assistance Group (NEMAG), and CL&P is also a member of the New York Mutual Assistance Group (NYMAG), which include electricity providers in nearby states that agree to send crews to support each other’s restoration efforts, if crews are available, in an emergency. Mutual assistance crews from other states are vital in providing operational capacity for a large-scale restoration effort (see section IV.G below for additional discussion of mutual assistance). The increased capacity is important but requires increased management capability to coordinate efficiently.

After-action reports from several recent large-scale outage events in Connecticut, including the March 2010 severe weather and Hurricane Irene, identified the need for CL&P to increase its management staffing in a large-scale incident to coordinate and manage efforts of the significantly increased workforce. With 10 times more resources to manage than during normal operations, the company had to coordinate staffing and operational levels it had not had the opportunity to exercise.

After the snowstorm, CL&P reported challenges in managing local government expectations related to the role of power company crews in assisting with cut and clear operations. Local jurisdictions that fared better and reported more success in power restoration efforts (at least from the sample interviewed for this report) generally reported that they went into the storm weekend with an aggressive preparedness stance and pre-identified capabilities for damage assessment, tree and road clearing, and debris removal activities.

Figure 5. CL&P Crew Numbers by Day, Irene and October Snowstorm
 Source: CL&P Report to Two Storm Panel, November 15, 2011



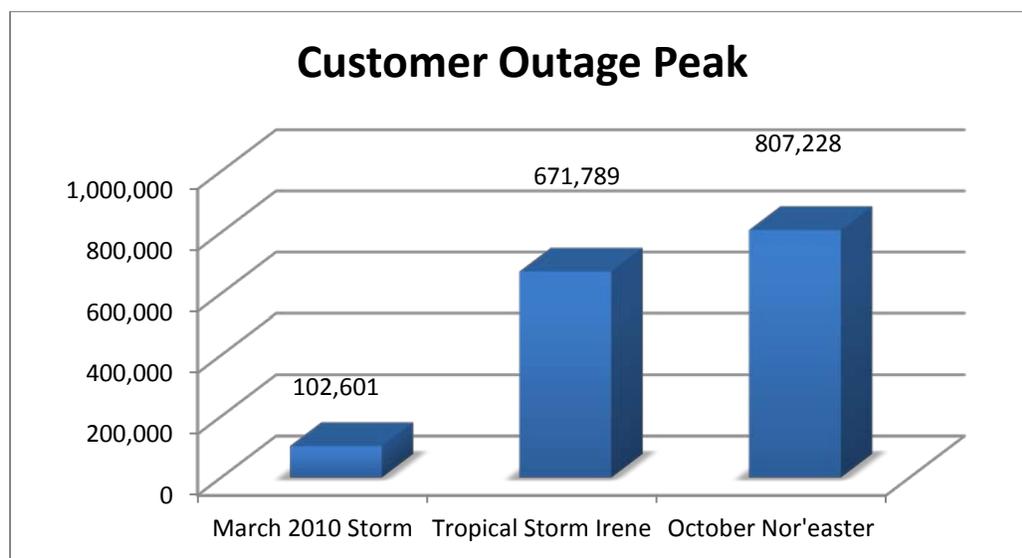
The Connecticut State Response Framework and its Natural Disaster Plan do not specifically address responsibilities or refer to procedures for a power outage incident. The state plans refer to [Connecticut October 2011 Snowstorm Power Restoration Findings and Recommendations](#)

Emergency Support Functions, or ESFs, as used in the National Response Framework and federal emergency planning guidance, but the plans do not organize agency activities by ESFs or functional area (such as energy). The state Natural Disaster Plan provides that the Department of Public Utility Control has responsibility for ensuring that utilities have the resources to mobilize maintenance and repair forces.⁷ The State Response Framework tasks DPUC similarly and adds keeping the State Emergency Operations Center (SEOC) updated on power disruption and restoration status. The state is developing an Energy Assurance Plan, which is in draft and is scheduled to be completed in 2012. This initiative is led by the Connecticut Office of Policy and Management.

The State DEMHS planning template that guides many municipal emergency response plans likewise does not address major power disruption in detail. The template assigns responsibility for coordination with utilities to the local public works department. It also notes responsibility of utility companies to provide a liaison to local governments, work with the municipal chief executive regarding restoration priorities, and communicate with the municipal executive regarding damage assessments and restoration progress. Utilities and local and state levels of government participate in exercises periodically to test plans, procedures, and equipment and provide practice to personnel with responsibilities in emergency incidents.

Finding: CL&P's classification of service outage events provides an inadequate planning scenario to prepare the company for the capability needs, resource coordination, and communication challenges implied by an outage on the scale of the October snowstorm. The plan's maximum Level V (100,000-plus, or 8 percent of all CL&P customers) does not represent viable worst-case outage scenario for a company with 1.2 million customers. (In contrast, the most severe event level described in UI's emergency plan is 250,000-plus, or 71 percent of all customers.)

Figure 6. CL&P Customer Outage Peak, Recent Events



⁷ Connecticut Natural Disaster Plan, 2009, p. C-15.

A.1 Recommendation: CL&P should review and revise the classification of service outage events planning matrix in its Emergency Response Plan to realistically address small, medium, and large-scale power outage events that could impact the state. Based on the precedents of Hurricane Irene and the October 2011 snowstorm, top level(s) should address outages involving well more than half of all CL&P customers.

Finding: While measures to increase management in CL&P had been identified and some implemented, the magnitude and severity of the October 2011 outage challenged CL&P's ability to coordinate and communicate accurate and timely restoration actions. While CL&P brings in additional management staff from across NU on an ad hoc basis during large-scale incidents, the scale of the October snowstorm and the volume of assets required to restore power severely taxed the situational awareness, coordination, and communication capabilities of CL&P's response organization.

A.2 Recommendation: CL&P should improve procedures and capabilities to scale up management and coordination capabilities to deal with field staffing levels at seven to 10 times the company's normal field staffing.

Finding: CL&P operated under the new revision of its Emergency Response Plan, dated June 2011. The plan uses terminology consistent with the federal National Incident Management System (NIMS), including use of ICS, which is a scalable management structure used in emergency incidents in the United States. ICS is flexible and is utilized for incidents of any type, scope, and complexity. ICS allows its users to adopt an integrated organizational structure that matches the complexities and demands of single or multiple incidents. ICS, when utilized by government, nongovernmental organizations and the private sector, provides a uniform approach with seamless communication between dissimilar organizations. However, the plan does not appear to create a scalable management structure in that it replaces one level of organization with another (district to division to area to system)⁸ rather than creating a structure that can expand horizontally with the incident size and maintain a manageable span of control and unity of command at each level of the organizational structure. Such flexibility is a key principle of ICS. Specifically, the plan's mobilization scheme does not provide for transition of authority as an event escalates and is not expandable or easily contractible (four distinct organizations remain mobilized simultaneously). As an event escalates, each subsequent mobilization is layered upon the previous with no clear chain of command among the layers. Key positions are duplicated at each layer (not expanded) during a combined response, which can create confusion as to roles and responsibilities.

A.3 Recommendation: CL&P should review and revise its plans and procedures' ability to support scalable incident management during an event and should exercise management scalability as part of its preparedness program. CL&P should implement an ICS training protocol for command staff and general staff and incorporate ICS principles and implementation into drills and participate in multi-agency and multi-jurisdictional exercises utilizing ICS. The company also should inventory and categorize resources by capability to

⁸ See CL&P Emergency Response Plan, Section 4, Emergency Response Organizations

provide for improved identification, request, deployment, and tracking of internal and external resources. The company can explore use of ICS forms or comparable forms to promote consistency in management and documentation of incidents.

Finding: NU officials did not provide sufficient organizational/leadership support during this restoration event, allowing a single individual to manage the restoration event, serve as the lead liaison to the State Emergency Operations Center and the Governor, and serve as the public spokesperson. This combination of expectations can create difficulty accomplishing the requirements of each and is not good practice for an organization with resources to spread responsibilities to trained management-level staff. A key tenet of ICS is scalability of incident management; command responsibilities in a major incident include delegating key roles such as public information and government liaison to other qualified individuals.

A.4 Recommendation: CL&P should review and adjust plans, procedures, and training as needed to ensure that corporate-level command, public information, and liaison roles are not placed on one person in a large-scale restoration effort.

Finding: CL&P has designated personnel responsible for operations and emergency preparedness and response. The CL&P Emergency Response Plan, Section 4, Emergency Management Organizations, references the NU Emergency Operations Group (NU EOG) and CL&P Emergency Management Group (CL&P EMG); the CL&P EMG includes staff of the CL&P Emergency Management Department, and the NU group is composed of two people. It is not clear if and how these groups review preparedness on an ongoing basis and act to provide high-level problem-solving during an incident.

A.5 Recommendation: CL&P and its parent company, NU, should establish robust, integrated emergency management leadership capabilities at the executive level. An emergency preparedness and response steering committee or similar body composed of representatives of various components of CL&P and NU should meet regularly to review CL&P's emergency preparedness program and related activities, provide input, and facilitate involvement throughout the organization. Procedures should be developed to define the group's role during an event as that of a crisis management team that will provide CL&P operations a big-picture view and assist with problem-solving, including identifying issues that may harm the organization, its stakeholders, or the general public, and setting overarching incident objectives.

Finding: Utilities and local and state governments conduct drills and exercises periodically to practice and test their emergency plans, procedures, and response capabilities, but there is need for joint multi-jurisdictional exercises that address municipal, state, and utility procedures and capabilities for a widespread power outage. Neither CL&P nor UI involve municipal partners in their exercises (although UI has participated in municipal exercises). The CL&P Emergency Response Plan calls for annual storm drills prior to August. While some drills have been held, CL&P did not provide documentation of exercise after-action reports identifying who participated as well as corrective actions and follow-up. After-action reports are standard practice for utilities for both actual events and exercises.

A.6 Recommendation: CL&P should create and maintain a robust training, exercise, and corrective action program so that items for improvement are identified in real-world and exercise events, assigned as responsibilities, and monitored for resolution or further action.

A.7 Recommendation: Electric utilities and the public sector should work together to establish policies and exercise practices regarding damage assessment, cut-clear, make-safe, and debris removal. State DEMHS regions, Local Emergency Planning Committees (LEPCs), or another regional approach, could be an effective way to approach multi-sector exercises. A regional approach could more easily coordinate with CL&P area organization, which is based on circuits and area work centers (AWCs) rather than municipalities.

Finding: CL&P offers training regarding power-line safety, and some (but not all) municipalities reported that local personnel have participated in this. While CL&P District Command is to meet annually with public officials to discuss emergency plans,⁹ CL&P has no formal training or education for municipal officials. Municipal officials and crews would benefit from training regarding the basics of the power infrastructure that serves their area.

A.8 Recommendation: Electric utilities should regularly train municipal public works personnel, damage assessment teams, and local fire and public safety personnel on utility line identification, live wire identification, and electricity infrastructure and system basics for their areas. Utilities also should provide training and education for municipal leaders on the basic architecture of the power grid and system serving their areas.

Finding: Some local governments have well-defined structures and procedures for incident response and management. Others, for varied reasons including staffing levels, resources, and personnel expertise, have minimal processes established for coordinating complex operations, such as designation of a clear point of contact for coordination with utility representatives in a major outage and procedures for damage assessment.

A.9 Recommendation: Municipalities should address major power disruption in emergency plans and procedures, including designation of a point of contact to provide clear lines of communication and coordination with utility providers and procedures for damage assessment teams in power and/or utility outage events. CL&P should maintain a list of all 149 municipal points of contact and validate this list on an annual basis (this is standard procedure at UI).

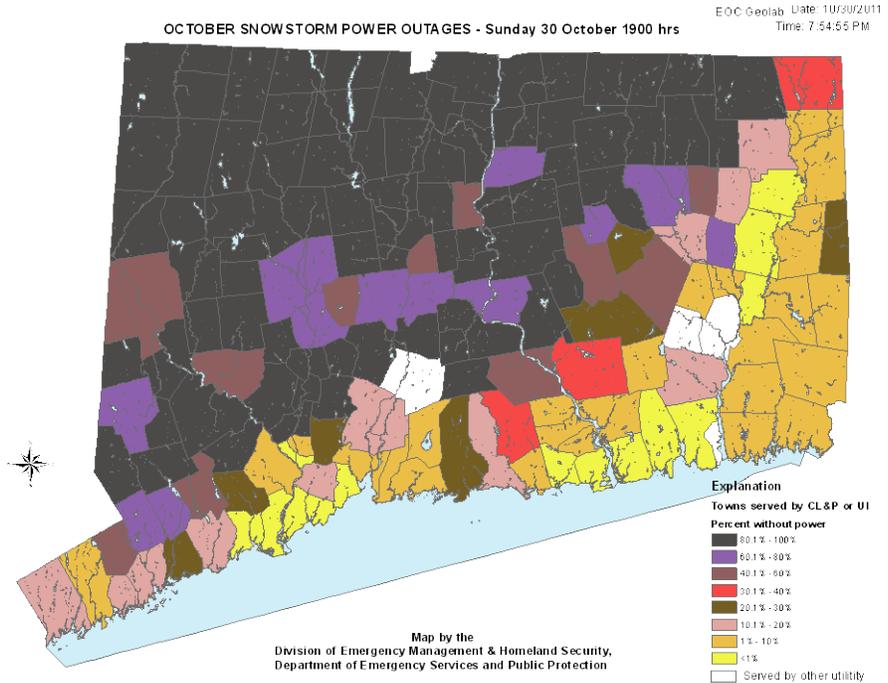
Finding: CL&P plans anticipate that the company will receive from municipalities annually a list of critical infrastructure priorities for their jurisdictions. Some municipalities reported meeting regularly, if not always annually, with CL&P representatives and providing them their overall restoration priorities. However, some municipalities do not regularly provide a pre-event restoration priority list. CL&P received detailed damage assessment data from many towns during the 2011 snowstorm but lacked a process to assimilate it into the company's overall damage assessments.

⁹ CL&P Emergency Response Plan (June 2011), Basic Plan, Section 4, Preparedness Activities.

A.10 Recommendation: CL&P and municipal governments should establish a regular schedule and process for municipalities to provide and update their pre-identified restoration priority lists. CL&P should update and validate municipal priorities on a regular basis (which is standard procedure at UI). CL&P should also be prepared to explain to municipalities why their priorities may not be addressed exactly as submitted because of the geography of power circuits and utility grid architecture.

A.11 Recommendation: CL&P should establish a methodology and tools by which municipalities conduct damage assessments and provide the results to CL&P in a way that CL&P can easily assimilate into its damage assessment process. CL&P should train municipal staff on their damage assessment terminology and information needs and use of CL&P's methodology and tools. This would expand CL&P's damage assessment capabilities, enhance the company's situational awareness, result in a more efficient restoration process, and increase coordination and trust with municipalities.

Figure 7. Power Outage Map from State EOC, October 30, 2011



Finding: Public sector emergency response planning at the state and local levels does not adequately focus on actions needed in a significant power outage and assignment of responsibilities in mitigation, preparedness, response, and recovery in utility disruption events. State and local plans call for reports from power companies but do address multi-agency actions or coordination needed to address energy disruption. State and local plans do not utilize an energy functional area or ESF 12, Energy, to bring organizations together to work on planning, preparedness, capability and resource analysis, and response coordination issues.

A.12 Recommendation: Connecticut DEMHS should review and improve state planning for power outage events and play a stronger role in guiding and reviewing municipal plans and procedures for response to power outages, including responsibilities, capability needs, coordination, situational awareness, damage assessment, and debris clearing and removal. The state should incorporate an ESF 12, Energy, into its emergency plan to provide a structure for ongoing multi-agency communication, coordination, and preparedness for

power disruption events. The template provided by DEMHS to municipal offices of emergency management for development of their emergency operations plans also should include an ESF 12 or comparable component to prepare coordinated multi-agency power outage response capabilities.¹⁰

B. Ready for Impact

Issue: CL&P did not pre-stage adequate restoration resources in advance of the October 28 snowstorm.

Background: Weather forecasts early in the week of October 24 suggested the potential for an early snow event in the northeastern United States. By Friday morning, forecasters predicted four to eight inches of heavy, wet snow in the northern sections of Connecticut, more in higher elevations, and fewer inches elsewhere in the state. The state DEMHS began tracking weather forecasts and relaying messages to private sector partners and municipalities to prepare for effects of heavy, wet snow on trees with still-significant leaf cover. On Friday, October 28, DEMHS began holding Unified Command calls or meetings, in which CL&P representatives participate, and conference calls with municipalities.

CL&P, too, was monitoring weather forecasts. While the Friday morning forecast warned of the potential impacts of four to eight inches of heavy, wet snow in combination with remaining foliage, CL&P did not pre-stage company crews before the snow began. It housed some contract crews in the area and placed available line crews on call - 134 for Saturday and 146 for Sunday.

CL&P's Emergency Response Plan calls for pre-positioning of CL&P personnel in Level V power emergencies – those with potential for more than 100,000 customer outages. The company contends that it prepared for the size of the storm forecasted, noting that the actual snowstorm exceeded the four to eight inches forecast; however, tree limbs can be expected to fall even with four to eight inches.

Electric distribution companies rely on mutual aid and outside assistance for additional staffing and equipment to restore power following a major storm. In a large-scale outage, CL&P first calls on its own contractors, then seeks help through NU from sister companies, then or simultaneously

Severe Weather Alert Service From NU's Weather Subscription Service,

6 a.m. forecast, Fri., October 28. 2-3 day outlook:

"...For CT, northwestern/northern CT could approach the 4-8 inch range as well, with a swath of 2-4 inches over the central/eastern portions of the state, while locations right along the coast should hover in the 1-2 inch range. The highest accumulations will be over grassy areas, trees, and any colder/exposed surfaces. The snow will be wet and heavy for all areas, and is likely to cause problems with tree limbs and power lines. Wind gusts for interior locations with this storm may gust 25-35 mph, while gusts over southeastern CT, as well as eastern NH towards the coast, may range between 30-40 mph."

¹⁰ See Comprehensive Preparedness Guide (CPG) 101, v. 2.0, November 2010; Federal Emergency Management Agency.

requests mutual assistance, and then moves to employ unaffiliated contractors. Mutual assistance is based on agreements among power companies to send crews, upon request and if crews are available, to help another signatory of the agreement with restoration efforts. The company receiving assistance is later sent a bill by each company for the costs of the mutual assistance. Both UI and CL&P are members of the Northeast Mutual Assistance Group (NEMAG), and CL&P is also a member of New York Mutual Assistance Group (NYMAG); these include electricity providers in several northeastern states and Canadian provinces. Mutual assistance also is available from outside the region through a national Edison Electric Institute (EEI) agreement. While CL&P requested significant mutual assistance resources through appropriate channels, some mutual assistance was delayed or denied because of the regional nature of the incident, as utilities in neighboring states were addressing their own outages, and other issues.

On a NEMAG call on Friday morning, no utilities requested mutual aid. On a Saturday morning NEMAG call, although no utilities requested mutual aid there was general recognition that each company would be holding back their own resources in preparation for the approaching storm. By a Saturday afternoon NEMAG call, utilities in several states were requesting assistance and, as a result, found it difficult to secure mutual assistance crews. In its November 15, 2011, report to the Two STORM Panel, CL&P noted that there were 3,505 unmet mutual assistance requests among NEMAG states at the peak of the snowstorm.

CL&P reported that several states held crews rather than release them to go to Connecticut, which is likely at least partially related to the storm's regional potential. CL&P used mutual assistance in Hurricane Irene and had several invoices unpaid from contractors who sent crews because of accounting reviews of charges. The review conducted for this report did not find evidence that outstanding payments impeded the restoration process. CL&P officials said in interviews that the company plans to review its invoice dispute resolution process.

Finding: CL&P's decision not to pre-stage CL&P crews and assets before the day of the storm negatively impacted ability to quickly deploy sufficient personnel and equipment for cut-clear, make safe, and restoration activities.

B.1 Recommendation: CL&P's Emergency Response Plan and procedures should clarify when and what resources should be considered for pre-staging. For incidents for which there is notice, such as evolving weather forecasts, CL&P should develop a timeline to prompt decisions regarding key steps such as staging or deploying resources, with a time cushion to allow resources to be in place before the first impacts of the hazard are felt, including the capability to account for late changes in forecasts and events that may exceed forecast severity.

B.2 Recommendation: In its decision making timeline and ramp-up procedures, CL&P should address considerations to recognize the potential for significant regional impacts and, where indicated, provide triggers to quickly activate EEI mutual assistance requests for out-of-region support.

B.3 Recommendation: CL&P should develop and exercise pre-staging procedures and related logistics.

C. Public Communication

Issue: CL&P developed an internal stretch goal to restore power to 99 percent of all customers by Sunday, November 6. Without internal vetting, the company announced this date as a public performance commitment. This announcement, and the subsequent commitment to restore 99 percent of customers in each of the 149 municipalities it serves, unnecessarily contributed to increased customer frustration and challenges for municipal governments.

Background: Early in the outage, CL&P projected, using models it regularly employs to analyze outage and damage reports, it would have power restored by Wednesday, November 9. However, the company set an internal stretch goal to restore 99 percent of all outages by midnight Sunday, November 6. When this goal was released to the public in media events early in the week after the storm, it was perceived by the public and communities as a promise or deadline for restoration of 99 percent of customers by that date, and this perception was not corrected by the company.

The public statements about the internal goal were made after communication about the goal between CL&P president/chief operating officer, who also served as the company's public spokesperson during the incident, and the Governor.

In subsequent public communications, the 99 percent goal was translated as a projection that 99 percent of each municipality would be restored by the midnight, November 6, deadline. This was a more aggressive target.

The scale of the event created problems for power companies as well as for local public officials. Municipal emergency managers and officials in the hardest affected areas at first relied on the November 6 deadline and other CL&P statements about numbers of crews planned for specific areas on specific dates, as the towns worked to continue key municipal functions and provide public shelter, emergency access, and emergency assistance for their residents, especially the elderly and medically vulnerable. Unrealistic projections and inaccurate predictions of crews working in specific areas complicated municipalities' and residents' ability to plan for continuing to deal with the outage. As the outage continued, some municipalities began to ignore statements from CL&P because they experienced multiple instances of inaccurate statements or what were perceived as broken promises.

NU operates a centralized customer services operation. In large-scale outage events, customer service phone lines often are overwhelmed by those attempting to report and find out information regarding their outage. This was not the case for CL&P in this outage. As a result of investment in new systems, the average wait time for incoming calls during the event was 45 seconds. In addition, CL&P communicates with customers via social media and other options. Unfortunately,

communications, including responses to specific customer inquiries, repeated the 99 percent restoration message.

Finding: CL&P's public release of an internal goal of 99 percent restoration by midnight November 6, subsequent statements that the 99 percent goal would apply to each town, and its failure to correct these statements increased planning and coping challenges for municipal governments and customers and created anger among the public. The climate for public and municipal government frustration was likely enhanced by municipal elections scheduled for Tuesday, November 8.

C.1 Recommendation: CL&P should develop or review and implement policy for appropriate use and public release of internal restoration projections and targets. The policy should distinguish between internal operational targets and external communications and require that projections for public release be based on proven models and validated by operations components. Policies should apply to public communications staff as well as management and other personnel.

Finding: CL&P has significant public communications capabilities and staff. However, in the snowstorm outage, town liaison and corporate communications functions were not aligned in the organizational structure, and public messages and communications activities demonstrated a focus on unity or consistency of message rather than message accuracy.

C.2 Recommendation: CL&P should develop written procedures and protocols for verifying and vetting the accuracy and reality of projections and operational details before they are released to the public. This should incorporate policies and training to identify and correct rumors, misinformation, and/or its own misstatements to maintain credibility with customers, public sector partners, and the media.

C.3 Recommendation: CL&P corporate communications and emergency preparedness and response should designate qualified and trained individuals, who have an understanding of but do not have other immediate operational roles, to serve as public spokespersons for the company in power restoration and other emergency incidents.

C.4 Recommendation: CL&P should create written processes and procedures to ensure flow of information between town liaison and corporate communications functions, so that information can be both (a) strategically collected and vetted from accurate sources, and (b) distributed in a coordinated and effective manner.

D. Tracking Restoration Progress

Issue: CL&P real-time situation awareness of jobs-completed and crew location, progress, and needs was inadequate to properly support coordinated decision-making and accurate communication regarding power restoration activities.

Background: CL&P maintains its EOC to coordinate information and operations during an emergency or outage. Crews are given daily assignments each morning. Crews with CL&P technology in their vehicles log jobs completed in real time.

Most crews from outside the state, however, do not have compatible technology to report restoration status as soon as it is completed. In addition, although they have the technology, some internal crews prefer to focus on restoring power and delay status updates until the end of the shift. Because of the need to move on to the next trouble spot, crews working on paper reporting forms complete and submit those at the end of their shift, which can mean a delay of as long as 12 hours before restoration information is logged into the CL&P system. This delay can impact the company's overall understanding of the outage situation, which impacts decision-making regarding resource allocation and priorities. It also can impact the accuracy of information available to liaisons, municipalities and customers.

After-action recommendations from the March 2010 severe weather outbreak included that CL&P consider accelerating programs to provide mobile data terminals in distribution line trucks, or alternatively, providing additional Field Supervisor Lines and Supervisor of Distribution Lines with computers equipped with air cards to "streamline the process of closing work order tickets and enhance the ability of the dispatcher and analysts to effectively and efficiently plan and direct the remaining work efforts"¹¹. These recommendations had not been acted on broadly by CL&P by the time of the October snowstorm. CL&P noted in a June 2011 compliance filing with the Department of Public Utility Control that the initiative was not currently funded or considered cost-effective.

CL&P offers a user-friendly outage map on its web site. Although the outage map is updated every 15 minutes, these updates are based on the manual entry methodology described above, and so are not necessarily updated in real time. This can lead to time delays in display of recent outages reported or recent restorations completed and, without explanation of this process accompanying the display, may be confusing to the public. Additionally, at one point during the October 2011 outage, the data breaks that determine what color shows for each percentage level of outage were changed on the CL&P web site, which may have been confusing to customers who had been monitoring the site on previous days.

Finding: In the snowstorm restoration effort, CL&P's information management processes did not support timely receipt, analysis, and use of vital information to provide situational awareness for operational decision-making and accurate internal communication with town liaisons and external communication to stakeholders.

D.1 Recommendation: CL&P should implement systems and processes to improve real-time situational awareness of trouble spots addressed, crew locations, assignments completed, and related information to provide its EOC with timely information for

¹¹ Investigation of the Service Response and Communications of The Connecticut Light and Power Company Following the Outages of the Severe Weather over the Period of March 12 through March 14, 2010 (the Jacobs Report), October 26, 2010, p. 32.

coordinated decision-making and to improve the quality of information the company provides to town liaisons, municipalities, DEMHS, and the public.

D.2 Recommendation: Outage and restoration maps made available to the public should include explanation of any delays that impact the timeliness of information displayed on the maps and notation of any data analysis changes that impact the display.

E. Town Liaison Program

Issue: CL&P's Town Liaison program had not been fully developed at the time of the snowstorm and was not consistently effective in providing a conduit for accurate information between the company and municipal governments.

Background: CL&P's Town Liaison program evolved in 2010 to address the need to improve communication and coordination between the company and local governments during significant power events. This need was identified in after-action reviews of response to the March 2010 severe weather event. The liaison program is included in the company's June 2011 update of its Emergency Response Plan and was used during Hurricane Irene.

Some liaison training had been accomplished by the time of the storm. CL&P deployed liaisons to 149 municipalities, although some communities initially shared liaisons. Because CL&P had not planned for this scale of outage, personnel tasked with serving as liaisons in some cases had minimal relevant experience and had not been fully trained on their roles, responsibilities, or reporting and communication protocols. Some liaisons did not have working knowledge of the power distribution system and the restoration process. In addition, a number of local officials reported that liaisons did not have prior experience or working relationships with the municipalities they were serving.

In the aftermath of the snowstorm, some hard-hit Connecticut towns experienced frustration with the apparent disconnect between information provided by their liaison and the company's actions. Municipal officials expected their respective Town Liaison to be able to provide accurate and timely information regarding restoration operations specific to their community. While local officials interviewed reported that individuals serving as liaisons did their best and worked hard to carry out their responsibilities, many also noted that the liaison did not seem to have access to the right information and in some cases did not have the necessary context and skills to interpret and communicate restoration operations details.

In some communities, CL&P staff reported that liaisons faced challenges in getting accurate and timely information from their counterparts in restoration operations. Additionally, the organizational structure deployed during the snowstorm response lacked a meaningful mechanism for two-way communication between the liaisons, upper management, and corporate communication.

A number of municipalities reported that their town liaisons were not able to communicate or work remotely with their CL&P counterparts, which, combined with damage review and other activities, meant they often had to be at CL&P or in the field at times when they would have been most valuable in municipalities' operations discussions (e.g., morning incident operations briefings).

Finding: CL&P deployed personnel to serve as town liaisons in some cases with little technical training, experience, or previous knowledge of the assigned municipalities to equip them in fulfilling their roles. While liaisons performed the best they could, municipalities identified the need for knowledge and skills that would assist them in understanding CL&P actions and communicating and coordinating with CL&P operations and management.

E.1 Recommendation: CL&P should, with input from municipalities, move forward in implementing a comprehensive training program for personnel who may be asked to serve as a Town Liaison. Town liaisons should have the ability to communicate clearly, understand circuit maps, terminology, and basic power restoration practices, and access power company dispatch systems.

Finding: CL&P town liaisons in many circumstances had not previously worked or exercised with the municipalities to which they were assigned and so were not familiar with local restoration priorities, personnel, capabilities, plans, procedures, or practices.

E.2 Recommendation: The Town Liaison cadre should participate in municipal and regional exercises that address power restoration as part of emergency response (see section IV.A above), both to review and practice restoration responsibilities and to develop understanding of municipalities' and CL&P's respective restoration priorities and operational capabilities and practices.

Finding: The company had not yet fully developed the liaison program in terms of incorporating liaison activities into CL&P restoration processes. While municipalities appreciated the concept of the Town Liaison program and praised the effort of the individuals serving as liaisons, they reported that in many cases, priorities shared with their liaison did not seem to affect CL&P activities, and information received from their liaison was inaccurate.

E.3 Recommendation: CL&P should review the Town Liaison program, identify the appropriate reporting structure for liaisons, and integrate liaisons into CL&P's procedures and practices for restoration decision-making and activities. To achieve their intended purpose, liaisons must be in a position to be trusted conduits of information from CL&P to the municipalities and from the municipalities to CL&P operations.

Finding: While possibly less of an issue in a small-scale outage, providing a Town Liaison to 149 municipalities taxed CL&P's Town Liaison program, resulting in deploying individuals with little or no preparation for the role. Efforts to share liaisons among municipalities were hampered by communication difficulties and liaisons' lack of capability to access and interpret vital CL&P information remotely.

E.4 Recommendation: CL&P should review its Town Liaison policies and staffing with municipalities to determine if there are workable ways to effectively share liaisons among municipalities (potentially organized by CL&P's circuits, state regions, or regional planning organizations). This would mean providing appropriate and redundant communications and coordination tools to liaisons so that they can effectively work with both assigned municipalities and the CL&P operations center remotely. This must take into consideration the strong potential for disruption of normal means of communication.

F. Communications Interoperability

Issue: CL&P crews and public sector response and emergency management entities in Connecticut generally use radio systems for response communication in the field that are not compatible with each other (UHF/VHF versus 800MHz).

Background: Public sector response agencies, including local and state government personnel, use two-way radio systems for communication in the field, which can create challenges in coordinating public and private sector crews working on interdependent activities associated with damage assessment, road clearing, and power restoration. In Connecticut, public-sector staff use 800 MHz radios, which provide flexibility and expandability and are considered the industry standard. CL&P crews also use two-way radios; however, they use UHF/VHF (low frequency) radios.

Although these two radio systems do not work with each other, technology bridges are commercially available to improve interoperability. Connecticut DEMHS stated that the agency had offered to provide state 800 MHz radios to key components of CL&P operations to improve field communications, but CL&P representatives did not accept the offer.

Finding: Electric utility company crews and public sector response and emergency management entities in Connecticut often use different radio systems (UHF/VHF versus 800MHz) for response communication. There is minimal capability or procedures identified by CL&P or government agencies in Connecticut to improve radio communication interoperability among public and private sector components of the workforce that need to coordinate closely for the most efficient use of time and resources used for the restoration effort.

F.1 Recommendation: As part of statewide communications interoperability efforts, DEMHS should work with CL&P and other utilities to identify and recommend steps to improve communications interoperability across radio systems used by agencies and crews that can will be involved in power restoration field operations.

G. Coordinating Mutual Assistance Assets and Contractors

Issue: While vital to provide needed capabilities, use of external mutual assistance and contract crews presents communication, reporting, and tracking challenges

because they often do not have the same communications or field reporting technology as used by local crews.

Background: As noted in section IV. A above, mutual assistance from power companies and contractors in other states are a vital component of large scale power restoration. Both UI and CL&P are members of the NEMAG, and CL&P is also a member of NYMAG. These include electricity providers in several northeastern states and Canadian provinces that agree to send crews to support each other’s restoration efforts, if crews are available. CL&P also maintains a roster of contractors, may access contractors via mutual assistance, and may hire contractors during a restoration event. The huge increase in external crews that are brought in to assist, however, can present additional challenges related to management (see section IV.A above) and maintaining situational awareness (see section IV.D above).

CL&P uses a practice it calls “bird-dogging” in which CL&P staff accompany mutual assistance and contract crews to provide more up-to-date reporting on their activities. The volume of mutual assistance and contract crews compared to CL&P bird dogs still presents significant challenges during widespread outages.

Finding: Improved capability to capture status of restoration task-completion by mutual assistance crews and contract crews can improve timeliness of report and accuracy of information used for operational decision-making and prioritization.

G.1 Recommendation: Utility providers, including CL&P, should implement procedures, and technology, if needed, to improve integration of status reporting by mutual assistance crews into operations reporting and restoration tracking processes.

H. United Illuminating Findings

The snowstorm was not as large an event for UI as for CL&P in that 52,000 UI customers, about 15 percent of its customer base, lost power. For comparison, in a total service area of approximately 350,000, during Hurricane Irene, UI had a peak of 158,000 customers out and a total of 201,000 outages. After the October snowstorm, all UI customers were restored by the night of Wednesday, November 2. The company reported maintaining good situational awareness throughout this event, though UI staff noted that the situation was much more challenging during Irene.

The company’s greatest challenge was providing Estimated Restoration Times for individual towns or customers; the company is confident of its global restoration time model. UI reports having technology initiative in development to improve the granularity of individual forecasts. UI staff noted that in a large-impact event, its restoration organization and operation are able to scale up to respond, but it recognizes that communication with towns gets far more complex and challenging to manage in a larger event.

I. Areas for Additional Review

Several areas of improvement that can impact power outage severity and restoration capabilities were identified that are beyond the scope of this report. They are captured here for additional review and examination.

Vegetation Management

Connecticut's ample tree canopy, while beautiful, tends to increase the likelihood of power outages, given that electricity transmission and distribution infrastructure is primarily above-ground and frequently close to trees in the right-of-way. Utility companies have responsibility for vegetation management in their utility rights-of-way. However, utility companies must seek permission for tree-trimming on trees that are outside their rights-of-way yet may potentially have impacts on infrastructure. Proximity of heavy vegetation to power transmission and distribution lines can contribute to the likelihood of damage to power lines and resulting power outages in high wind, early snowfall, and ice events. While appropriate vegetation management can reduce outages and increase reliability, it can meet public resistance because of aesthetic, environmental, economic (tourism) and other issues.

Utility companies in Connecticut should work with local governments and communities to communicate the benefits of vegetation management both within and proximate to rights-of-way as a means of reducing power outages. Further review of industry best practices regarding vegetation management, including vegetation trimming cycle is recommended.

Infrastructure Hardening

Electricity providers are responsible for the power infrastructure on which residents and economic drivers in Connecticut depend. Utility providers serving Connecticut customers should consider, commit to, and regularly report on planning and investments in infrastructure resilience measures, including vegetation management, equipment and line improvements, and work toward underground placement of conductors and distribution lines.

Workforce Issues

CL&P permanent workforce has decreased over the past few decades, which is part of a national trend that includes greater reliance on contractors and mutual aid. Effects of the reduction in workforce are an issue for future consideration. In addition, the mutual aid system itself should be reviewed.

Regulatory Oversight

CL&P and UI are regulated by PURA and report to PURA, in accordance with state regulations and policy, regarding electricity transmission, distribution, and supply, compliance, and rate issues. PURA should review its regulatory requirements and ability to monitor utility preparedness and restoration capability improvements, including review of mutual assistance agreements and procedures for implementation. PURA, the state Office of Policy and Management, and a state ESF 12 or comparable functional group should be involved in review of restoration efforts and

infrastructure resilience issues and consider addressing issues and lessons from the snowstorm event in the state's ongoing energy assurance planning effort, which is coordinated by the Office of Policy and Management.

Other Critical Services

In addition to electricity, communications also are critical during large-scale outages. The state should review the restoration efforts of major telecommunications providers as well as cable providers upon which Connecticut citizens and businesses are increasingly dependent for voice-over-internet phones and internet services.

V. Conclusion

This October 2011 Snowstorm Power Restoration Report provides a quick evaluation as a basis for examination of key issues in the restoration effort and improvement planning by the state and by utility providers, particularly CL&P. The short time frame of this evaluation, less than four weeks, beginning before the restoration was complete through the end of November, necessarily limited the depth and breadth of its inquiry. The report provides information and key points for future examination and improvement efforts.

The October snowstorm caused the largest power outage in its history for CL&P, the state's largest electricity provider. While power to 800,000-plus customers was restored in an 11-day period, missteps by the company in terms of public communications added to a sense of frustration with the duration of the outage. Additional challenges were identified in decision-making to prepare for the storm, maintaining situational awareness, securing, and coordinating mutual aid and contract workforce, and coordination with local governments in some hard-hit areas.

Multiple issues and recommendations identified in this report are not new. Issues such as scalability of management for large-scale power outage, the need for improved planning, training and exercise, and coordination with municipalities were identified in after-action reviews of prior outage events. The consultant team recommends an improvement process that is ongoing, monitored, and combined with a commitment to public-private sector cooperation.

Improvements can be addressed on multiple issues through an inclusive planning process and the engraining of emergency plans and procedures in each entity's culture and operations. Plans are best developed with the input of those who will be involved in response. In many cases, it appears that public sector agencies were not involved in the development of CL&P's emergency plans and procedures, and CL&P was not involved in development of state and local government response plans and procedures. Adherence to accepted planning guidance regarding an inclusive planning process that emphasizes ongoing multi-agency involvement in preparedness (such as using Emergency Support Functions to organize responsibilities and preparedness activities) should be considered an improvement measure for the state's DEMHS – both for state plans and DEMHS guidance to local governments. While CL&P shared its new Emergency Response Plan with municipalities, there had been little or no opportunity to exercise the updated plan, which allows for practice of roles and responsibilities, identification of areas for additional resources or training, and work on coordination issues. Emergency response plans should become living documents engrained in the culture of local and state governments and utility providers, through a continuous cycle of exercise, training, and revision, for them to be effective in providing efficient coordination in response.

While state and local government and utility providers cannot prevent severe weather events from occurring, they have the ability and responsibility to address the issues identified in this report.

Appendices

- Appendix A. Interviews Conducted
- Appendix B. Documents Reviewed
- Appendix C. October 28, 2011, Weather Forecast

Appendix A. Interviews Conducted

| Organization | Participants |
|---|--|
| CL&P | |
| Chief Operating Officer | Jeff Butler, President/COO ⁱ |
| System Operations | Bob Hybsch, Vice President, Customer Operations Roderick Kalbfleisch; CL&P Director of System Operations |
| Mutual Assistance Coordinator | Mike Ahearn, Vice President, Utility Services (NU) |
| Emergency Management Officer | Mike Zuppone, Manager, System Restoration and Emergency Preparedness (NU) |
| Customer Services Director | Bill Quinlan, Vice President, Customer Solutions |
| Public Information Officer | Jessica Cain, Director of Customer Relations and Strategy |
| NU Communications/PR Director | Marie T. Van Luling, Director |
| NU Customer Experience | Johnny Magwood, VP Customer Experience Dan Comer, Director Kevin Charette, Director |
| United Illuminating Company | |
| Restoration operations team | James Cole, Incident Manager Joseph Flach, Incident Manager Charles Eves, Planning Team Lead Al Felice, Restoration Manager |
| State of Connecticut | |
| Governor's Office | Timothy F. Bannon, Chief of Staff Roy Occhiogrosso, Senior Advisor to the Governor |
| Office of the Attorney General | Nora Dannehy, Deputy Attorney General Michael C. Wertheimer, Assistant Attorney General John S. Wright, Assistant Attorney General |
| Department of Energy and Environmental Protection | Daniel Esty, Commissioner Jonathon Schrag, Deputy Commission for Energy Kevin DelGobbo, Chairman, Public Utility Regulatory Authority (PURA) Robert Klee, Chief of Staff Dennis Schain, Director of Communications |

| State of Connecticut | |
|--|---|
| National Guard | Major General Thaddeus Martin, Adjutant General Eugene Mascolo, Assistant Adjutant General |
| State Department of Emergency Management and Homeland Security | Bill Hackett, Director Brenda Bergeron, Legal Advisor Michael Varney, Statewide Interoperability Coordinator; Scott DeVico, Public Information Officer |
| Connecticut Department of Public Health Office of Public Health Preparedness | John Best, EMS Field Program Coordinator |
| Municipalities | |
| Avon | Brandon Robertson, Town Manager James DiPace, Fire Marshal |
| Bloomfield | Louie Chapman, Jr., Town Manager Donald Moore, Emergency Management Director |
| Bristol | Mayor Arthur J. Ward Edward Krawiecki, Corporation Council Walter Beselka, Director of Public Works Robert Longo, Superintendent, Water Department |
| East Hartford | Marcia Leclerc, Mayor Scott Chadwick, Corporation Counsel Mike Walsh, Director of Finance John Oates, Fire Chief Tim Bockus, Director of Public Works |
| Fairfield | William Heine, Citizen |
| Farmington | Kathleen Eagen, Town Manager Russell Arnold, Jr., Director, Public Works/Town Engineer Paul Melanson, Chief of Police Scott Zenke, Highway & Grounds Superintendent, Public Works and Development Services |
| New Britain | Timothy Stewart, Mayor |
| Simsbury | Mary Glassman, First Selectwoman Tom Cook, Director of Administrative Services Peter Ingvertsen, Police Chief |

| Municipalities | |
|--|---|
| Stafford | Mike Krol, First Selectman Richard Shuck, Selectman-elect Frank Prochaska, Emergency Management Director (EMD) Dennis Milanovich, Town Engineer |
| Union | Andy Goodhall, First Selectman |
| Vernon | Jason McCoy, Mayor William Meier, Lt. Vernon Police Department William Graugard, Captain Vernon Fire Department John Ward, Town Administrator |
| Other | |
| International Brotherhood of Electrical Workers (IBEW) | Frank Cirillo, John Unikas (Local 420) Brian Kenney (Local 455) John Fernandes (Local 457) Rich Sank (Local 457) Ed Collins (IBEW International Representative) |

Appendix B. Documents Reviewed

State of Connecticut Agencies

- Connecticut Department of Emergency Management and Homeland Security, “State-Wide Strategy 2010-2015”, (December 2009)
- Connecticut Department of Emergency Management and Homeland Security, “Model Local Emergency Operations Plan”, (August 2009)
- Connecticut Department of Emergency Management and Homeland Security, “October Nor’easter Timeline and Summary of State Emergency Operations Center Activities with State Response Framework Reference”, (October 2010)
- Connecticut Department of Emergency Management and Homeland Security, “Region One Strategic Plan 2010-2015”, (2010)
- Connecticut Department of Emergency Management and Homeland Security, “Snowstorm Power Outages (1 November 12:00 PM)”, (November 2011)
- Connecticut Department of Emergency Management and Homeland Security, “Snowstorm Power Outages (1 November 8:00 AM)”, (November 2011)
- Connecticut Department of Emergency Management and Homeland Security, “State of Connecticut Natural Disaster Plan 2009”, (January 2009)
- Connecticut Department of Emergency Management and Homeland Security, “State Response Framework Ver. 01”, (October 2011)
- Connecticut Department of Emergency Management and Homeland Security, “Town/City EOP Template”, (2006)
- Connecticut Department of Energy & Environmental Protection, “Special Meeting – Nov. 9, 2011”, (November 2011)
- Connecticut Government, “Natural Disaster Plans- Utilities References” (no date)
- Department of Public Utility Control, “DUPC 2011 Annual Report to the General Assembly on Electric Distribution Company System Reliability”, (June 2011)
- Department of Public Utility Control’ “Investigation of the service response and communications of the Connecticut Light and Power Company (CL&P) and the United Illuminating Company (UI) following the outages from the severe weather over the period of March 12 through March 14, 2010”, (December 2010)
- Jonathan Best, State of Connecticut Department of Public Health, Email regarding Public Health response to October Snowstorm, (November 2011)
- Kevin DelGobbo, Email concerning ISO Transmission System Impacts, (November 2011)
- Mike Caplet, Email Containing Video of Meeting on Nov. 15, 2011, (November 2011)
- State of Connecticut Department of Public Health, Appointment document regarding Jonathan Best serving as IC for Department of Public Health for October Nor’easter, (November 2011)
- State of Connecticut Office of Policy Management, “State of Connecticut Energy Assurance Plan”, (February 2011)
- State of Connecticut Office of Policy Management, “After Action Report Inter-State Exercise,

Energy Assurance”, (July 2011)

- STORM Panel, “Special Meeting Agenda Nov. 15, 2011”, (November 2011)
- STORM Panel, “Special Meeting Minutes Tuesday Oct. 25, 2011”, (October 2011)
- STORM Panel, “Special Meeting Minutes Wednesday Sept. 28, 2011”, (September 2011)
- STORM Panel, “STORM Panel Meeting Nov. 9, 2011”, (November 2011)
- STORM Panel, “Special Meeting Notes”, (November 2011)

Connecticut Light and Power

- Connecticut Light and Power, “ Account Executive Safety Information”, (no date)
- Connecticut Light and Power, “ December 1, 2010 Wind Storm”, (2010)
- Connecticut Light and Power, “ December 11- December 16, 2008 Ice Storm Event”, (2008)
- Connecticut Light and Power, “ December 26, 2010 Blizzard”, (2010)
- Connecticut Light and Power, “ December 3, 2009 Wind Storm”, (2009)
- Connecticut Light and Power, “ December 30, 2008 Wind Event”, (2008)
- Connecticut Light and Power, “ Emergency Response Plan”, (June 2011)
- Connecticut Light and Power, “ Explanation of Restoration Projection Model from Sunday”, (November 2011)
- Connecticut Light and Power, “ February 12, 2009 Wind Storm”, (2009)
- Connecticut Light and Power, “ February 2, 2011 Snow and Ice Storm”, (2011)
- Connecticut Light and Power, “ Incoming calls to the EOC”, (no date)
- Connecticut Light and Power, “ January 12, 2011 Snowstorm”, (2011)
- Connecticut Light and Power, “ January 18, 2011 Ice Storm”, (2011)
- Connecticut Light and Power, “ January 7, 2009 Ice and Wind Storm”, (2009)
- Connecticut Light and Power, “ July 21, 2010 Thunderstorm/ Tornadoes”, (2010)
- Connecticut Light and Power, “ Legislative response to Storm Irene”, (October 2011)
- Connecticut Light and Power, “ Legislative Responses to Storm Irene”, (September 2011)
- Connecticut Light and Power, “ March 13, 2010 Rain and Wind Storm”, (2010)
- Connecticut Light and Power, “ Media Book Contents”, (no date)
- Connecticut Light and Power, “ November 8, 2010 Wind Storm”, (2010)
- Connecticut Light and Power, “ October 7, 2009 Wind Storm”, (2009)
- Connecticut Light and Power, “ October Storm Call Summary”, (no date)
- Connecticut Light and Power, “ Presentation to Governor Malloy – State of Connecticut Storm Irene Assessment”, (October 2011)
- Connecticut Light and Power, “ Regarding: Investigation of the Service Response and Communications of CL&P and UI following the Outages from the Severe Weather over the Period of March 12 through March 14, 2010 – Order No. 2 Compliance”, (January 2011)
- Connecticut Light and Power, “ Regarding: Investigation of the Service Response and Communications of CL&P and UI following the Outages from the Severe Weather over the Period of March 12 through March 14, 2010 – Order No. 2 Compliance”, (June 2011)
- Connecticut Light and Power, “ Storm Room Media Log, Example”, (no date)
- Connecticut Light and Power, “ Storm Watch Update”, (August 2011)

- Connecticut Light and Power, “Town Liaison Storm Information”, (November 2011)
- Connecticut Light and Power, “Town Liaison Training Attendance Record”, (2011)
- Connecticut Light and Power, “Town Liaison Training FAQ’s”, (November 2011)
- Connecticut Light and Power, “Wires Down Checklist”, (no date)
- Connecticut Light and Power, “Wires Down Scenario”, (no date)
- Connecticut Light and Power, “Working AWC Boundary Map”, (no date)
- Connecticut Light and Power, “Zero Incident Program”, (no date)
- Connecticut Light and Power, “2011 Town Liaison Update”, (August 2011)
- Connecticut Light and Power, “Accessing Outage Information”, (no date)
- Connecticut Light and Power, “April 29, 2010 Rain and Wind Storm”, (2010)
- Connecticut Light and Power, “August 28, 2011 Storm Irene”, (2011)
- Connecticut Light and Power, “August 28, 2011 Storm Irene”, (August 2011)
- Connecticut Light and Power, “Central Division Town Liaison Training Agenda-1”, (February 2011)
- Connecticut Light and Power, “Central Division Town Liaison Training Agenda-2”, (February 2011)
- Connecticut Light and Power, “CL&P Orientation to Connecticut Legislature”, (September 2011)
- Connecticut Light and Power, “CL&P Presentation to the STORM Panel”, (November 2011)
- Connecticut Light and Power, “Communications Daily To-Do list, Customized for October Snow Storm”, (no date)
- Connecticut Light and Power, “Customer Call Statistics for October Snow Storm”, (October-November 2011)
- Connecticut Light and Power, “Customer Experience Technology Performance Data”, (no date)
- Connecticut Light and Power, “Customer Interactions Protocol”, (no date)
- Connecticut Light and Power, “Customer Out Targets and Crew Assumptions #1”, (November 2011)
- Connecticut Light and Power, “Customer Out Targets and Crew Assumptions #2”, (November 2011)
- Connecticut Light and Power, “Customer Services Division, Emergency Operating Organization-Manchester”, (no date)
- Connecticut Light and Power, “December 29, 2009 Wind Storm”, (2009)
- Connecticut Light and Power, “Distribution of News Releases”, (April 2011)
- Connecticut Light and Power, “EOC and SOC Contact List”, (no date)
- Connecticut Light and Power, “Estimated Time to Restore Methodology for Nov. 6 Deadline”, (November 2011)
- Connecticut Light and Power, “Event Management Flow Chart”, (October 2011)
- Connecticut Light and Power, “Explanation of CL&P estimated time to restore methodology and calculations leading to initial November. 6, 2011 restoration projection for Storm Alfred”, (November 2011)
- Connecticut Light and Power, “Explanation of estimated Restoration Projection Process”, (November 2011)

- Connecticut Light and Power, “Explanation of methodology for updating data on restorations”, (November 2011)
- Connecticut Light and Power, “Explanation of who approved the restoration projection”, (November 2011)
- Connecticut Light and Power, “February 19, 2011 Wind Storm”, (2011)
- Connecticut Light and Power, “General CGS Guidelines, Tips for Dealing With Difficult Customers”, (August 2011)
- Connecticut Light and Power, “General PSA #1”, (no date)
- Connecticut Light and Power, “Hurricane Preparations Drill”, (August 2011)
- Connecticut Light and Power, “Hurricane Tabletop Exercise Scenario and Discussion Points” (June 2011)
- Connecticut Light and Power, “Internal Communications Update for Storm Alfred”, (November 2011)
- Connecticut Light and Power, “January 25, 2010 Wind Storm”, (2010)
- Connecticut Light and Power, “July 7, 2009 Thunderstorm”, (2009)
- Connecticut Light and Power, “June 26, 2009 Thunderstorm/ Tornado Event”, (2009)
- Connecticut Light and Power, “June 8-9, 2011 Thunderstorm”, (2011)
- Connecticut Light and Power, “List of Crews Working Nov. 2nd – Nov. 10th”, (November 2011)
- Connecticut Light and Power, “May 26, 2010 Thunderstorm”, (2010)
- Connecticut Light and Power, “May 4, 2010 Rain and Wind Storm”, (2010)
- Connecticut Light and Power, “May 8, 2010 Rain and Wind Storm”, (2010)
- Connecticut Light and Power, “Municipal Liaison Training, Western Division”, (January 2011)
- Connecticut Light and Power, “November 28, 2009 Wind Storm”, (2009)
- Connecticut Light and Power, “NUNET Power outage map”, (November 2011)
- Connecticut Light and Power, “October 25 – October 27, 2008 Thunderstorm Event”, (2008)
- Connecticut Light and Power, “October Storm, Customer Experience, Customer Communication Channel Summary”, (October-November 2011)
- Connecticut Light and Power, “October Winter Storm Restoration Plan”, (November 2011)
- Connecticut Light and Power, “On Call Talking Points, General”, (no date)
- Connecticut Light and Power, “On-Call Talking Points, After the Storm”, (April 2010)
- Connecticut Light and Power, “On-Call Talking Points, Before the Storm”, (April 2010)
- Connecticut Light and Power, “Opening the EOC Media/ Communications Room”, (no date)
- Connecticut Light and Power, “Outage Text Messaging” (November 2011)
- Connecticut Light and Power, “Portable Generator Safety Tips”, (no date)
- Connecticut Light and Power, “Restoration Performance Charts-Irene and Nor-easter comparison”, (November 2011)
- Connecticut Light and Power, “Rule of Thumb Estimate for October Snow Storm”, (November 2011)
- Connecticut Light and Power, “September 30, 2010 Wind / Rain Storm”, (2010)
- Connecticut Light and Power, “Storm Restoration FAQs”, (no date)
- Connecticut Light and Power, “Storm Room Media Log”, (no date)

- Connecticut Light and Power, “Storm Watch Update”, (October 2011)
- Connecticut Light and Power, “Town Liaison Quick Guide”, (July 2011)
- Connecticut Light and Power, “Town Liaison Training”, (February 2011)
- Connecticut Light and Power, “Town Liaison Training”, (September 2010)
- Connecticut Light and Power, “Town of Stafford Town Restoration Progress Briefing – 11-08-2011 8:00 AM”, (November 2011)
- Connecticut Light and Power, “Using the TVs in the Media Room”, (no date)
- Connecticut Light and Power, “Wires Down Responsibilities”, (no date)
- Connecticut Light and Power, “Working AWC Boundary Map”, (no date)
- Connecticut Light and Power, Central Division Training Attendee List Item 2-Simsbury, (February 2011)
- Connecticut Light and Power, Central Division Training Attendee List Item 6-Simsbury, (February 2011)
- Connecticut Light and Power, Contract Regarding “Storm Work”, (no date)
- Connecticut Light and Power, Customer Call Center Information Screenshots, (October 2011)
- Connecticut Light and Power, Email explaining the CL&P documents which make up the Communications Plan, (November 2011)
- Connecticut Light and Power, Email response involving Restoration Priorities in Alfred, (November 2011)
- Connecticut Light and Power, Email response regarding the request for a list of Contractors Invoices, Payments and any Problems, (November 2011)
- Connecticut Light and Power, Email Response to document request regarding Auxiliary Manpower Contracts, (November 2011)
- Connecticut Light and Power, Email response to provide CL&P Field Operations Staff History for past 3 years #2, (November 2011)
- Connecticut Light and Power, Email response to provide staffing levels of crews during snowstorm, (November 2011)
- Connecticut Light and Power, Email Response to Question 21, Provide Communications Plan for Storm Alfred, (November 2011)
- Connecticut Light and Power, Email response to Question 7 Provide CLP Field Operations Staff History for past 3 years, (November 2011)
- Connecticut Light and Power, Email response to request for Damage Assessment Plans and Timelines for Storm Alfred, (November 2011)
- Connecticut Light and Power, Email Response to request for documentation regarding Mutual Aid Contracts, (November 2011)
- Connecticut Light and Power, Email Response to request for Irene After-Action Report, (November 2011)
- Connecticut Light and Power, Email response to request for outage restoration training and records, (November 2011)
- Connecticut Light and Power, Email response to request regarding status of implementation of the Jacobs report assessment, (November 2011)

- Connecticut Light and Power, Letter to DPUC concerning restoration after Storm Carl, (August 2011)
- Connecticut Light and Power, Letter to DPUC concerning restoration after Storm Carl, (August 2011)
- Connecticut Light and Power, Letter to DPUC on Aug. 21st, 2009 Thunderstorm, (September 2009)
- Connecticut Light and Power, Letter to DPUC on Storm Carl, (September 2010)
- Connecticut Light and Power, List of companies contracted for Alfred, (November 2011)
- Connecticut Light and Power, List of Contractor Invoices and Receipts and Payments, (no date)
- Connecticut Light and Power, List of Crews Working Oct. 29th through Nov. 1st, (November 2011)
- Connecticut Light and Power, List of Hospitals Located in CL&P Service Area and Services Provided, (November 2011)
- Connecticut Light and Power, List of Mutual Aid Companies, (no date)
- Connecticut Light and Power, Mutual Aid Crew Numbers and Timeline, (November 2011)
- Connecticut Light and Power, Patroller training list, (no date)
- Connecticut Light and Power, Submission of CL&P ERP to DPUC, (November 2011)
- Connecticut Light and Power, Summary of Timeline of Mutual Assistance, (November 2011)
- Connecticut Light and Power, Timeline Summary and Specifics of Mutual Aid For Storm Alfred Requests, (November 2011)
- Connecticut Light and Power, Training Presentation “Eastern division town liaisons”, (February 2011)
- Connecticut Light and Power, Tree Service Contracts, (no date)
- Connecticut Light and Power, Weather Forecast 10-23-2011, (October 2011)
- Connecticut Light and Power, Weather Forecast 10-24-2011, (October 2011)
- Connecticut Light and Power, Weather Forecast 10-25-2011, (October 2011)
- Connecticut Light and Power, Weather Forecast 10-26-2011, (October 2011)
- Connecticut Light and Power, Weather Forecast 10-27-2011, (October 2011)
- Connecticut Light and Power, Weather Forecast 10-28-2011, (October 2011)
- Connecticut Light and Power, Weather Forecast 10-29-2011, (October 2011)
- Connecticut Light and Power, Web workspace training list, (no date)
- Connecticut Light and Power, Wires down training list, (no date)
- Connecticut Light and Power, “ July 31, 2009 Thunderstorm”, (2009)

Federal Agencies

- Federal Energy Regulatory Commission, “Utility Vegetation Management and Bulk Electricity Report from the Federal Energy Regulatory Commission”, (September 2004)
- United State Department of Energy “Comparison of Past Snow Storms to the October Storm”, (November 2011)
- United States Department of Energy, Information regarding Assistance from Mutual Agreement Crews, (no date)

Municipalities

- City of Bridgeport, “After Action Report June 24, 2010 Tornado”, (June 2010)
- New Canaan Office of Emergency Management, “After Action Report for March 2010 Severe Thunderstorm”, (March 2010)
- The Town of Fairfield, “The Perfect Storm, Response to Chaos” , (no date)

Northeast Mutual Assistance Group

- Northeast Mutual Assistance Group, “Administrative Guideline Appendix B” (January 2011)
- Northeast Mutual Assistance Group, “Administrative Guideline”, (January 2011)
- Northeast Mutual Assistance Group, “Administrative Guidelines”, (January 2011)
- Northeast Mutual Assistance Group, “NEMAG Charter”, (January 2011)
- Northeast Mutual Assistance Group, Letter to UIC NEMAG Renewal, (April 2011)

Northeast Utilities

- Northeast Utilities, “Interruption Ticket Analysis and Processing”, (March 2008)
- Northeast Utilities, “ Call Center Briefing Sheet for Windsor Employees”, (November 2011)
- Northeast Utilities, “ Email Response Management System” (November 2011)
- Northeast Utilities, “Accessing Restoration Projections”, (no date)
- Northeast Utilities, “Customer Experience E Operations Emergency Operating Organization-Windsor” (no date)
- Northeast Utilities, “Customer Experience Operations Emergency Operations Procedure-Manchester” (October 2011)
- Northeast Utilities, “Customer Experience Operations Emergency Operations Procedure-Windsor” (August 2011)
- Northeast Utilities, “Damage Assessment Patrols”, (September 2010)
- Northeast Utilities, “Incident Response Plan”, (January 2011)
- Northeast Utilities, “NU Organization Chart #1”, (November 2011)
- Northeast Utilities, “NU Organization Chart #2”, (November 2011)
- Northeast Utilities, “NU Organization Chart #3”, (November 2011)
- Northeast Utilities, “NU Organization Chart #4”, (November 2011)
- Northeast Utilities, “NU Organization Chart Officers #1”, (November 2011)
- Northeast Utilities, “NU Organization Chart Officers #2”, (November 2011)
- Northeast Utilities, “Primary Connecticut Media for Outages”, (no date)

The United Illuminating Company

- The United Illuminating Company, “STORM Panel Meeting”, (November 2011)
- The United Illuminating Company Holdings, “Organization Charts” , (October 2011)
- The United Illuminating Company, “Damage Assessment Plan”, (no date)
- The United Illuminating Company, “Actual Damage Assessment Timeline: Snow Storm Alfred”, (October 2011)
- The United Illuminating Company, “Line Clearance and Vegetation Management Specification” ,

(June 2008)

- The United Illuminating Company, “Outage Restoration Training Plans and Records”, (no date)
- The United Illuminating Company, “Pre-Storm Working Agreements” (no date)
- The United Illuminating Company, “Storm Communications Plan” (October-November 2011)
- The United Illuminating Company, “Summary of Storm Assignment Training 2008 to 2011”, (no date)
- The United Illuminating Company, “Training Records Redacted”, (November 2011)
- The United Illuminating Company, “Wires Down Step Guide”, (no date)
- The United Illuminating Company, Email To Witt Associates regarding data request, (November 2011)
- The United Illuminating Company, UI Organizational List (Compiled without aid of an organization chart), (November 2011)
- The United Illuminating Company, UI Phone Directory, (no date)

Citizen Input

- Unsolicited Citizen Email, “How Not to Screw up the CLP Fix”, (November 2011)
- Katey Walsh, Citizen Input “S. T. O. R. M.”, (November 2011)

Notes from Interviews Conducted by Witt Associates

- Witt Associates, , Notes of Interview with Bill Quinlan and Jessica Cain, Connecticut Light and Power, (November 2011)
- Witt Associates, , Notes of Interview with Connecticut Department of Public Utilities Control, (November 2011)
- Witt Associates, “Witt Associates Review of Storm Alfred Requests for Information”, (November 2011)
- Witt Associates, Notes of Interview with Bob Hybsch and Roderick Kalbfleisch Connecticut Light and Power, (November 2011)
- Witt Associates, Notes of Interview with Connecticut Department of Emergency Management and Homeland Security, (November 2011)
- Witt Associates, Notes of Interview with Connecticut National Guard, (November 2011)
- Witt Associates, Notes of Interview with Connecticut Public Health, (November 2011)
- Witt Associates, Notes of Interview with Jeff Butler, Connecticut Light and Power, (November 2011)
- Witt Associates, Notes of Interview with Johnny Magwood, Dan Comer, and Kevin Charette, Northeast Utilities Customer Experience, (November 2011)
- Witt Associates, Notes of Interview with Marie T. Van Luling, Northeast Utilities Communications Director, (November 2011)
- Witt Associates, Notes of Interview with Mike Ahern and Mike Zuppone, Connecticut Light and Power, (November 2011)
- Witt Associates, Notes of Interview with Town of Avon, (November 2011)
- Witt Associates, Notes of Interview with Town of Bloomfield, (November 2011)

- Witt Associates, Notes of Interview with Town of Bristol, (November 2011)
- Witt Associates, Notes of Interview with Town of East Hartford, (November 2011)
- Witt Associates, Notes of Interview with Town of Farmington, (November 2011)
- Witt Associates, Notes of Interview with Town of New Britain, (November 2011)
- Witt Associates, Notes of Interview with Town of Simsbury, (November 2011)
- Witt Associates, Notes of Interview with Town of Stafford, (November 2011)
- Witt Associates, Notes of Interview with Town of Union, (November 2011)
- Witt Associates, Notes of Interview with Town of Vernon, (November 2011)

Other entities

- Edison Electric Institute, “Mutual Assistance Agreement”, (March 2006)
- Edison Electric Institute, “Suggested Governing Principles Covering Emergency Assistance Arrangements Between Edison Electric Institute Member Companies” (September 2005)
- Jacobs Consultancy, “ Investigation of the Service Response and Communications of the Connecticut Power and Light Company Following the Outages from the Severe Weather over the Period of March 12 through March 14, 2010”, (December 2010)
- Jacobs Consultancy, “ Investigation of the Service Response and Communications of The United Illuminating Company Following the Outages from the Severe Weather over the Period of March 12 through March 14, 2010”, (December 2010)
- Kevin E. McCarthy - OLR, “Tree Trimming Laws and Programs”, (September 2011)
- “Lessons Learned: March Nor’easter, Norwalk, CT”, (no date)

Appendix C. Friday, October 28, 2011, 9:45 a.m., Weather Advisory



WINTER STORM UPDATE
Friday October 28, 2011
9:45 AM

DEPARTMENT OF EMERGENCY SERVICES AND PUBLIC PROTECTION

Reuben F. Bradford, Commissioner

**VERY RARE MAJOR WINTER STORM EXPECTED ON SATURDAY...
WINTER STORM WATCHES ISSUED FOR LITCHFIELD, HARTFORD, TOLLAND, WINDHAM AND NORTHERN FAIRFIELD AND NORTHERN NEW HAVEN COUNTIES...
SIGNIFICANT POWER OUTAGES EXPECTED...**

The National Weather Service has issued Winter Storm Watches for much of Connecticut, Southeastern New York, and Central New England for Saturday Afternoon and Saturday night.

The latest computer models are forecasting that a major Winter Storm will impact our area Saturday Afternoon and Saturday night with heavy wet snow across interior Connecticut and a mix of rain and snow at the coast. The latest track forecast for this storm is predicting that a low pressure system will form off the North Carolina Coast Saturday morning and then rapidly intensify as the storm moves Northeast Saturday afternoon. Rain and wet snow are forecast to move into Southern Connecticut around noon on Saturday and changeover to all wet snow by late-afternoon away from the immediate coast. The wet snow is expected to become heavy at times Saturday afternoon and continue into Saturday night before tapering off to flurries before daybreak on Sunday. Total snowfall is expected to be elevation dependant with valleys receiving 4 – 8 inches away from the immediate coast and the higher terrain above 500 – 1000 feet receiving up to 12 inches of heavy wet snow.

The main threat from this storm will be from the heavy wet snow bringing down tree limbs and some whole trees causing a significant number of power outages. A secondary threat from this storm will be from very heavy snow which will result in very poor driving conditions Saturday evening.

The Department of Emergency Services and Public Protection (DESPP) will continue to monitor the latest forecasts and will issue another update at 2:00 PM this afternoon.



CURRENT STORM TRACK AND SNOWFALL FORECAST



CURRENT WATCHES AND WARNINGS

This product is a public service of the Department of Emergency Services and Public Protection (DESPP), and is intended for informational purposes only. DESPP assumes no liability for the use or distribution of this product or any actions resulting from this product.

STATUS OF THE STATE EMERGENCY OPERATIONS CENTER

MONITORING

APPENDIX R

**PUBLIC UTILITY REGULATOR AUTHORITY, *INVESTIGATION OF PUBLIC
SERVICE COMPANIES' RESPONSE TO 2011 STORMS DECISION***



STATE OF CONNECTICUT

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
PUBLIC UTILITIES REGULATORY AUTHORITY
TEN FRANKLIN SQUARE
NEW BRITAIN, CT 06051

DOCKET NO. 11-09-09 PURA INVESTIGATION OF PUBLIC SERVICE
COMPANIES' RESPONSE TO 2011 STORMS

August 1, 2012

By the following Directors:

John W. Betkoski, III
Arthur H. House

DECISION

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DECISION

I. INTRODUCTION

A. EXECUTIVE SUMMARY

In this Decision, the Public Utilities Regulatory Authority, by virtue of its regulatory authority and oversight of the provision of safe, adequate, and reliable service of Connecticut utility companies, concludes that The Connecticut Light and Power Company's performance in the aftermath of the 2011 storms was deficient and inadequate in the areas of outage and service restoration preparation of personnel, support of its municipal liaison program, development and communication of restoration times to customers, and overall communication to customers, other service providers and municipalities, as to warrant regulatory sanction. In this Decision, the Public Utilities Regulatory Authority also concludes that because of The Connecticut Light and Power Company's failure to obtain adequate assistance in advance of the October 29, 2011 storm, its response to that storm was deficient. Because of The Connecticut Light and Power Company's failure to adequately fulfill its duties imposed by law and to adequately and suitably provide for the overall public interest with regard to these particular areas of performance, the Public Utilities Regulatory Authority establishes in this Decision, a rebuttable presumption that The Connecticut Light and Power Company should have imposed on it, an appropriate reduction to its allowed return on equity in its next ratemaking proceeding as a penalty for poor management performance and to provide incentives for improvement. In addition, in conformance with the merger agreement between Northeast Utilities and NSTAR, the Public Utilities Regulatory Authority retains further jurisdictional approval for recovery of an appropriate level of 2011 storm costs at the time The Connecticut Light and Power Company seeks recovery of any such costs. Similarly, the Authority will exercise its regulatory oversight for the recovery of 2011 storm related costs at the time The United Illuminating Company seeks the recovery of those costs in rates.

In considering appropriate reduction to allowed returns on equity in forthcoming ratemaking proceedings and in exercising its jurisdictional approval for recovery of appropriate 2011 storm costs, the Authority will consider and weigh the extent to which CL&P has recognized its shortcomings and taken concrete and measurable steps to embrace the need for aggressive, extensive restructuring of both its attitude toward storm management and establishment of new practices for execution of future storm response.

Through the Orders in this Decision, the Public Utilities Regulatory Authority requires various enhancements to the restorative capabilities of the utility companies in order that they can better face major outage events. The Public Utilities Regulatory Authority requires The Connecticut Light and Power Company to develop a heightened state of readiness, and document that such a state exists, including assessment of the company's own line workers, line workers from sister companies, contractors, a statement of the mutual aid assistance organizations to which the company belongs, and the resources likely available from those organizations. Such heightened readiness

will focus on resources likely to be available during the first 48 hours of a major storm event to assist in efforts to ensure public safety. The Public Utilities Regulatory Authority will also adopt many of the findings and recommendations of its consultant, The Liberty Consulting Group, regarding preparation, restoration, and communication.

Additionally, the Public Utilities Regulatory Authority reviewed the impact of the 2011 storms on the providers of telecommunications services, cable television, gas, and water companies of Connecticut. While, overall, it was determined that these industries were less affected than the electric industry, and for the most part maintained adequate service during the overall outages, the Public Utilities Regulatory Authority makes recommendations in this Decision and creates Orders to improve service reliability for future events. Such enhancements that are recommended include, but are not limited to, requiring the creation of better communication and the creation of webpages by various companies that contain storm and other emergency information for customers in Connecticut.

The Public Utilities Regulatory Authority also recognizes the efforts of all the line crews, restorative personnel, and other personnel including federal, state, and town officials, and other volunteers, who devoted their best abilities, working in the restoration effort during the 2011 storms, and for which Connecticut citizens should be extremely grateful. Through more disciplined and thorough leadership and communication, their collective work could have been more effective and efficient.

B. BACKGROUND OF THE PROCEEDING

The State of Connecticut was struck by two severe storms in 2011, Tropical Storm Irene on August 28, 2011 (Tropical Storm Irene), and the October Nor'easter on October 29, 2011 (October Storm; collectively, 2011 Storms) resulting in total peak customer outages for The Connecticut Light and Power Company (CL&P) and The United Illuminating Company (UI) of 815,000 for Tropical Storm Irene and 832,000 for the October Storm. Many customers also experienced a loss of cable television and telecommunications services. Following the October Storm, many customers were out of power for, in some cases, more than 12 days. Utility storm response was investigated by Witt Associates and the Governor's Two Storm Panel. The Two Storm Panel produced a report detailing the storm effects and provided 82 recommendations on a wide variety of topics, which covered all affected utilities and can be implemented at the State level to improve Connecticut's readiness for the next emergency.

The Public Utilities Regulatory Authority (PURA or Authority) established this Docket on its own motion on September 14, 2011, pursuant to Section 16-11 in the General Statutes of Connecticut (Conn. Gen. Stat.), to investigate the preparedness, service response and communications of CL&P and UI following the service outage from Tropical Storm Irene which struck the state on August 28, 2011. On November 4, 2011, the PURA revised the scope of its investigation to include the October Storm.

Pursuant to this proceeding, 22 different sponsors submitted pre-filed testimony, approximately 750 interrogatories were issued, 85 motions were filed, and 86 Late-Filed Exhibits were requested. Over the course of the proceeding, 17 Hearings were held including 7 Late-Filed Exhibit Hearings.

In this proceeding, the PURA examined a variety of concerns surrounding these storms including, but not limited to, utility company storm preparedness, storm restoration activities, mutual assistance, communication and coordination among utility company personnel, outside restoration personnel, the towns, communication with customers, utility infrastructure, poles, pole attachments, wires, cable television, telecommunications, cellular service outages, and vegetation management.

C. WEATHER EVENTS

In 1986, the Authority initiated a broad investigation of electric distribution company reliability. This investigation was preceded by an initial investigation into Hurricane Gloria in 1985 and Hurricane Carl in 1986. By Decision in Docket No. 86-12-03, Long Range Investigation to Examine the Adequacy of the Transmission and Distribution Systems of The Connecticut Light and Power Company and The United Illuminating Company, the PURA required numerous changes in the way electric utilities maintain their systems and reported to the Authority on such maintenance.

In response to Hurricane Carl in 1986, the Authority also initiated a proceeding to specifically investigate utility performance in preparing for the storm and managing outage restoration following the storm. Decision dated May 12, 1987 in Docket No. 86-11-18, DPUC Review of Performance of UI, CL&P and SNETCO in Restoring Service After Storm Carl. In that Decision, the Authority ordered the electric companies to report on their performance after every storm that results in a major electric outage event. These reports provide information on company storm restoration responses, such as the steps taken in preparation for each storm, total customers affected, electric distribution company staff assisting in the storm, additional resources procured to assist with restoration, system damage statistics, and customer assistance statistics.

In 1999, the Authority initiated a broad investigation of the electric utility companies' performance during a summer heat wave that resulted in numerous outages to customers throughout the state. Decision dated July 26, 2000 in Docket No. 99-08-01, DPUC Investigation into Electric Capacity and Distribution. That investigation determined that the primary reason for the outages was systematic transformer overload due to inadequate sizing (rating). Decision, p. 1. This investigation resulted in a number of findings and recommendations for future improvements in performance; primarily, that the Electric Distribution Companies (EDCs) implement improved methodology for forecasting loading on equipment. Id.

More recently, the Authority initiated an investigation into a major "Nor'easter" that occurred in March 2010 which caused widespread, persistent outages primarily in the southwestern portion of the State. Decision dated December 1, 2010 in Docket No. 10-03-08, Investigation of the Service Response and Communications of The Connecticut Light and Power Company (CL&P) and The United Illuminating Company (UI) following the Outages from the Severe Weather over the Period of March 12 through March 14, 2010. The Authority retained a consultant to assist its review of the EDCs performance and their proposed corrective actions. After an exhaustive investigation, the Authority found numerous areas for improvement in electric utility outage restoration practices and communications, and ordered such improvements.

The recommended actions included implementation of additional training for certain emergency response personnel, enhanced after-action reviews, and additional electronics capabilities in line trucks.

D. CONDUCT OF THE PROCEEDING

By Notice of Hearing dated February 23, 2012, the Authority conducted public hearings on March 19, 2012, March 20, 2012, March 21, 2012, March 22, 2012, April 12, 2012, April 23, 2012, April 24, 2012, April 25, 2012, April 26, 2012, April 30, 2012, May 1, 2012, May 2, 2012, May 3, 2012, May 21, 2012, May 22, 2012, May 23, 2012, and May 24, 2012. By Notice of Close of Hearing dated June 28, 2012, the hearing in this matter was closed. A Draft Decision was released to the public on July 17, 2012. All Participants were given the opportunity to submit written exceptions.

E. PARTICIPANTS

The PURA recognized the following as participants in this proceeding: The Connecticut Water Company; Department of Homeland Security/Office of Emergency Communications; Sprint Nextel Corporation; Jewett City Water Company; Hazardville Water Company; the Office of Consumer Counsel; Comcast Hartford; Olmstead Water Supply Company, Inc.; Judea Water Company; Tyler Lake Water Company; Verizon Wireless; Town of Wilton; AT&T Connecticut; Towns of Newtown/Redding; FiberTech Communications; QualComm-Enterprise Services; Cablevision Systems Corp.; Local 420 – IBEW; Comcast Cable; Charter Communications; Charter Communications Entertainment 1; Metrocast Communication; the Office of the Attorney General; The United Illuminating Company; Connecticut Natural Gas Corporation; The Southern Connecticut Gas Company; Old Newgate Ridge Water Company; Aquarion Water Company of Connecticut; Valley Council of Governments; New England Cable and Telecommunications Association, Inc.; Connecticut Conference of Municipalities; Verizon New York, Inc.; One Communications; Zagorsky, Zagorsky & Galske, P.C.; Ztar Mobile, Inc.; Preston Plains Water Company; CWA-Local 1298; Coxcom, LLC d/b/a Cox Communications; Thames Valley Communications, Inc.; Conexions, LLC; Statewide Video Advisory Council; Town of Ridgefield; Consumer Cellular, Inc.; Kevin McCarthy; Alltel Communications, Inc.; Total Call Mobile, Inc.; Yankee Gas; Heritage Village Water Company; Torrington Water Company; The Connecticut Light and Power Company; T-Mobile USA, Inc.; Valley Water Company; Avon Water Company; West Service Corporation; and Cablevision of Connecticut, LP.

F. PUBLIC COMMENT

The Authority held 17 hearings to investigate the public service companies' responses to the 2011 storms.

On March 19, 2012, the President of the Communications Workers of America (CWA) Local 1298, representing The Southern New England Telephone Company d/b/a AT&T Connecticut (AT&T or AT&T Connecticut) workers gave public comment. He commented that due to layoffs, AT&T no longer has the workforce to sufficiently maintain the lines and equipment as it had in years past. Therefore, the equipment could fail due to lack of maintenance. Tr. 3/12/12, pp. 14-23. On May 1, 2012, the

CWA commented in opposition to having a single pole administrator as proposed by UI and CL&P, citing that this would adversely impact the AT&T lineman or outside technicians. The CWA states that the skill sets required to perform telephony functions are unique to the communications industry and consumers' telephone service would be at risk if this proposal is adopted. Tr. 5/1/12, pp. 2140 and 2141.

The Authority's Consumer Service Unit also received approximately 1,000 letter and email complaints against the utility companies with regard to the 2011 Storms, many of which were presented to the Authority from Governor Malloy's office. An additional 1,000 complaints were received via telephone. The majority of the customers who were affected by the 2011 Storms were concerned with the length of time it took the companies to restore service and the difficulty receiving information from the companies. Several customers stated that the companies were unprepared, mismanaged, and had underestimated the magnitude of the storm by not having sufficient repair crews available. Consumers believed that the lack of information provided by the companies left them unable to prepare for a longer than normal outage.

Customer comment varied, but frustration regarding the amount of time the utility companies required to repair and restore service was a common theme. Several customers mentioned that Connecticut has the highest electric rates in the country and therefore, warrants better customer service. Customers suggested ways to help avoid future outages such as trimming trees and burying power lines. Others felt that customers with wells or septic systems should have their restoration of service prioritized because of the public health issues.

G. TESTIMONY BY ELECTED OFFICIALS

During the April 26, 2012 and May 24, 2012 Hearings, six elected officials from Connecticut towns in CL&P's service territory provided comments on their experiences during the outage period and interaction with CL&P.

1. Ms. Mary A. Glassman, First Selectman of Simsbury

Ms. Glassman indicated a desire to improve in the reliability of restoration estimates as the Town of Simsbury (Simsbury) relies on them to inform residents and to provide staffing and shelter needs. Tr. 4/26/12, p. 1736. She noted that she was seeking improvements in the make safe system and the need to reopen roads as soon as possible for emergency vehicles accessibility. *Id.*, p. 1737.

Ms. Glassman was also concerned with the change in CL&P liaisons. Tr. 4/26/12, p. 1753. Ms. Glassman noted that as of November 4, 2011, Simsbury still had 30 streets that were inaccessible to emergency vehicles. She indicated that there was considerable confusion in that Simsbury was not told when crews were going to arrive. She commented that the town would have its crews available, and then when line crews did not arrive, the town crews were sent home. After the town crews' departed, then the CL&P crews would arrive. *Id.*, p. 1756. In this regard, she noted a loss of real opportunity to clear some roads. Additionally, Ms. Glassman expressed concern over the time estimates for restoration. She noted that even though the majority of Simsbury was still without power and CL&P was providing its Sunday restoration estimates, these

projections created added stress to town residents because Simsbury was disseminating wrong information. Id., p. 1758. She also noted that had Simsbury relied on those estimates, it would not have had enough supplies in its shelter to sustain a longer shelter event. Id. Ms. Glassman noted it was not until the Thursday after the Saturday storm when the National Guard cut through the trees, that the town saw any major improvement. Id., p. 1765. Ms. Glassman advocated being better prepared next time, building relationships between liaisons, and developing standard ways of communicating. Id., p. 1785. She expressed the need for accurate information, noting that where it works best is when a crew is assigned to working alongside public works so one is not duplicating or wasting time. Id., p. 1786.

2. Mr. Matthew B. Galligan, Town Manager of South Windsor

Mr. Galligan expressed a concern over discussion in the Davies Report¹ of the possibility of having a regional liaison because different towns were on different communication systems. Mr. Galligan was disappointed with the make-safe process, noting that of the 135 roads blocked, town crews cleared all but 39 roads within a 48-hour period. He noted that it was not until the seventh or eighth day that crews came from Ontario and Ohio who knew what they were doing and worked well with the town. Tr. 4/26/12, p. 1732. Mr. Galligan cited instances of miscommunication, once after Tropical Storm Irene involving a company that makes plasma, that needed power because it only had a 48 hour supply of plasma left for all the hospitals in Connecticut. According to Mr. Galligan, the town sent a work crew to clear debris and waited for CL&P, who did not show up for eight hours. Mr. Galligan also noted that there were two times when it risked its emergency crews to get somebody to the hospital despite the downed lines which may have been live. Id., p. 1735.

Mr. Galligan noted a frustration in having been assigned a new liaison by the company who was not as familiar with town priorities. Mr. Galligan indicated that the town trucks have GPS, and knew where the wires were down. According to Mr. Galligan, the town had all the information from day one and kept relaying it to the liaison but it was not until four or five days later that the town actually got a crew. Tr. 4/26/12, pp. 1770 and 1771.

Mr. Galligan recommended that CL&P crews be embedded with the town public works crews. Mr. Galligan did not think the make-safe effort delayed the restoration because his town did not have make safe roads until after service restoration. Id., p. 1792.

3. Mr. Steven R. Werbner, Town Manager of Tolland

Mr. Werbner indicated that the Town of Tolland (Tolland) experienced 100% outages in both storms. Mr. Werbner noted that Tolland knows its priorities for restoration, in storms that require the intervention of others, Tolland's planning and preparation is put in abeyance until it can get the cooperation of others. Tr. 4/26/12, p. 1739. Mr. Werbner asked for systemic change that would require utility companies to coordinate their resources with the towns to ensure an appropriate response to

¹ CL&P conducted its own internal review by Davies Consulting.

significant events. Id., p. 1740. Mr. Werbner noted that a method is needed to ensure that utility companies are held accountable for their actions, as local government officials are held accountable by their electorate. Id., p. 1741

Mr. Werbner testified that Tolland was concerned with an allocation of resources. Tr. 4/26/12, p. 1743. He noted that his town had crews that were willing to work around the clock in order to open streets but were useless because they could not access the streets because trees were entangled with wires. Id., p. 1745. It was not until Tuesday of the second week before all the downed wires were taken care of so that roads could be cleared. Id., p. 1751. He also noted that the town had 25 roads that were not passable until Tuesday of that second week. Id., p. 1752.

Mr. Werbner agrees that the regional liaison concept does not work and it is impractical to think that a liaison is going to rotate from community to community and be effective. Tr. 4/26/12, p. 1781. Mr. Werbner claimed that a liaison can be of great assistance if it is given some authority to be able to work with operations to direct crews where they are needed based upon the information that they are receiving from the towns. Id.

4. Ms. Natalie Ketcham, First Selectman of Redding

Ms. Ketcham indicated that since she has been Redding's First Selectman, the period of time that Redding was without power following the 2011 Storms were the worst two weeks of her tenure. Tr. 5/24/12, p. 2937. She noted that Redding was without power following both storms, and it took a full week in each case to be restored. Id., p. 2938. She commented that in the aftermath of Tropical Storm Irene, CL&P had an employee assigned to town hall every day to provide information. However, the employees could not answer questions with any certainty. Ms. Ketcham claims that they did not return following the October Storm, which left Redding employees and resident volunteers alone with little or no reliable information from the utility on restoration activities. Id. Ms. Ketcham also believed that CL&P did not act wisely by failing to control their resources and refusing to vest decision-making authority with its field managers. Id., p. 2939.

Additionally, Ms. Ketcham expressed concern over CL&P's communication. In particular there was no radio communication between company trucks, as well as the lack of credibility of the information once it was passed. She noted one situation where trucks were sitting at the side of the road because they came from out of state and did not know where they should be working. Also, there was an enormous amount of down time. Tr. 5/24/12, p. 2955. Ms. Ketcham was further concerned that technology seemed to be very rudimentary from the standpoint of the company. Id., p. 2956.

5. Ms. Patricia Llodra, First Selectman of Newtown

Ms. Llodra testified that the 2011 Storms challenged her abilities as a town official beyond anything previously experienced. Tr. 5/24/12, p. 2941. Ms. Llodra claimed that Newtown was a town virtually without power for one week or more following each storm. Ms. Llodra related that 2,000 homes were still inaccessible to emergency vehicles on day 4 following the October Storm, 80 roads remained

impassable 5 days following the storm event, and it was a 3-day wait for the first line crew to arrive. She claimed that contracted tree crews waited for CL&P line crews that never showed up. Additionally, she noted that the maximum security prison was two hours away from complete depletion of its generator support system. Id., p. 2943.

Moreover, Ms. Llodra indicated that there were significant issues in her town with communication. She spoke of damaged towers, which meant that cell phone conversations were really hampered, and at one point the liaison could not even use her cell phone to talk to the center that was also located in Newtown. Tr. 5/24/12, p. 2959. Ms. Llodra spoke of the lack of truck to truck communication, indicating that crews would end up at the municipal center asking for directions to get to where they were assigned to go. Ms. Llodra noted that the town had 60 or 70 radios that it offered to the CL&P restoral crews so they could talk, but that offer was declined because of security issues. Id., p. 2960. According to Ms. Llodra, the first line crews were not present until the Wednesday following the October Storm. Id., p. 2967.

Ms. Llodra spoke very positively of the liaison program. She noted that after the first five days into the second storm event, the liaison had more tools, had more ability to manage the information, and was more clear and confident in her communication with the town. Tr. 5/24/12, p. 2980. Ms. Llodra did not have a growing sense of confidence that they were at a place where there would be a better response if there were another event, but she thought they were getting there. Id., p. 2987.

6. Mr. Rudolph Marconi, First Selectman of Ridgefield

Mr. Marconi noted that the Town of Ridgefield (Ridgefield) was assigned a local liaison who worked closely with him. Mr Marconi became frustrated because he knew the liaison was not getting the information he needed. Tr. 5/24/12, p. 2946. Mr. Marconi also testified that there needs to be better mutual aid policies with other outside agencies or power companies. Id. Mr. Marconi testified that when the town got into the make-safe mode it was prepared to respond and to collect the necessary data so that CL&P had the data to respond to and know where the locations were. Mr. Marconi noted that for three years the town has been requesting CL&P to implement a program where either it train local electricians or have union electricians be assigned to town crews to make the roads safe so that the roads could be open. Mr. Marconi advocated a program that allows electricians to assist the highway department in the opening of roads. Id., p. 2951.

Mr. Marconi noted that Ridgefield, in the aftermath of the October Storm, received one line crew on the following Monday, that was increased by four by Thursday night. Mr. Marconi claimed that it was not until Friday afternoon, following the the October Storm which was on Saturday, that the town received another 25 trucks. Id., p. 2958.

Mr. Marconi also testified that the problem was the unavailability of the crews in-state, which prevented an immediate response to the Storm. Tr. 5/24/12, p. 2968. Mr. Marconi further testified that he wanted to see a financial commitment made to the mutual aid agreements. Id., p. 2983. Lastly, Mr. Marconi felt that the liaison program

was a very good program, and that the liaison needs more authority at the local level. Id., p. 2982.

II. CONSULTANT REPORTS

A. WITT ASSOCIATES

In 2011, the State of Connecticut retained Witt Associates to provide an independent assessment of preparedness, response, and restoration efforts associated with the October Storm. Witt Associates is a public safety and crisis management consulting firm based in Washington D.C. with consultants located throughout the country. As a result of its assessment, Witt Associates produced a report titled, "Connecticut October 2011 Snowstorm Power Restoration Report," dated December 1, 2011. Excerpts from the Executive Summary of that report are as follows:

The northeastern United States was struck by an unusual pre-Halloween snowstorm on October 29, 2011. The wet snow – more than 12 inches in some areas -- stuck to the still leaf-laden trees bringing down limbs, branches and, in some cases, full trees. Fallen trees caused substantial damage to power lines, including some transmission lines, and blocked roads. More than 3 million electric utility customers lost power in the region. Eight deaths related to the snowstorm were reported in Connecticut. The snowstorm and power outage resulted in significant economic losses in Connecticut.

North Central Connecticut was hit especially hard, challenging the capabilities and coordination of electricity providers and public sector response. Almost 70 percent of CL&P's 1.2 million customers, lost power. Customers of UI which serves the coastal area, were not hit as hard, with a total of 52,000 of its 350,000 customers affected at some time during the outage.

This Power Restoration Report provides an independent assessment of the preparedness, response, and restoration efforts and offers recommendations for how capabilities to address such events can be improved.

The October Storm resulted in 809,097 CL&P customers being without power at some time during the 11-day outage; many suffered multiple outages. The duration of the power outage in some of the most heavily impacted areas caused inconvenience and frustration among the public and municipal officials. Community frustration was exacerbated by CL&P's communications with the general public and state and local officials.

The October Storm resulted in the largest restoration effort in CL&P's history. Despite the length and extent of the service outages, and the effect on customers in the affected service areas, there were successes in CL&P's power restoration effort. The company's internal forecast model accurately predicted power would be fully restored by Wednesday, November 9, although an unprecedented army of mutual aid workers from other utilities was required to do so. No serious injuries or deaths were reported associated with the restoration effort. Municipalities reported that power restoration crews, once they arrived in their communities, generally functioned well and efficiently.

Stakeholders also praised the assistance from power company customer service representatives in answering phone lines in a timely fashion, with an average wait time of less than Connecticut October 2011 Snowstorm Power Restoration 45 seconds; this is frequently not the case in such a wide-scale event. CL&P's recently created Town Liaison program, while not completely successful in its implementation, is recognized as positive in concept.

UI outages were smaller in number and in proportion to their total customers. After the October snowstorm, all UI customers were restored by the night of Wednesday, November 2.

As noted above, the scope of this expedited high-level review is limited to the restoration effort itself. There are several other factors that impact the scale of outages during a major event including system design, hardening, vegetation management, and regulatory issues. We recommend further review of these and other issues. Witt Associates, Connecticut October 2011 Snowstorm Power Restoration Report, Executive Summary, pp. 1-3.

B. TWO STORM PANEL

Governor Dannel P. Malloy announced the formation of The State Team Organized for the Review of Management (STORM) of Tropical Storm Irene on September 13, 2011. The eight member panel was charged with the following mission: "a broad, objective evaluation reviewing how Irene was handled in the state both in preparation and recovery, identify areas that can be improved upon and, most importantly, make recommendations for future disaster preparedness and response." Following the October Storm, the Governor expanded the work of the panel, renamed it The Two Storm Panel, and directed it to report its findings to him by the first week of January, 2012. Excerpts of the Executive Summary of the "Report of the Two Storm Panel" (Two Storm Panel Report) are as follows:

Tropical Storm Irene and the October Nor'easter tested Connecticut's emergency resources in ways that they had not been tested in more than 25 years. In that intervening 25 years, Connecticut's infrastructure had increased significantly, while the manpower associated with the maintenance and repair of that infrastructure had decreased significantly. The result was that although Connecticut has faced far more significant storms, such as Category 3 hurricanes, both Tropical Storm Irene and the October Nor'easter left record numbers of residents without electricity, communications, heat or reliable supplies of water.

The significant impact of these storms has served as a wake-up call to Connecticut. Our state must do more to prevent, plan for, and respond to emergencies and natural disasters.

To that end, this Report serves as the beginning of what this Panel hopes will be a robust review and evaluation of Connecticut's approach to the prevention, planning and mitigation of impacts associated with emergencies and natural disasters that can reasonably be anticipated to impact our State. The Report contains 82 recommendations on a wide variety of topics, with subjects ranging from utility issues

(“utility,” for the purposes of this Report, shall include all infrastructure components, including electric, gas, water, sewer, telephone, cable, television, data and piping infrastructure) to municipal assistance to changes that can be implemented at the State level to improve the State’s readiness for the next emergency. Two Storm Panel Report, Executive Summary, p. 1.

C. THE LIBERTY CONSULTING GROUP

After initiating the instant docket, the Authority contracted with The Liberty Consulting Group, (Liberty) to act as an extension of the PURA staff in this proceeding, pursuant to §16-18a of the General Statutes of Connecticut (Conn. Gen. Stat.).

Liberty’s April 16, 2012 report was entitled, “Report on the Preparation for and Response to the August and October 2011 Storms by The Connecticut Light and Power and The United Illuminating Companies (Liberty Report).” See “Attachment A” to access the complete Liberty Report. Excerpts from its summary section are as follows:

According to Liberty the 2011 Storms were significant, and the early snowstorm was unprecedented. Liberty found that CL&P and UI each performed some things well in the preparation for and response to the storms. However, Liberty also found that aspects of both companies’ performance made worse the severity and duration of the storms’ effects. Liberty concluded that the following were beneficial aspects of CL&P’s performance.

1. CL&P’s systems and methods enabled customers to communicate easily with the company during the storms.
2. CL&P has a superior distribution pole specification and groundline inspection program. CL&P has been purchasing one of the more durable types of poles since the mid-1980s. The percentage of reject poles is low.
3. The CL&P district emergency organization provides the framework to support an effective response. In both storms, CL&P opened and staffed the district commands in good time.
4. CL&P proactively communicated with the media, public officials, customers, and the public before, during, and after the storms.
5. CL&P’s emergency plans provide clear expectation of employee involvement in support activities. This is a very important aspect of any successful response effort.
6. The Classification of Service Outage Events in CL&P’s emergency plans provides helpful guidance in determining the amount of required resources.

However, Liberty found that CL&P’s storm performance was below average. The most important items in this category are as follows:

1. CL&P's distribution tree trimming program contributed significantly to the extent of 2011 storm damage and the duration of storm service interruptions. CL&P should institute a four-year, full-cycle trim program, a more aggressive overhang trimming process, and a more aggressive hazard-tree removal program.
2. CL&P could not provide restoration estimates or restoration status to customers on a timely basis. CL&P should pursue the technology enhancements that will facilitate real-time updates of restoration status information into the outage system. It should also develop specific, measurable goals and objectives for improving the accuracy and timeliness of outage related information provided to its constituents.
3. CL&P's implementation of the Incident Command System (ICS) did not set up the strong, top-down management response that is necessary in reacting to major outages. CL&P should modify its storm management structure, placing more direct authority and responsibility at the System, Area, and Division level.
4. CL&P made a determined effort in acquiring outside resources, but the results were disappointing. CL&P should work with EEI and other Mutual Assistance Groups to improve the present process.
5. CL&P management did not have proper control over the "Cut/Clear, Make Safe" work done with the towns. CL&P should work with the towns, other utilities, and emergency agencies to establish specific guidelines as to the work CL&P will do in this effort with the towns.

The effect of the storms on UI was not as severe as that experienced by CL&P, primarily because of UI's smaller and more compact service territory. Liberty concluded that the items listed below were beneficial aspects of UI's performance.

1. UI well organized its response to the two storms.
2. UI proactively communicated with the media, public officials, customers, and the public before, during, and after the storms.
3. UI managed the alert and mobilization processes well in both storms.
4. UI has an aggressive distribution-pole groundline program.
5. UI used automatic meter reading technologies to communicate with installed meters during the storm to confirm restoration status.

The most significant aspects of UI's performance that require improvement were the following.

1. UI could not handle the large volume of customers trying to communicate with the company during the storm. UI should create a call center storm staffing process to facilitate quick ramp-up of call takers during a large outage. It should redesign its call center technology to improve communications with customers

during a large outage or storm. Moreover, it should rigorously test call-handling technology, website, and the outage management system to ensure the technologies operate to expectations and specifications.

2. The results of UI's efforts to procure outside resources were disappointing. UI should affiliate with more than one mutual assistance group and work with EEI and other Mutual Assistance Groups to improve the present process.
3. UI could not provide restoration estimates or restoration status to customers in a timely basis. UI should pursue technology and process enhancements that will facilitate real-time update of restoration status information in the outage system and enable more timely estimated restoration times.
4. UI management did not have proper control over the "Cut/Clear, Make Safe" work done with the towns. It should work with the towns, other utilities, and emergency agencies to establish specific guidelines as to the work to be done in the "Cut/Clear, Make Safe" effort with the towns.
5. Hazard trees contributed to the effects of the storms. The hazard-tree removal budget has not had consistent funding in past years. The current budget rate allows the removal of only very high priority hazard trees.
6. UI tree trims single-phase circuits every eight years. While it conducts some reliability centered maintenance on these lines, the eight-year cycle allows for increased vegetation density that will cause storm outages.

Liberty Report, Summary of Findings, pp. 1 and 2.

III. AUTHORITY ANALYSIS

A. OCC AND AG CLAIMS FOR FINDINGS OF IMPRUDENCE

The Office of the Attorney General (AG) asserts that CL&P was imprudent with regard to a number of storm related activities. AG Brief, pp. 1, 2, and 49-53. In particular, the AG states that CL&P:

1. Inadequately prepared for major storms, and failed to exercise or drill its emergency response plans and evaluate the results for at least five years prior to the storms;
2. Failed to request the assistance of outside crews in a timely manner and failed to reasonably manage the crews that arrived;
3. Engaged in an unreasonable damage assessment process, including failure to transmit assessment information from the field to operations headquarters efficiently;
4. Failed to train and support municipal liaisons and defer to local restoration priorities;

5. Failed to reasonably develop estimated restoration times; and
6. Failed to reasonably manage communications with the public and public officials concerning restoration times.

The AG states that the PURA should specifically find that CL&P was imprudent in these areas and should disallow any storm-related costs that are the result of this imprudent conduct, while deferring the specific quantification of the amount until CL&P's next general ratemaking proceeding. In the alternative to disallowing specific quantified costs, the AG suggests that the PURA disallow 30 to 50 percent of all of CL&P's 2011 Storm restoration and recovery costs or reduce CL&P's return on equity in a future ratemaking proceeding as a penalty and warning to improve its management practices. AG Brief, p. 53.

The Office of Consumer Counsel (OCC) similarly asserts that CL&P's management practices rose to the level of imprudence. OCC Brief, pp. 12-28. Those areas chiefly related to CL&P's communications during the restoration period, including:

1. The continued public insistence that it would meet a restoration time that it knew it was unlikely to meet;
2. The implementation of a town liaison program that failed to provide for the flow of information between towns and CL&P; and
3. The failure to implement "lessons learned" from the 2010 storm, including the failure to implement technology to facilitate "real time" updating of information from crews into its operation's management systems.

By way of remedy, the OCC seeks findings of imprudent management and related penalties or disallowance of costs for the imprudent management conduct in future proceedings, including the storm recovery docket resulting from the Merger Settlement and any upcoming CL&P rate proceedings. OCC Brief, p. 14.

1. Authority Discussion

An appreciation of the nature and purpose of this proceeding is critical to the issue of regulatory economic disallowances. Conn. Gen. Stat. §16-11 provides the PURA with its general regulatory oversight. In particular, it states that the PURA must "keep fully informed as to the condition of the plant, equipment and manner of operation of all public service companies in respect to their adequacy and suitability to accomplish the duties imposed upon such companies by law." Further, the PURA "may order such reasonable improvements, repairs or alterations in such plant or equipment, or such changes in the manner of operation, as may be reasonably necessary in the public interest." *Id.* In accordance with this statutory obligation, the PURA opened this proceeding on September 14, 2011, to review the preparedness, service response and

communications of both CL&P and UI with respect to Tropical Storm Irene.² On November 4, 2011, in the aftermath of the October Storm, the PURA expanded the scope of this proceeding to include a review of that storm. On November 25, 2011, Motion Ruling No. 15, p. 2, the PURA entered a clarifying ruling in response to a request from the AG and the OCC. That clarification, in salient part, stated:

[T]his proceeding will be of broad scope and entail a full review and investigation of the outage, impacts and responses of all public service companies, video, voice and cellular providers, to both storms . . . the Authority notes that this proceeding and investigation pursuant to Conn. Gen. Stat. section 16-11 may entail remedial orders affecting public service company improvements, alterations, or changes in the manner of operations, as may be reasonably necessary in the public interest.

Thus, the PURA's intent in this proceeding is to conduct a review and critique of public service company obligations with an aim at identifying deficiencies and impose corrective measures in the method and manner of operations, consistent with the mandate of Conn. Gen. Stat. §16-11. With the input from a broad array of interested participants, measures will be identified and imposed that will ensure that results, where deficient, will not occur again and utilities will be put on a path to provide and restore reliable and safe service in the aftermath of major storms. In this manner, the PURA strives to achieve a higher and greater public good consistent with Conn. Gen. Stat. §16-11.

Accordingly, all participants were fully apprised of the nature and scope of this proceeding, and the PURA has carefully clarified the scope and purpose of its investigation. The issue of a prudence review and associated potential cost disallowance as a result of this proceeding was never raised by any participant, until the AG and the OCC presented the issue in their June 18, 2012 Briefs.

In response to the AG and the OCC claims, CL&P contends that the overall record in this matter does not support a finding of imprudence as a matter of fact,³ CL&P Reply Brief, pp. 7 and 8, and that, as a matter of law, this investigatory proceeding was not noticed to implicate either a rate disallowance pursuant to

² "In establishing this docket, the Authority determined to review the Storm Irene event with a focus on the manner of operations of both electric companies having to do with storm readiness, storm restoration, storm damage, tree trimming, system reliability, and communications to municipalities and customer." November 25, 2011 Ruling No. 15, p. 1.

³ "... restoration of more than 809,000 outages in 11 days is not inconsistent with industry benchmark." Report of Witt Associates, December 1, 2011, p. 11.

"... the duration of CL&P's restoration efforts after the 2011 storms were within industry norms, given the large numbers of outages." Witt Associates, CL&P Management Performance Audit: 2011 Major Storm Events, June 1, 2012, p. 1.

"... restoration was completed within a reasonable timeframe and cost." Report of Davies Consulting, February 27, 2012, p. 27.

ratemaking Conn. Gen. Stat. §§16-19 and 16-19e, or assessment of penalty statute, Conn. Gen. Stat. §16-41. CL&P Reply Brief, pp. 54 and 55.

2. Analysis Regarding Findings of Imprudence

Because this proceeding was not noticed to include such issues, the Authority will not make determinations on issues of prudent and efficient management or associated cost disallowances. A minimum degree of notice is constitutionally required to uphold due process where an administrative or regulatory agency is attempting to impose a claim that involves the taking of property. A finding of imprudence with associated economic penalties or cost recovery disallowances requires this manner of due process notice. In Rivera v. Liquor Control Commission, 53 Conn. App. 165, 173 (1999), quoting Fleischman v. Board of Examiners in Podiatry, 22 Conn. App. 181, 191 (1990), the Court stated: "The test of whether one is given adequate notice is whether it apprises [the plaintiff] of the claims to be defended against, and on the basis of the notice given, whether [the] plaintiff could anticipate the possible effects of the proceeding." In Fleischman v. Board of Examiners in Podiatry, the Court stated: "[i]f the notice of charges does not fairly apprise the person of the nature of the offense with which he is charged, the court may set aside the order of an agency for deficiency of notice." Fleischman, 22 Conn. App. at 191, citing Murphy v. Berlin Board of Education, 167 Conn. 368, 374-75 (1974).

Connecticut courts have also recognized a common-law right to fundamental fairness in administrative hearings. Grimes v. Conservation Comm'n, 243 Conn. 266, 273 (1997). In Grimes, the issue was whether a municipal conservation commission must provide personal notice to an abutting landowner of site inspections when the abutter had no personal interest at stake. Id. at 269-73. The court held that even though no constitutional due process right existed, administrative proceedings shall not violate the fundamentals of natural justice, which require that no one may be deprived of the right to produce relevant evidence or to cross-examine witnesses produced by his adversary. Id. at 273-74. "[D]ue process of law requires that the parties involved have an opportunity to know the facts on which the commission is asked to act . . . and to offer rebuttal evidence." Pizzola v. Planning & Zoning Commission, 167 Conn. 202, 207 (1974).

As discussed herein, the notice and scope of this proceeding unmistakably did not involve issues of imprudence or rate recovery disallowances. CL&P was not afforded the opportunity to participate in this proceeding in a manner that it would have had it known that prudence findings were an issue. Where economic sanctions are an issue, government agencies cannot act in a manner that would introduce an element of surprise to the party being penalized. See Petition of New England Telephone and Telegraph Company for an Alternative Regulatory Plan, 1995 Mass. PUC LEXIS 1, *373-74 (May 12, 1995).

However, this is not to say that the PURA will not appropriately address these issues when a claim for recovery of storm related costs in rates is made. In this proceeding, a number of companies requested that they be allowed to defer non-

recurring costs related to their responses to the 2011 Storms until their next rate case.⁴ In each ruling to allow such deferral, the PURA stated that the costs may be deferred until the company's next rate case, at which time the PURA will have the opportunity to review the expenses and proposed method of recovery. The PURA further stated that such deferral does not mean recovery. Rather, the PURA stated: "[a]t that time, the Authority, as well as other participants, will have the opportunity to determine the appropriateness of the recognition, *if any*, of those expenses for rate-making purposes." Rulings to Motion Nos. 35, 39, 57, and 64 (emphasis added).

The AG, the OCC and other participants will have the opportunity to challenge any request for storm cost recovery at the time of CL&P's next rate case.⁵ The settlement agreement in the Decision in Docket No. 12-01-07, Application for Approval of Holding Company Transaction Involving Northeast Utilities and NSTAR (Settlement Agreement), entered into by Northeast Utilities (NU), NSTAR, the AG and the OCC imposed a rate freeze until December 1, 2014.⁶ The Settlement Agreement further provided that CL&P would file with the PURA for recovery of costs associated with both storms and that "such request will be subject to review and approval by the Authority in an adjudicatory proceeding." This proceeding, by definition, is not the storm cost recovery proceeding contemplated by the Settlement Agreement.

3. Industry Norms Are Not Dispositive

The Authority does not agree with CL&P's argument that the conclusions from the consultants' reports verify that CL&P met the required standard of care. Reply Brief of CL&P, pp. 18, 22 and 23. While it is understood that the consultants' reports suggest CL&P adhered to industry norms in some respects, such as the overall time of full restoration, see Report of Witt Associates, December 1, 2011, p. 11; Witt Associates, CL&P Management Performance Audit: 2011 Major Storm Events, June 1, 2012, p. 1; the standard of care in the Authority's three-part test on prudence is not limited by industry norms, nor limited to the single issue of full restoration timing.

The first part of the Authority's prudence test states "there must be a clearly understood definition of the standard of care by which a utility's performance can be measured."⁷ Decision dated August 6, 2008 in Docket No. 08-02-06, DPUC Investigation into The Connecticut Light and Power Company's Billing Issues, p. 10;

⁴ Motions of Aquarion Water Company of Connecticut, No. 35, January 12, 2012; Avon Water Company, No. 39, March 13, 2012; Hazardville Water Company, No. 57, February 21, 2012, and Valley Water Systems, No. 64, March 6, 2012.

⁵ The Authority, as economic regulator, must ensure that the level and structure of rates charged only reflect "prudent and efficient management of the franchise operations," pursuant to Conn. Gen. Stat. § 16-19e(a)(5).

⁶ Settlement Agreement dated March 13, 2012, section 4.3 approved in the Decision, Docket No. 12-01-07.

⁷ The three part test is as follows: "First, there must be a clearly understood definition of the standard of care by which a utility's performance can be measured; second, the actions of the utility must be examined to determine if there has been a failure on its part to conform to the standard required; and finally, there must be a reasonably close casual connection between the imprudent conduct, if any, and actual loss or damage." Docket No. 08-02-06, DPUC Investigation into the Connecticut Light and Power Company's Billing Issues, Aug. 6, 2008, at 10-11.

Decision dated July 21, 1988 in Docket No. 87-11-01, Public Hearing to Investigate Whether Charges or Credits Made Under the Purchased Power, Fossil Fuel, Purchased Gas Adjustment and/or Generation Utilization Adjustment Clauses Are Accurate for the Preceding Three Months, p. 11. In this test, there is no reference to industry norms, industry standards, or any other form of industry practices. Such references may be applied in order to determine the standard of care; however, industry norms by themselves are not determinative per se.

This view is not only in accordance with the Authority's test for prudence, but also with numerous other areas of law. In Tug Ocean Prince, Inc. v. United States, the Court held that actions in conformity with industry standards are not conclusive; an industry as a whole can lag behind the standard of reasonable care. 584 F.2d 1151, 1156-57 (2d Cir. N.Y. 1978), cert. denied, 440 U.S. 959 (1979). The customary practice of the industry is relevant, but the standard of care is not limited to complying with usual practices in the industry or trade. Troupe v. Chicago, Duluth & Georgian Bay Transit Co., 234 F.2d 253, 260 (2d Cir. N.Y. 1956). "Compliance with industry standards . . . does not necessarily preclude the existence of an issue of material fact." Notarino v. City of New Haven, 2010 Conn. Super. LEXIS 1864 (July 15, 2010).

At this time, the Authority must legally refrain from making a determination or ruling as to the prudence of CL&P's 2011 Storm-related costs as that issue and proceeding are for another day. When this issue is determined, industry norms may not insulate CL&P in a moat of immunity as to whether it used and executed prudent and efficient management techniques in all aspects of its storm recovery activities. Further, Witt Associates makes the following clarification on industry norms by noting, "[t]he industry has recognized that such norms themselves are in need of improvement, particularly in the areas of damage assessment and establishment of restoration priorities. Trends in industry best practice are now towards addressing these recurring challenges." June 1, 2012 CL&P Management Performance Audit: 2011 Major Storm Events by Witt Associates, p. 4.

4. Rebuttable Presumption of ROE Disallowance

The record in this case is exceedingly well developed as to CL&P's planning, reaction, restoration, communication, execution and recovery issues as to the 2011 Storms. Based on the record, the PURA can make a number of findings and recommendations. Most have to do with the manner of operation, but the Authority also does have broad regulatory authority⁸ and may exercise that authority in a manner that protects the relevant public interests, both existing and foreseeable. For reasons discussed below, the Authority concludes that CL&P's performance in the areas regarding communication to customers, other service providers and municipalities was so deficient as to be less than adequate and suitable and to warrant regulatory sanction. This deficiency also involves its lack of preparation of personnel, failure to support

⁸ Conn. Gen. Stat. § 16-11 states that its purpose is to assure to the state of Connecticut its full powers to regulate its public service companies and to increase the powers of the PURA and that the statute is to be construed so as to effectuate these purposes.

municipal liaisons and to reasonably develop and communicate restoration times to customers.

In light of the overall substantial weight of evidence developed in this record regarding the performance of CL&P during the 2011 Storms, the PURA will establish a rebuttable presumption that CL&P should be imposed an appropriate basis point reduction to its allowed return on equity (ROE) in its next ratemaking proceeding as a penalty for such poor management performance and to provide incentives for improvement.⁹ The factual support for this legal presumption as to an ROE penalty is rebuttable: the burden of proof as to management execution and manner of operation as to these deficiencies identified in this proceeding will rest with CL&P. CL&P will have the opportunity to rebut the presumption, supported by the record in this case, as well as the amount of the adjustment to its ROE at its next ratemaking proceeding.

B. THE CONNECTICUT LIGHT AND POWER COMPANY

1. Description of the Storms, Outages and Damage to CL&P Infrastructure

a. Tropical Storm Irene

Beginning on August 23, 2011, CL&P began escalated monitoring of Tropical Storm Irene, which at that time was located in the tropical Atlantic Ocean. On August 26, 2011, CL&P opened its Emergency Operations Center (EOC) in partial activation mode at 8:45 a.m. to support and organize planning and coordination activities. At 12:02 p.m. that same day, the CL&P EOC was opened in full activation mode and it initiated the process of implementing full staffing of the EOC. Also on August 26, 2011, CL&P initiated the process of securing additional resources and establishing logistics to support these resources. CL&P Response to Interrogatory EL-1.

CL&P's pre-storm preparation consisted of the following steps that were taken five days in advance of the approaching storm:

- Daily storm preparation calls were scheduled to ensure all preparations for the anticipated hurricane were completed on time;
- Mutual aid conference calls with the New England Mutual Aid Group (NEMAG) and the New York Mutual Aid Group (NYMAG) groups were held daily from August 24, 2011 through August 28, 2011 in anticipation of dealing with the anticipated affects from Hurricane Irene. Conference calls continued until September 7, 2011 to discuss mutual aid options;
- Line and tree contractors were secured and prepositioned;
- Helicopters were secured and prepositioned for reconnaissance;

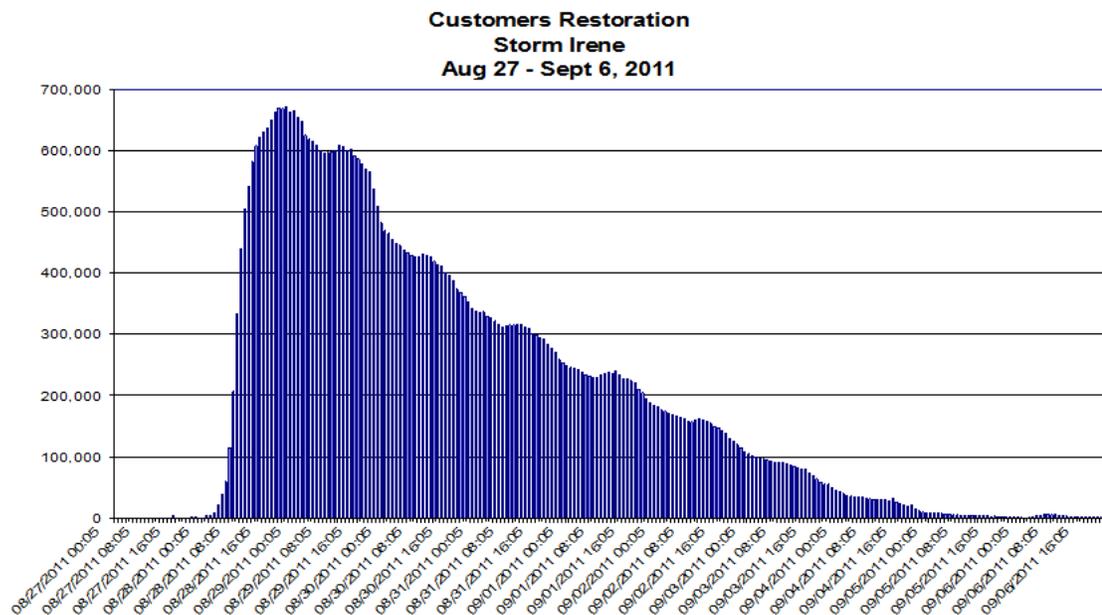
⁹ For instance, Schedule A-1.0B in Docket No. 09-12-05 indicates that for the rate year ending June 30, 2012, 100 basis points (1 percent in CL&P's ROE) is equivalent to \$22.83 million.

- Vacations for all NU employees were cancelled;
- 100% of CL&P line crews were placed on-call;
- Calls to Western Massachusetts Electric Company and Public Service of New Hampshire were made regarding crew availability over the weekend;
- Logistics vendors were prepositioned to prepare staging areas;
- Confirmed the Mobile Command Center was available for use;
- Support staff storm assignments were confirmed;
- Circuit configuration was checked and distribution loop schemes defeated;
- All facilities were confirmed ready for heavy winds and rain. All outside material was secured to prevent blowing debris; and
- District storm rooms were checked for readiness.

CL&P Tropical Storm Irene report filed September 20, 2011 in Docket No. 86-11-18, DPUC Review of Performance of UI, CL&P and SNETCO in Restoring Service After Storm Carl.

On August 27, 2011, CL&P continued the process of securing additional resources and monitoring the approaching storm. On the morning of August 28, 2011, Tropical Storm Irene made landfall in Stamford, Connecticut, exposing all of Connecticut to the northeast quadrant of the storm, which encompassed the most severe weather associated with it. The State experienced sustained winds of approximately 40 mph and gusts to 66 mph over the course of most of August 28, 2011. The State experienced up to eight inches of rain, uprooted trees and downed limbs which caused extensive damage to CL&P's infrastructure. CL&P Response to Interrogatory EL-1.

Tropical Storm Irene resulted in outages to 1,024,032 CL&P customers in total, including a peak outage level of 671,000. The following is a customer restoration curve showing customer outages during and after Tropical Storm Irene:



CL&P Tropical Storm Irene report filed September 20, 2011, in Docket No. 86-11-18.

Restoration from Tropical Storm Irene was completed on September 6, 2011.

b. October Storm

CL&P states that beginning on October 27, 2011, weather forecasting services began predicting the possibility of a Nor'easter accompanied by heavy snow for October 29, 2011. As of October 28, 2011, weather forecasts were indicating that a wet snowfall of up to eight inches could be expected on October 29, 2011. CL&P Response to Interrogatory EL-13.

CL&P took the following steps in advance of the snowstorm:

- The event was classified as a level 5 event per the CL&P Emergency Plan;¹⁰
- Friday October 28, 2011, a storm preparation call was held to ensure all preparations for the anticipated nor'easter were completed on time;
- Mutual aid conference calls with NEMAG and NYMAG groups were held daily from October 28, 2011 through November 9, 2011, to discuss mutual aid options.
- Line and tree contractors were secured;
- Helicopters were secured for reconnaissance;
- Vacations for all NU employees were cancelled;

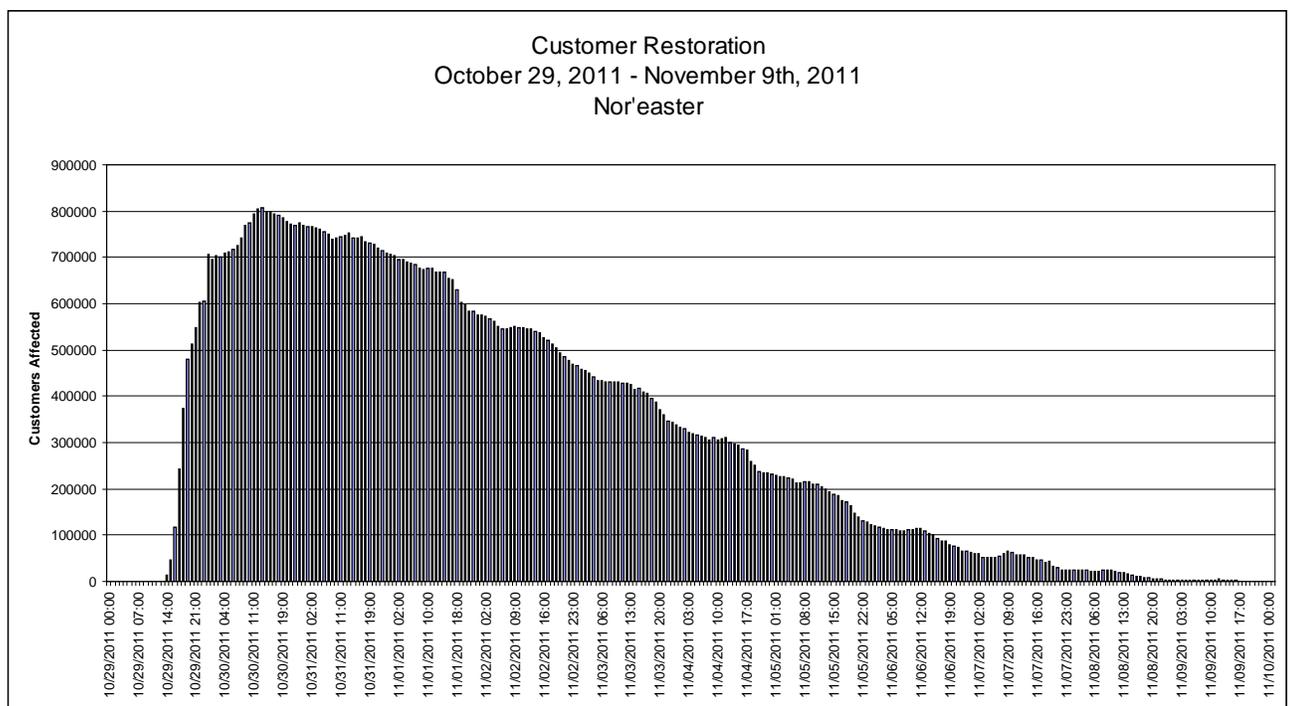
¹⁰ Level 5 is the most severe level classification and requires commitment of all available company personnel and resources.

- 100% of CL&P line crews were placed on-call;
- Calls to Western Massachusetts Electric Company and Public Service of New Hampshire were made regarding crew availability over the weekend;
- Logistics vendors were contacted to prepare staging areas;
- Confirmed the Mobile Command Center was available for use;
- Support staff storm assignments were confirmed;
- All facilities were checked ready for a wind, rain, and snow event. Snow removal contractors were confirmed; and
- District storm rooms were checked for readiness.

CL&P Tropical Storm Irene report filed November 23, 2011 in Docket No. 86-11-18.

On October 29, 2011, at 12:00 p.m., CL&P partially activated its EOC and began requesting external resources. At 1:13 p.m., CL&P fully activated its EOC. CL&P Response to Interrogatory EL-13.

Beginning in the afternoon of October 29, 2011, heavy wet snowfall on foliated trees began causing trees and branches to fall on the CL&P electric infrastructure, resulting in outages to customers. By the end of the storm, up to 16 inches of heavy wet snow had fallen in CL&P’s service territory, resulting in severe damage to electric infrastructure and prolonged outages to customers. Following is a customer restoration curve showing customer outages during and after the October Storm:



CL&P Tropical October Storm report filed November 23, 2011 in Docket No. 86-11-18.

Restoration from the October Storm was completed on November 12, 2011.

2. Liberty Findings

In general, the Liberty Report concluded that CL&P performed a number of things well before, during and after the 2011 Storms; however, its overall storm performance was below average. Liberty cited the following aspects of CL&P's storm response performance as particularly beneficial:

- CL&P's systems and methods enabled customers to communicate easily with the company during the storms;
- CL&P has a superior distribution pole specification and groundling inspection program;
- The CL&P district emergency organization provides the framework to support an effective response;
- CL&P proactively communicated with the media, public officials, customers, and the public before, during and after the storms;
- CL&P's emergency plans provide clear expectation of employee involvement in support activities; and
- The classification of service outage events in the emergency plans provides adequate guidance in determining the amount of required resources.

Liberty Report, p. 1.

Liberty identified the following aspects of CL&P's storm performance as areas needing improvement:

- CL&P's tree trimming program did not adequately remove vegetation that threatened electric lines, and contributed significantly to the extent of storm damage and the duration of service interruptions;
- CL&P could not provide restoration estimates or restoration status to customers on a timely basis;
- CL&P's implementation of the Incident Command Structure did not set up the strong, top-down management that is necessary to react to major outages;
- CL&P made a determined effort to acquire outside resources, but the results were disappointing; and
- CL&P management did not have proper control over "Cut/Clear, Make Safe" work done in coordination with municipalities.

Id.

Liberty identified a number of corrective actions intended to improve performance during future storms that were self-identified by CL&P, some of which have been completed and some of which are still outstanding. Additionally, Liberty identifies a number of recommendations for improvements in the company's practices and procedures. Other details of Liberty's findings are addressed in the sections below.

3. Customer Communications

CL&P maintains two customer call centers responsible for handling incoming customer calls, one in Windsor, Connecticut and the other in Manchester, New Hampshire. Prior to the onset of Tropical Storm Irene, numerous preparatory measures were taken to respond to anticipated high call volume and expected outages. CL&P Response to Interrogatory CSU-1. The pre-storm preparations began on August 23, 2011, and lasted until August 28, 2011. Examples of the measures taken by CL&P included cancelling all meetings, training and vacations for the week to maximize employee availability, scheduling 12-hour shifts for call center agents so as to provide 24-hour coverage, testing of all telephone systems and overflow options, notification of all medically coded customers of a multi-day outage event and to prepare for alternate arrangements via an outbound calling campaign, notification of all CL&P customers of a multi-day outage event and to prepare for alternate arrangements, activation of the call center's emergency operations plan and the suspension of all outbound collections activity. Id. CL&P indicated that during storms, its two call centers can act as a single, virtual customer contact center. CL&P does not establish a separate call center to exclusively handle emergency calls, but those calls indicated as an emergency to the toll-free emergency number are prioritized and answered by the next available agent. According to CL&P records, from August 27, 2011 through September 6, 2011, 4,154 public safety calls (police and fire) were answered with an average speed of answer of 5 seconds and 24,789 customer-indicated emergency calls were answered with an average speed of answer of 4 seconds. CL&P Response to Interrogatory CSU-3.

From August 27, 2011 through September 6, 2011, CL&P's call center was staffed on a 24 hours per day basis. During Tropical Storm Irene, normal business transactions were suspended so that CL&P could focus on storm restoration efforts. CL&P Response to Interrogatory CSU-5. On the first day of Tropical Storm Irene, CL&P brought in its outsource IVR service to assist with the increase in call volume. Tr. 4/23/12, p. 1035. According to CL&P, call volume for the entire period of Tropical Storm Irene was approximately 1.03 million calls. This figure represents almost 23% of CL&P's annual call volume. Further, call volume on August 28, 2011, was 300 times the average Sunday call volume. CL&P Response to Interrogatory CSU-4. A breakdown of CL&P's call center performance metrics follows:

| Date | Calls Handled ¹¹ | ASA ¹² | ACR% | Peak Headcount |
|---------|-----------------------------|-------------------|------|----------------|
| 8/27/11 | 7,625 | 50 | 2.0% | 35 |
| 8/28/11 | 387,376 | 67 | 2.0% | 270 |

¹¹ Includes calls to live agents and calls to an IVR.

¹² In seconds.

| | | | | |
|----------------|---------|-----|------|-----|
| 8/29/11 | 219,930 | 18 | 0.7% | 323 |
| 8/30/11 | 113,389 | 10 | 0.4% | 395 |
| 8/31/11 | 93,409 | 5 | 0.3% | 369 |
| 9/01/11 | 70,702 | 7 | 0.2% | 287 |
| 9/02/11 | 53,058 | 18 | 0.7% | 284 |
| 9/03/11 | 28,550 | 8 | 0.2% | 201 |
| 9/04/11 | 17,408 | 2 | .07% | 153 |
| 9/05/11 | 9,172 | 3 | 0.1% | 121 |
| 9/06/11 | 32,951 | 191 | 6.8% | 145 |

CL&P Response to Interrogatory CSU-2.

Preparations at CL&P's call center for the October Storm began on October 27, 2011. CL&P implemented many of the same measures as it did for Tropical Storm Irene, including an outbound calling campaign to customers coded as medical. CL&P Response to Interrogatory CSU-18. For the period of October 29, 2011 through November 12, 2011, CL&P maintained live agents on a 24 hours per day basis at its call center to handle outage and emergency calls. During the first week of the October Storm, normal business transactions were suspended so that CL&P could focus on storm restoration activities. CL&P Response to Interrogatory CSU-21. CL&P's outsource IVR provider was also put into operation on the first day of the storm. Tr. 4/23/12, p. 1035. Along with the IVR outsource vendor, CL&P utilized the additional resources of its Manchester, New Hampshire call center to address the increase in call volume, but unlike other weather events, the October Storm impacted customers of the Northeast Utilities' system in the three states it operates. For CL&P, the call volume during the duration of the October Storm was approximately 1.1 million calls. This figure represented approximately 25% of CL&P's annual call volume. On October 29, 2011, the first day of the storm, call volumes increased to a level that was 83 times the normal level for a Saturday. CL&P Response to Interrogatory CSU-20. CL&P also indicated that during the October Storm, its call center answered 4,224 public safety calls (police and fire) with an average speed of answer of 6 seconds and answered 51,927 customer-indicated emergency calls with an average speed of answer of 7 seconds. CL&P Response to Interrogatory CSU-22. A breakdown of CL&P's call center performance metrics for the October Storm follows:

| Date | Calls Handled¹³ | ASA¹⁴ | ACR% | Peak Headcount |
|-----------------|-----------------------------------|-------------------------|-------------|-----------------------|
| 10/28/11 | 14,747 | 14 | 1.3% | 131 |
| 10/29/11 | 217,887 | 196 | 3.9% | 197 |
| 10/30/11 | 234,204 | 71 | 1.7% | 231 |
| 10/31/11 | 126,012 | 4 | 0.1% | 320 |
| 11/01/11 | 118,587 | 6 | 0.3% | 361 |
| 11/02/11 | 100,765 | 14 | 0.5% | 361 |
| 11/03/11 | 76,177 | 13 | 0.4% | 325 |
| 11/04/11 | 68,553 | 40 | 1.2% | 334 |
| 11/05/11 | 47,853 | 48 | 1.2% | 236 |

¹³ Includes calls to live agents and calls to an IVR.

¹⁴ In seconds.

| | | | | |
|-----------------|--------|----|------|-----|
| 11/06/11 | 42,655 | 51 | 1.7% | 205 |
| 11/07/11 | 39,935 | 7 | 0.6% | 387 |
| 11/08/11 | 22,285 | 7 | 0.2% | 312 |
| 11/09/11 | 17,772 | 19 | 0.7% | 299 |

CL&P Response to Interrogatory CSU-19.

In its review of CL&P, Liberty found that its call centers performed extremely well for both storms. However, Liberty found some minor issues that arose during the two events. Tropical Storm Irene was the first time that CL&P utilized the services of its outsourced IVR vendor. Liberty stated that CL&P had no clear-cut rules or thresholds for when to start or stop the vendor. Liberty also stated that as a result of this, customers encountered busy signals during a brief period of time at the onset of the storm. Liberty contends that CL&P could have brought the outsource IVR vendor online sooner. Liberty Report, p. 101. CL&P's call center performance metric indicated that over 4,400 busy signals were encountered by customers on August, 28, 2011. However, CL&P customers did not encounter any further busy signals for the remainder of Tropical Storm Irene other than a one-hour period on September 6, 2011, when an additional 226 busy signals were registered. CL&P Response to Interrogatory CSU-2. CL&P agreed that there were no procedures in place. However, CL&P looks at each storm or event individually to examine call volume, the time of day, or other considerations. Thus, the decision to initiate the outsource IVR vendor is executed on a case-by-case basis. Tr. 4/23/12, pp. 1036 and 1037.

Liberty also noted that during Tropical Storm Irene, the CL&P IVR Vendor's (IVR Vendor) upfront message was not the same as the upfront message at the CL&P call center. Liberty Report, p. 102. CL&P explained that the outsourced IVR has a standard message that allows customers to process their phone call instead of a message being utilized at the CL&P call center. According to CL&P, it resolved the issue by updating the messages to make them consistent. Tr. 4/23/12, pp. 1042 and 1043.

There was one other issue that Liberty commented on that began during Tropical Storm Irene and occurred again during the October Storm. When the outsource vendor's IVR can find the incoming phone number in its database for an outage report, an outage ticket is automatically created and forwarded to CL&P's outage management system. If the outsource IVR cannot match the phone number, the phone number is recorded on an "exceptions log" that is forwarded every 30 minutes to CL&P for manual processing. Each exception represents a reported outage and CL&P must contact the customer associated with the phone number to identify the correct account and then manually enter an outage in the outage management system. During Tropical Storm Irene, CL&P received 14,830 exceptions and during the October Storm 52,370 exceptions were received from the outsource IVR. Liberty stated that during both storms as many as 30 CL&P employees were assigned 12-hour shifts until all of the exceptions were resolved. The exceptions from Tropical Storm Irene were resolved in approximately 2.5 days while the exceptions from the October Storm were resolved in 4 to 5 days. Liberty Report, pp. 100 and 101, 106. According to CL&P, this situation has not been resolved, but it is looking into ways of fixing it. One of the ways that CL&P is investigating is having the IVR system accept other forms of input, such as an account

number or address. However, CL&P indicated that had this issue been resolved and the manual work removed, it would have made little difference to the call center's ability to respond to customers. CL&P stated that it had sufficient staff for its incoming lines and the personnel selected to manually work exception lists are not typically utilized for incoming telephone calls. Tr. 4/23/12, pp. 1038 and 1039.

Regarding the October Storm, Liberty noted some issues that affected the call center's performance. In particular, CL&P was not able to staff its call center as quickly as necessary at the beginning of the storm due to quickly changing conditions and a delayed decision of when to ramp-up to maximum staff. Also, there were a large number of busy signals encountered by CL&P customers at the onset of this storm due to the delay in initiating the outsource IVR vendor. Liberty Report, p. 107. In regard to the finding that it was unable to staff-up the call center as quickly as necessary, CL&P countered that it had 40 additional people in the call center on October 29, 2011, with plans to bring in an additional 40 more. The decision to call in the additional staff was based upon the weather forecasts that it had been receiving which were changing from day to day. However, the snow started earlier than CL&P had anticipated or was forecasted and it had to accelerate calling in additional staff. Tr. 4/23/12, pp. 1043 and 1044.

While Liberty found that CL&P's call center performed exceptionally well, it also contends that CL&P has opportunities to better handle customer calls in large outage events. Liberty Report, p. 107. Consequently, Liberty recommends that CL&P create a call center staffing model to facilitate quick ramp-up of staff and also consider staging agents in nearby hotels in preparation for large storms, especially those that could make travel difficult or unsafe. Liberty also recommends that CL&P redesign the interface between the call center technologies and the outsource IVR vendor to improve communications and help eliminate the large number of exceptions that are created. Liberty Report, p. 129.

Authority review of the Liberty Report determines that none of its findings or conclusions with regard to the call center are contradicted by the record in this proceeding. The Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to these issues.

In addition to its call center, CL&P also made use of its web site and social media as a means of communicating with its customers. During Tropical Storm Irene, CL&P's Storm Center webpages recorded over 2 million page views. On August 26, 2011, prior to the start of the storm, CL&P created a special web page specifically for Tropical Storm Irene. This webpage included messages, public service announcements (audio), videos, a news release feed, a Twitter feed and links to CL&P YouTube, Facebook and Twitter accounts. Throughout this storm, CL&P updated the webpage with numerous public service announcements, restoration information, videos and news releases. CL&P Response to Interrogatory CSU-7. During the October Storm, CL&P's Storm Center webpages recorded over 12,000,000 page views, with peak site traffic of 3.2 million page views on November 1, 2011. Just as it had done for Tropical Storm Irene, CL&P created a specific webpage for the October Storm. This webpage, created on October 1, 2011, included key messages, a news release feed, a Twitter feed, and links to CL&P's YouTube, Facebook and Twitter accounts. CL&P also made continual

upgrades to the webpage including restoration information, news releases and frequently asked questions. CL&P Response to Interrogatory CSU-38. CL&P stated that during the October Storm, its website experienced unprecedented demands on its capacity. However, at no time did the website go down as CL&P had the ability to temporarily move high traffic pages to an external hosting service that had the necessary bandwidth to handle the increased traffic. CL&P Response to Interrogatory CSU-39. This procedure can be used again if necessary for future events. Tr. 4/23/12, p. 1067. CL&P's use of social media began in June of 2010 when it launched its Twitter account. That was followed by the creation of a YouTube page in September of 2010 and then the creation of a Facebook account in August of 2011. CL&P states that during outage events, social media channels are used extensively to provide important safety messages, restoration updates and to answer customer inquiries. CL&P also noted that it was able to respond to hundreds of customer complaints via its Facebook account during the October Storm. CL&P Response to Interrogatory CSU-37. Through its Facebook account, CL&P was able to receive information concerning these customer complaints regarding particular incidents or particular areas of need and pass that information on to the appropriate areas within the company. Tr. 4/23/12, p. 1063. CL&P also incorporates smart phone technologies to enhance customer communications. Since last year, customers have had the ability to text CL&P with an outage report. Further, customers can also receive restoration information on their smart phone by texting CL&P. Tr. 4/23/12, pp. 1065 and 1066.

The OCC made a number of recommendations for EDCs to improve their policies and procedures for contacting medically vulnerable customers. In regard to the OCC's recommendation that the EDC collect secondary contact information, CL&P stated that it has already begun investigating this for all of its customers. According to CL&P, it maintains a list of approximately 20,000 medical customers in its service territory. CL&P Late Filed Exhibit No. 42. CL&P is currently looking to modify its outbound calling campaigns to incorporate the additional customer contact information, including customer e-mail addresses. Tr. 4/23/12, pp. 1059 and 1060. Accordingly, the Authority will order CL&P to investigate the feasibility of modifying its on-line medical certificate form to incorporate additional customer contact information such as a secondary telephone number and e-mail address, if available. In regard to the OCC's other recommendations, such as having the EDC contact each customer on an individual basis to ensure that they are safe, to provide customers the option to waive Health Insurance Portability and Accountability Act (HIPAA) privacy rights and the subsequent sharing of that information with the Red Cross or other municipal public safety officials, CL&P should follow the same requirements as imposed on UI. The Authority is unsure what rights can be waived under HIPAA rules. In addition, during a large outage event, the Authority is not sure if having an EDC contact vulnerable customers on an individual basis is a proper use of its resources. Until further information is provided to it, CL&P's present policy of asking customers if they can share the customer's name and phone number with the Red Cross is an acceptable substitute.

a. Municipal Communications

CL&P's Town Liaison program, initiated after the March 2010 storms in Southwest Connecticut, was mobilized in anticipation of Tropical Storm Irene. CL&P Response to Interrogatory EL-9. The qualities that CL&P looks for when selecting town

liaison personnel include strong communication skills, solid under pressure, a strong team player, adaptive, self-motivated, smart and able to understand things quickly. CL&P Response to Interrogatory CSU-25. Town Liaison staff are selected by CL&P and its Account Executive management based on those aforementioned qualities. In addition, Town Liaison personnel may also be chosen from volunteers who also serve in other storm roles. CL&P evaluates each candidate prior to being assigned as a Town Liaison. Training must be completed prior to being deployed as a Town Liaison. CL&P Response to Interrogatory CSU-24. CL&P states that the primary function of the Town Liaison staff is to act as its interface, providing the bidirectional information, support, notification and communications between municipal officials and CL&P relating to electrical system restoration during emergency operations. CL&P Response to Interrogatory CSU-28. The key duties and responsibilities of Town Liaison staff, which did not change between Tropical Storm Irene and the October Storm, include:

- Reporting to the District Command Post or other specified location to receive instructions regarding deployment to the town's EOC;
- Meeting or contacting town officials and provide an initial update on the overall status of the electric transmission and distribution systems as well as the current State and CL&P restoration recovery strategy;
- Traveling within the assigned town with municipal officials to take notes and pictures of potential issues, priorities and other local needs;
- Obtaining and sharing more specific outage restoration information via CL&P's Outage Restoration Tools;
- Attending (live or via telephone) CL&P District operational briefings;
- Gathering and sharing of local restoration progress updates and information; and
- Gathering and sharing of town damage assessment information including details of town needs or requests including critical customer restoration and blocked road information to the Town Liaison Coordinator and/or the Incident Commander.

CL&P Response to Interrogatory CSU-28.

Prior to Tropical Storm Irene, CL&P conducted a number of preparatory measures to its Town Liaison program. These activities included validating the availability of Town Liaison personnel and conducting refresher training so as to ensure each Town Liaison would be an effective single point of contact. CL&P also updated its list of municipal contacts and their contact information in order to establish a single point of contact between Town Liaisons and the Municipalities before and during the storm. CL&P Response to Interrogatory EL-9. During Tropical Storm Irene and the October Storm, a Town Liaison was individually assigned and made available to each town that had an open EOC. As storm restoration was completed in some areas, Town Liaisons were redeployed to support additional parts of the State. CL&P Response to

Interrogatory CSU-26. However, according to CL&P, many Town Liaisons had not met with town officials prior to either of the storms. CL&P Response to Interrogatory CSU-27.

The primary functions of CL&P's Town Liaison program are to be its interface with the local towns and municipalities providing a conduit for bidirectional information, support, notification and communications. However, a significant amount of criticism was directed at the execution of that program. The AG contended that CL&P's Town Liaisons were poorly prepared, poorly supported and often ineffective, particularly during the October Storm. AG Brief, p. 17. In the area of preparation, the AG stated that while Town Liaison staff were provided generic training, the training materials were incomplete as they did not focus on their role in receiving information from the towns and passing that information on to CL&P. *Id.*, pp. 17 and 18. The AG also found fault with CL&P's failure to assign Town Liaisons prior to the October Storm. The AG asserted that as a result of this, some Town Liaisons had no familiarity with the towns to which they were assigned, which lead to their unfamiliarity with the town's distribution system and restoration priorities. The AG indicated that due to its inadequate preparation and training, CL&P's Town Liaisons were entirely unprepared to do their jobs during the October Storm. *Id.*, pp. 18 and 19. The AG noted the importance of CL&P's Town Liaison program, but asserted that the company imprudently failed to do more than simply create a liaison program on paper. In addition, the AG recommended that CL&P be required to implement significant improvements to its Town Liaison program, especially in the areas of comprehensive training, establishing better relations with municipalities, and developing a better understanding of a town's electrical system and restoration priorities. *Id.*, p. 19.

The OCC also had significant criticism of CL&P's Town Liaison program. Similar to the AG, the OCC contends that CL&P acted imprudently. Specifically, the OCC argues that CL&P's Town Liaison program was imprudently designed, implemented and managed. OCC Brief, pp. 21 and 22. The OCC agrees with the importance of the Town Liaison program; however, the OCC states that often the information communicated by Town Liaisons to the towns was incomplete or incorrect. The OCC noted various instances of incorrect information regarding line crews; in particular their location, timing and number. The OCC noted that towns had difficulty obtaining accurate information regarding the scope and number of outages from Town Liaison staff. *Id.*, pp. 22-25. The OCC also claimed that Town Liaisons were unable to effectively communicate essential information to CL&P from the towns to which they were assigned. The OCC noted that either Town Liaison staff lacked the authority to provide feedback to CL&P or that CL&P had not established an effective communication channel to integrate the information. *Id.*, pp. 25 and 26. Finally, the OCC asserted that CL&P's Town Liaison program was just a "shell." It was a program where CL&P personnel with other full-time jobs were assigned to unfamiliar towns, with little or no training, no pre-established communications channels, and no information to provide to the municipalities. Given the scope and scale of both storms, the OCC argues that CL&P was imprudent to thrust untrained office workers into unfamiliar town EOCs, without access to meaningful information or effective two-way communications and call it a liaison program. *Id.*, p. 28. In light of all of these issues, the OCC requests that the Authority assess penalties for CL&P's imprudence and order CL&P to immediately commence regularly scheduled emergency management meetings with every

municipality in its service territory. In regard to ordering CL&P to immediately begin regularly-scheduled emergency management meetings, the OCC contends that any storm response plan can only be effective if the towns are aware of it, have had input into it, have practiced it, and believe in it. Id., pp. 29 and 30.

The Connecticut Conference of Municipalities (CCM) also claims that CL&P did not establish its Town Liaison program with appropriately trained personnel, failed to coordinate town restoration priorities, and failed to establish effective two-way communications. CCM Brief, pp. 8 and 9. The Towns of Newtown, Redding, Ridgefield and Wilton (Fairfield County Towns) also expressed their desire for improvements to CL&P's Town Liaison program. The Fairfield County Towns indicated that CL&P must improve communications between it and town officials. Further, the Fairfield County Towns argue that significant improvement of the Town Liaison program would help in this effort as it could provide municipal officials with accurate information. To be an effective program however, the Fairfield County Towns indicated that the Town Liaisons must be familiar with each town they are deployed to, the municipal officials, the town's restoration priorities, and the town's electrical system. Fairfield County Towns Brief, p. 6.

The Authority was provided with considerable examples of instances where CL&P's Town Liaison program did not function effectively. The Town of Ridgefield (Ridgefield) stated that it was apparent to municipal personnel in its EOC that communications between company liaisons and CL&P's operational supervisors were difficult and at times, simply impossible. Marconi PFT, p. 3. Further, Ridgefield asserted that CL&P did not do a good job of damage assessment. Ridgefield also stated that its public safety officials performed damage assessment on downed wires, poles and transformers and provided it to CL&P. CL&P in turn accepted the information, but seemed to have no way of integrating it into its operational plan. Id., p. 6. Additionally, the Towns of Newtown, Redding and Wilton expressed their frustration regarding CL&P's failure to share restoration priorities and broken promises to provide line crews to work alongside public works personnel. Llodra, Ketcham and Brennan PFT, p. 3. Simsbury officials claimed that CL&P's general statement regarding restoration priorities was to restore power to the largest number of customers first, which was in disagreement with its stated restoration priorities. Further, Simsbury noted instances where CL&P failed to provide accurate and timely information regarding when its crews would be assigned to work with Simsbury public works crews. Glassman PFT, p. 3. Simsbury also noted that its liaison was switched in between Tropical Storm Irene and the October Storm. The new liaison was unfamiliar with the town, its staff and its safety concerns. Simsbury stated that it was not until November 4, 2011, six days after the October Storm began, and after a CL&P vice president became involved in recovery operations, that meaningful contact with CL&P was established. Id., p. 5.

The Town of South Windsor (South Windsor) noted that there appeared to be a disconnect between the town's restoration goals and CL&P's restoration goals: opening roads versus the maximum number of people restored. Further, South Windsor stated that as liaisons came to South Windsor's EOC, there were times that they had no substantive information other than a generic corporate response. Galligan PFT, pp. 3 and 4. According to South Windsor, on occasion CL&P would provide information which indicated some residents had their power restored when they actually were still

without service. Eventually CL&P provided grid maps to South Windsor so they could better explain to residents why service had not been restored. South Windsor indicated that had this information been provided sooner, it would have been a great help to the town and to its residents. Id., p. 4. South Windsor also noted conflict with its restoration priorities and those of CL&P. According to South Windsor, its sewer plant had been operating on generator power for over 80 hours. In addition, 11 pump stations had experienced outages from 19 to 151 hours. Id., p. 5. South Windsor described an incident during Tropical Storm Irene where town crews waited at a location for four hours for a crew that CL&P had offered to send. When CL&P's crew did not show, the town crews left to work on another issue. Three hours later, CL&P's crew called and stated they were waiting for the town's crew at the original location. According to South Windsor, it was left with the impression that CL&P did not regard the town as a partner and was addressing its restoration priorities without regard for the town's priorities. Id., p. 6.

Tolland also expressed that there seemed to be issues with CL&P's communications and real-time coordination efforts through both storms. Werbner PFT, p. 3. CL&P could not inform Tolland where its crews were. Grid maps were not received from CL&P during Tropical Storm Irene and during the October Storm, "only reluctantly." Id., p. 3. There was an instance where Tolland officials came upon an out-of-state 15-truck crew at a local commuter parking lot. When asked if this crew could come and work in Tolland, the crew responded that it was assigned to South Windsor. Later, when Tolland officials spoke to its liaison, it was discovered that this particular crew should have been directed to Tolland and that no one at CL&P knew where in South Windsor the trucks had gone. Id., pp. 3 and 4. In addition, Tolland noted conflicts with CL&P's restoration priorities and its priorities. Tolland indicated that CL&P was more concerned about building up its restoration percentages to meet its goals as opposed to the town's priorities of opening roads or other individual concerns. Id., p. 4. Tolland commented that there were several items CL&P failed to do during both storms. Some of those items identified by the town included:

- Identifying and reacting to town priorities;
- Working with municipal efficiently to clear and open roads;
- Providing accurate information on work being performed and timelines for power restoration;
- Using their liaisons effectively;
- Providing municipalities real-time mapping; and,
- Building trust with municipalities and the public.

Id., pp. 6 and 7.

CL&P argues that its Town Liaison program was helpful during the storms, but its effectiveness was hampered by technology and information limitations. CL&P Brief, p. 23. CL&P further asserts that the AG and the OCC claim that the Town Liaison program was imprudent fails to satisfy the Authority's three-part test: (1) there was no evidence establishing a clearly understood definition of the standard of care by which the Town Liaison program can be measured; (2) there was no evidence as to whether the Town Liaison program failed to meet any such standard of care; and, (3) the AG and the OCC failed to demonstrate a causal connection between the alleged failure of the Town Liaison program and the storm costs they seek to disallow. While CL&P acknowledges and recognizes that there is a need for improvement to its Town Liaison program, it contends that the evidence in this proceeding does not establish that the program was imprudent. CL&P Reply Brief, p. 39. CL&P claimed that training for its Town Liaison staff has been performed prior to the 2011 Storms. In the 12 months preceding Tropical Storm Irene, CL&P held 3 training sessions for its Town Liaison personnel: September 2010, February 2011 and August 2011. Tr. 4/23/12, pp. 1102 and 1103. The last training session, held on August 23, 2011, was a Town Liaison program update. Its objectives were to define and clarify the roles and responsibilities for the Town Liaison staff, to provide an opportunity to hear first-hand accounts of lessons learned, and to provide a forum to discuss best practices and utilize peers as resources for success. CL&P Response to Interrogatory AG-8, Attachment 1.

CL&P also undertook other initiatives to improve storm related communications prior to Tropical Storm Irene. Some of these initiatives included adding over 100 additional employees to the Town Liaison roster to ensure coverage during major storms and providing copies of CL&P's Emergency Plan sent to each town via certified mail along with account executives providing second copies during personal visits with their town contacts. CL&P Response to Interrogatory AG-8. CL&P also contends that contrary to the claims of the AG and the OCC, the Town Liaison program was not a wide-spread failure. CL&P Reply Brief, p. 39. In this regard, the Authority notes numerous positive comments regarding CL&P's Town Liaison program during both storms from municipal officials in response to post storm surveys. CL&P Response to Interrogatory OCC-94. As previously stated, CL&P recognizes a need for improvement to its Town Liaison program. One of those areas of improvement that CL&P is addressing is information technology for its liaisons. Town maps have been developed for all 149 towns in CL&P's service area showing GIS based color-coded circuits overlaying street maps and reflecting critical customers (police, fire, hospital, etc.) with both street addresses and supply circuits. Meetings between Town Liaisons and municipal contacts have been ongoing regarding the use of these new maps, as well as verifying the critical customers. Further, CL&P stated that these meetings will continue as both utility and municipal emergency programs evolve and will include periodic validation of critical customers. CL&P is also creating an additional storm position, GPS Monitor, which will enhance situational awareness of crew locations and the efficiency of restoration crews via the use of GPS locational devices. CL&P Response to Interrogatory EL-36. Along with these measures, CL&P is implementing new real-time information displays for internal and external uses that will indicate town priorities, trouble spots, internal and foreign crew locations, work package stations, and restoration projections. CL&P also will implement enhancements to its outage map that will be available to customers and municipalities. CL&P Late Filed Exhibit No. 39, pp. 21-27. Along with these improvements, CL&P is undertaking measures to improve the

communication of restoration information to municipalities, as well as a formal training program for Town Liaisons and participation in exercises and drills. Id., pp. 18 and 19.

Liberty reviewed CL&P's Town Liaison program and its effectiveness through the two storms. Liberty noted that CL&P deployed 90 Town Liaisons to towns that had requested support and had opened its EOC after Tropical Storm Irene made landfall. According to Liberty, Town Liaisons generally met with town or emergency officials twice daily to share restoration status information and to coordinate town priorities. During the October Storm, CL&P deployed more than 100 Town Liaison staff. Liberty Report, p. 113. Liberty stated that conceptually, CL&P's Town Liaison process is good, but it was still in development when both storms hit. While CL&P was making adjustments and improvements in between the storms, Liberty found that the program was still relatively new and untested. Liberty further noted that critical infrastructure in towns such as water treatment plants, gasoline stations and hospitals, for example, were not easily identifiable in CL&P's outage system. This circumstance left many towns in difficult situations, such as without drinking water, and created difficulties in the prioritization of restoration efforts as well as creating public relations issues. Id., pp. 113 and 114. Liberty contends that the Town Liaison program brings inherent challenges to provide assistance and communications in a consistent fashion. As the program was a new approach for all involved, CL&P operations staff, Town Liaisons, and municipal officials, Liberty contends that it was a bold move to deploy 149 individuals, many of which had never served in this manner before. Liberty also asserts that CL&P had not established a list of critical infrastructure in each town, so there were challenges managing each town's priorities with the Company's restoration priorities. Id., p. 114. Liberty indicated a number of lessons learned and offered a number of recommendations regarding the Town Liaison program:

- CL&P had not clearly established municipalities' restoration priorities before the storms. In the future, CL&P should meet annually with municipal officers to discuss and confirm priorities. These priorities should be flagged on CL&P's circuit maps and in its electronic dispatch systems. CL&P should strive to communicate estimated restoration times until the critical infrastructure has been restored.
- Regional partnerships or associations may be necessary, as some towns do not have EOCs.
- Towns need timely and accurate restoration status information. CL&P has developed town-level tools that provide access to outage status information.
- Town Liaisons need to establish a relationship with the municipality in advance of the storm. CL&P will pre-assign Town Liaisons and designate a back-up who will meet periodically with town leaders to develop and ongoing relationship.

Id., p. 114.

Liberty also recommended that CL&P enhance its Town Liaison program to create a more coordinated and consistent approach to keeping community leaders and

municipal officials better informed of storm restoration status. Further, Liberty noted that CL&P should continue to build upon the Town Liaison program with a focus on consistency as well as developing a process by which restoration priorities are revisited or updated with each town on an annual or as-needed basis. Liberty stated that CL&P should expand post-storm follow-up to capture feedback on the quality of the Town Liaison relationship and services provided. Finally, Liberty stated that CL&P should formalize the process to secure and train employees that serve as Town Liaisons so that there are sufficient, well-trained resources. Id., pp. 129 and 130.

The Authority employed Liberty to conduct its own comprehensive review of the 2011 Storms. Authority review of the Liberty Report determines that none of its findings or conclusions with regard to the Town Liaison program are contradicted by the record in this proceeding. The Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to this issue.

The Authority notes that the record in this proceeding indicates that there clearly were deficiencies in CL&P's execution of its Town Liaison program. As previously discussed, the Town Liaison program was still in development when the 2011 Storms hit. Liberty Report, p. 113. Even the Witt Report indicated that CL&P's Town Liaison program was not fully developed. In addition, the Witt Report noted that program performance varied by person, location, and severity of damage. The Authority agrees with the representation that the Town Liaison program was essentially a work in progress at the time of the two storms. As noted previously, numerous positive comments were provided regarding the Town Liaison program after both storms. However, many negative comments regarding CL&P's communications were noted by Municipalities indicating deficiencies in the manner CL&P supported its municipal liaison program. Response to Interrogatory OCC 94. The Authority is acutely aware of the deficiencies that occurred during the both storms and the hardships that were created for the residents and officials of the towns affected. However, these deficiencies to CL&P's Town Liaison program were not wide-spread or state-wide, given the scope and scale of the 2011 Storms. The Authority believes that with the improvements already implemented or in the process of being implemented, CL&P's Town Liaison program should be capable of providing the bidirectional information, support, notification and communications between municipal officials and CL&P relating to electrical system restoration during emergency operations.

b. Restoration Estimate

Another aspect of CL&P's communications during the storms that was identified by the AG and the OCC as being imprudent was restoration times. The AG argued that CL&P mismanaged its communications to municipalities and the public and failed to provide complete and accurate information regarding restoration times. In particular, the AG argues that CL&P stubbornly held fast to its 99% restoration goal of all of its customers by midnight, November 6, 2011, even when it was an unrealistic objective. AG Brief, pp. 22 and 23. The AG claimed that CL&P repeatedly reaffirmed the 99% goal and that many towns and members of the public depended on its restoration estimate. Also, many customers in the hardest hit areas had left their homes during the early stages of the outage and returned in anticipation of CL&P's fulfillment of its restoration goal. Id., pp. 23-28. With its Central Division only 82% restored at midnight

November 6, 2011, CL&P knew or should have known before its own deadline that it would not be able to restore power to 99% of the residents. Id., pp. 28 and 29. Had CL&P given up on its unrealistic objective and provided a more honest restoration estimate, the AG argues that the Company would have taken the best approach towards protecting its corporate reputation and fostering more positive public opinion. Id., p. 30. The AG also contends that CL&P's methodology for arriving at its 99% restoration goal was flawed, as none of its models or formulas were designed or intended to assist in generating an accurate restoration estimate in light of the scale and scope of the two storms. Id., pp. 31-33. In these regards, the AG claims that CL&P was imprudent in the development of its restoration estimates and the communication to the public and public officials of its restoration estimates.

Similar to the AG, the OCC asserts that CL&P knew or should have known that its 99% restoration goal was unrealistic. Further, CL&P's insistence to the public that it would meet this goal was misleading. OCC Brief, p. 15. The OCC also questioned the rationale behind CL&P's development of its restoration estimate. According to the OCC, while CL&P had various models it could use to determine its restoration estimate, the actual goal was based upon a meeting between CL&P and NU officers. Id., pp. 15 and 16. The OCC took exception to CL&P not communicating until the evening of November 6, 2011, that it would be unable to meet its restoration deadline of midnight, even when the company acknowledged it was aware of this situation during the morning of November 6, 2011. Id., p. 16. Yet, according to the OCC, CL&P knew sooner than November 6, 2011, that it would be unable to meet its restoration goal. The OCC asserts that as early as November 4, 2011, CL&P was beginning to receive reliable information from internal sources that indicated the 99% restoration goal was unattainable. In addition, the OCC notes a CL&P briefing sheet from November 4, 2011, that appeared to anticipate the company's failure to meet its deadline. Id., pp. 17 and 18. The OCC argues that CL&P was not providing its customers with the best information available regarding restoration and this information is extremely vital during extended outages such as the October Storm. Unfortunately, according to the OCC, CL&P continued to persist in its message that the 99% restoration goal by November 6, 2011, was attainable and because of this, customers suffered. Ultimately, the OCC requests that CL&P's actions with regard to the management of its communications to the public regarding restoration estimates be found imprudent and penalties be incurred in future proceedings. Id., pp. 19-21.

CCM also took issue with CL&P's actions in regard to the restoration estimates. The CCM did not dispute that predicting restoration estimates can be a challenging task given the scope and scale of the October Storm. However, CCM claims that CL&P's actions were negligent by its insistence on continuing to communicate the November 6, 2011 deadline. The CCM notes that municipal officials unsuccessfully appealed to CL&P for it to offer a more realistic restoration estimate. When power was not restored at the time that CL&P committed to, residents in some towns overloaded emergency shelters or failed to relocate to safer quarters as they were misled about the likely time of restoration. The CCM argues that CL&P's restoration estimate was either intentional or at best a negligent misrepresentation. This misrepresentation impacted upon municipalities' costs of the outage and increased the danger and risk to public health and safety. The CCM states that the best way to ensure this situation never reoccurs is for the Authority to hold CL&P accountable for its misconduct. CCM Brief, pp. 9 and 10.

CL&P disputes the claims from the AG and the OCC that the development of its restoration estimate was imprudent. CL&P contends that early in the recovery period of the October Storm, it developed its restoration estimate under extremely difficult circumstances as well as in response to understandable pressure from the public and public officials seeking guidance. CL&P states that it then committed the company to developing a restoration plan, securing additional resources and doing everything that was within its power in order to meet the restoration estimates. While CL&P noted that it was able to meet its estimate for 100% restoration, the fact that it did not meet the 99% goal was a reflection of the difficulties and challenges of the October Storm. CL&P Reply Brief, pp. 27 and 28. CL&P acknowledges that developing restoration estimates during the October Storm was far from a perfect procedure, but there was no support on the record to support the AG's claim that the company had provided multiple different explanations. Throughout the proceedings, CL&P asserts that it had provided a consistent explanation for how it calculated its restoration estimates. In addition, CL&P states that it has provided a detailed step-by-step description, consistent with its Emergency Response Plan, of how the restoration estimates were derived. *Id.*, pp. 29 and 28. CL&P also disputes the AG's argument that the restoration estimates were derived and determined not by any formula or model, but via consultation of CL&P corporate officials. According to CL&P, the restoration estimate was a result of collaboration and multiple inputs, including projections developed pursuant to its Emergency Response Plan. CL&P claims that the record reflects that the process used to develop the restoration estimate was a process involving multiple individuals to arrive at a challenging, but still reasonable goal: 99% restoration by midnight on November 6, 2011, and 100% restoration by November 9, 2011. *Id.*, pp. 30-33. CL&P also argues that its 100% projection (midnight of November 9, 2011), released three days after the storm on November 1, 2011, was accurate and based upon the same restoration projection process and data collection system that the company employed during Tropical Storm Irene. Further, this same process to estimate the restoration arrived at a 100% restoration on September 7, 2011, for Tropical Storm Irene, and the goal was arrived at one day earlier, on September 6, 2011. *Id.*, p. 34. During Tropical Storm Irene, CL&P estimated that it would take three days to restore power to the last one percent of its customers, but in actuality it only took two days. Based upon this experience, CL&P estimated that it should be able to restore power to the last one percent of its customers in three days of the October Storm. This estimate prompted CL&P to estimate that it should be able to restore power to 99% of its customers at midnight, November 6, 2011, which was 3 days prior to the 100% target (November 9, 2011). This process of estimation was directly from CL&P's Emergency Response Plan that utilized "extrapolations based on application of logic and experience." However, CL&P explained that the last days and hours leading up to November 6, 2011 99% goal were in continual flux. CL&P was achieving improvements to the pace at which it was restoring customers and it was adding 294 additional crews to the restoration process. CL&P states that it was confident it could reach the 99% goal. However, CL&P argues that power restoration during catastrophic circumstances is by definition a fluid and uncertain process as a number of unforeseen developments during the morning of November 6, 2011, a substation fire in New Britain, cable faults in West Hartford and a number of unexpected additional outages, hampered its restoration process. In the end, CL&P was only able to restore power to 94% of its customers by midnight of November 6, 2011. *Id.*, pp. 34-36.

According to CL&P, its restoration projections were estimates, not guarantees. As previously stated, CL&P claims that it was under considerable pressure from state officials, municipalities and its customers to provide restoration estimates. On November 1, 2011, three days after the October Storm, CL&P provided its estimates, earlier than what it had wanted. CL&P Late Filed Exhibit No. 68. CL&P acknowledges that it could have declined to provide the restoration estimates or issued an estimate laden with caveats that would have caused them to be less than helpful. Id. In creating its restoration estimates for the October Storm, CL&P followed the formulas and procedures within its Emergency Response Plan (ERP). CL&P's 100% October Storm restoration estimate proved to be accurate, as 100% of its customers were restored by midnight on November 9, 2011. CL&P states that the procedures in its ERP states that the formulas only provide a guide to determining restoration times and that company personnel developing the estimate will utilize extrapolations based upon application of logic and experience. CL&P notes that this also includes the following conditions:

- Historic storm restoration curves;
- Experience from prior storms;
- Knowledge of and experience with CL&P's electric system;
- Knowledge of current system conditions;
- Expectations about how many additional crews will be available and when additional crews will be available;
- Knowledge and experience about the process CL&P uses to collect and input data during the storm restoration process, including the company's knowledge that data collection is an imperfect process; and
- Any other factors and data deemed relevant by CL&P based on logic and experience.

Id.

Utilizing its knowledge and experience from Tropical Storm Irene, CL&P noted that restoration of the last one percent of customers took two days to complete instead of the projected three days. Due to the scale and scope of the October Storm, as well as issuing its restoration estimates sooner than the company had wanted, CL&P states that it reasonably estimated that it would be able to restore power to the last one percent of its customers in three days. Id. CL&P further notes that storm restoration is a dynamic process where there will be periods of time when the pace of restoration can be faster, on target or slower than estimated. During the entire restoration process, CL&P stated that it continually evaluated updated information, and due to the scale and scope of the October Storm, it was understandable that the data collection process would be imperfect. This, coupled with delays in the collection and inputting of data, would lead to understated and/or inaccurate data. Id. CL&P claims that there would have been little value to the State, municipalities or to the public had the company issued revisions to its restoration estimates on an hourly or even daily basis to reflect the normal fluctuations to the pace of the restoration process or to incorporate the company's discovery of understated or inaccurate data. Company e-mails indicated that up until the morning of November 6, 2011, CL&P reasonably believed that it would be able to meet its 99% goal. These beliefs were based upon additional crews being

added to the process as well as a 15% improvement to the pace of restoration on November 4, 2011 and November 5, 2011. Id. CL&P also believed that if it were able to improve the pace of restoration by an additional 20% then it was still reasonably plausible to meet the 99% goal. However, on the morning of November 6, 2011, CL&P also found it necessary to inform the State that it might not be able to meet the 99% goal. Id. By 6:00 p.m. on November 6, 2011, CL&P made an announcement that the 99% restoration goal would not be reached. Tr. 5/21/12, p. 2653. By midnight of November 6, 2011, CL&P had restored power to approximately 94% of its customers. CL&P Late Filed Exhibit No. 68. CL&P states that despite an additional 294 utility crews available on November 6, 2011, and despite its encouragement to all crews to work extended shifts, the 99% restoration estimate was not achieved for a number of reasons, including a substation fire in New Britain, cable faults in West Hartford and unexpected additional outages. Id.

Various facts were collected regarding CL&P and its 99% restoration estimate. In its management audit of CL&P, Witt Associates noted that during the October Storm, the company's Chief Operating Officer (COO) publicly released an internal restoration target and then stated a further goal that 99% of each town would be restored by a date certain without verifying that either was a realistic or appropriate statement to release to the public. Witt further noted that the CL&P COO publicly stated that the restoration target was perceived as a commitment, particularly when he affirmed it in subsequent statements. Witt Audit Report, p. 50. CL&P's own internal report, conducted by Davies Consulting found that there was no clear understanding of who had responsibility for developing or implementing a communications strategy during storm restoration. The problem was further compounded with the statement that 99% of customers would be restored two days prior to when they ultimately were. Davies stated that external stakeholders perceived that CL&P was either intentionally misleading the public or simply did not understand the scope of damage to its own system. Davies Report, p. 56. Liberty noted that CL&P was able to develop an overall projection as to when it would restore 99% of customers as it did during Tropical Storm Irene. However, at some point, the 99% restoration estimate turned into a commitment to restore 99% of customers in each town by November 6, 2011, which Liberty claimed was a much more aggressive goal than restoring 99% of all affected customers. When CL&P failed to achieve this goal, customers and municipal officials all were frustrated and inconvenienced. Liberty Report, pp. 111 and 112.

As discussed, these frustrations felt by customers and municipal officials led to contentions that CL&P was imprudent in its development of its restoration estimates and was imprudent in its failure to notify the public sooner than November 6, 2011, that the 99% restoration estimate was unobtainable. In analyzing CL&P's development of the restoration estimate for the October storm, the Authority notes that the company consistently utilized its ERP in the development of its restoration estimates. CL&P also stated that it utilized the same methodology for developing restoration estimates during the October Storm as it did during Tropical Storm Irene. During Tropical Storm Irene, these restoration estimates were sustained when CL&P completed its 100% restoration one day ahead of schedule. Based upon its knowledge and experience from Tropical Storm Irene and its ERP, CL&P developed its restoration estimates for the October Storm.

However, as noted in the Liberty Report, at some point, CL&P's 99% restoration estimate turned into a commitment to restore 99% of customers in each town by midnight, November 6, 2011. As of 6:00 a.m. on November 7, 2011, over a dozen towns had greater than 10% out of service, and in some cases higher than 30% out of service. CL&P Response to Interrogatory AG-101. CL&P claims that its estimates are not a guarantee, but CL&P continued up until the morning of November 6, 2011, to release press statements that the company was focused on the 99% restoration by midnight. Response to AG-120. Further, even though the restoration work that would have been necessary on Sunday November 6, 2011, to reach the 99% goal was going to be a considerable undertaking, the company maintained that its 99% goal was attainable. However, a number of unanticipated last minute incidents such as a substation fire, cable faults and unexpected additional outages undermined CL&P's restoration efforts. Ultimately, CL&P informed the public six hours prior to its own self-imposed deadline that the company would not be able to maintain its estimate.

Was there a better time than 6 p.m. on November 6, 2011, to inform the public that the 99% restoration estimate was not attainable or would it have been more realistic for CL&P to pull back from its midnight, November 6, 2011, estimate while maintaining its overall 100% restoration estimate? CL&P stated that it provided the estimates for the October Storm under considerable difficulty and in response to pressure from the public and public officials. However, customers and public officials relied upon CL&P to provide the most accurate restoration estimates that the company could produce. CL&P itself characterized the 99% restoration estimate as a "stretch goal." Tr. 5/21/12, pp. 2750 and 2756. Customers and public officials relied upon CL&P's expertise regarding restoration estimates and when the company was unable to meet its commitment, it caused considerable inconvenience and hardship to customers, businesses and municipalities. For these reasons, the Authority finds that CL&P actions were deficient and inadequate in the development and communication of restoration times to customers and public officials.

4. Emergency Planning and Organization

CL&P implements ICS organization principles to structure its organization during emergencies. ICS is a set of personnel, policies, procedures, facilities, and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities. ICS is a subcomponent of the National Incident Management System (NIMS), as released by the U.S. Department of Homeland Security in 2004.

CL&P states that its implementation of ICS and its ERP provided a good framework for managing the restoration, but there was some confusion during the 2011 Storms as to responsibilities, and questions as to "scalability."¹⁵ CL&P notes that conclusions of the Liberty Report support that the company's implementation of ICS provide an effective framework for an effective response, and that the Classification of Service Outage Events in CL&P's emergency plans provides helpful guidance in determining the amount of required resources. CL&P notes that it plans to improve on

¹⁵ Scalability refers to the expansion of an organization as the size and scope of an emergency event increase.

identified concerns with ICS scalability. Finally, CL&P requests that the Authority determine that the company has until December 31, 2012, to submit a compliance filing providing an update on the status of its review of consultant recommendations. CL&P Brief, pp. 25 and 26, 32.

CL&P asserts that it recognizes a demonstrated need for improvement in its emergency operations. CL&P cites the following as improvements in its emergency preparedness and response procedures:

- The company has instituted an internal reorganization that included creating a new position of Senior Vice President of Emergency Preparedness, charged with improving preparedness and emergency response;
- CL&P has implemented a “Powered Up” program aimed at guiding its progress to achieve “best in industry” performance in six focus areas: preparedness, scalability, coordination, communications, situational awareness and infrastructure hardening;
- The company has conducted outreach to municipalities to better understand their concerns;
- The company has fully cooperated with all consultants and post-storm investigations;
- CL&P has enhanced its coordination and cooperation with DEMHS;
- The company has increased storm preparedness and response training;
- CL&P has substantially increased its regular tree maintenance and enhanced tree trimming in 2012;
- The company plans to file a revised ERP by July 1, 2012, with the Authority that will reflect many improvements, including enhanced scalability;
- CL&P will file a system resiliency program with the PURA by July 3, 2012, which will include proposals for additional tree trimming and certain distribution equipment upgrades; and
- The Company has initiated technology improvements to enhance its restoration and response.

Id., pp. 26-29.

Liberty found that ERPs are generally useful and provide adequate direction to guide major storm response as well as clear definition of responsibilities and management expectations. Liberty also concluded that the event classifications are in keeping with standard utility practice, and that it calls for engagement of all available resources for events that result in outages to 20,000 customers or more. However, Liberty determined that CL&P’s ERP required certain improvements to make the plan

more usable and to further clarify and refine roles and responsibilities. Liberty Report, pp. 11-22.

The AG states that CL&P's existing ERP presents a number of concerns. First, it did not adequately anticipate the scale of the 2011 Storms, since it defined the most severe event as one that plans for an outage of greater than 100,000 customers, whereas the October Storm resulted in outages of more than 800,000 customers. Second, CL&P's plan was reactive, since it precludes activation of Area Command prior to the actual onset of storms. Finally, that CL&P's ERP did not adequately stress training and drills. AG Brief, pp. 9 and 10.

The AG furthermore states that CL&P's failure to drill or exercise its ERP and evaluate results was imprudent. The AG notes that CL&P did not drill or exercise its ERP for at least five years prior to the 2011 Storms and that there is no evidence that the company ever drilled for storms as large as the 2011 Storms. The AG further asserts that this lack of training and preparation was apparent during the response to the October Storm. *Id.*, pp. 11 and 12.

The OCC agrees with most of the Liberty Report recommendations regarding ERP improvements, with the exception that CL&P should have more outage classification levels in its plans. The OCC also asserts that the ERP should be amended to place a higher priority on "cut, clear and make safe" activities and road clearance work (CCMS Work), leaving restoration of power to large numbers of customers until later in the restoration process. Additionally, the OCC recommends that the ERP have detailed plans for allocating resources to pole replacement activities. Furthermore, the OCC states that the 2011 Storms highlight a need for better transmission emergency planning and "infrastructure updating," and requests that the Authority adopt a number of findings and orders to improve transmission system level outage restoration practices and material condition. OCC Brief, pp. 36-49.

The CCM states that the CL&P ERP should be revised to make CCMS Work a higher priority in the restoration process.¹⁶ The CCM documents a number of instances in which access to individuals with health issues was impeded by downed wires on public roads. The CCM further states that downed wires and trees impede egress of residents from their homes to obtain necessary supplies. The CCM asserts that CL&P is unwilling to make opening all public roads a top safety priority, and that the status quo situation is unacceptable. CCM Brief, pp. 1-5.

Additionally, the CCM states that CL&P's ERP does not include a comprehensive list of critical care facilities. Further, the CCM states that leaving restoration priorities to the company's judgment "does not work," and cites instances of facilities such as water treatment plants and prisons coming dangerously close to exhausting fuel supplies. The CCM cites an example in Tolland where total road clearing efforts, presumably by CL&P did not take place for four to five days. *Id.*, pp. 4-8.

The towns of Newtown, Redding, Ridgefield and Wilton (collectively, the Four Towns) assert that CL&P should assign at least one line crew to each town for road

¹⁶ These activities involve EDC lineworker personnel assisting road clearing personnel in clearing fallen wires from public ways.

clearing efforts. The Four Towns also state that CL&P should train town electricians to de-energize and ground wires for road clearing efforts. Four Towns Brief, pp. 3-5.

In rebuttal to the above concerns of the public parties, CL&P states that it conducted various drills in the years leading up to the 2011 Storms and also participated in emergency planning meetings with the Department of Emergency Management and Homeland Security (DEMHS) and other government agencies in 2011. CL&P also states that it files storm reports with the Authority after each major storm, and that it filed a new emergency plan with the PURA on June 1, 2011, that included improvements recommended in the Decision dated December 1, 2010 in Docket No. 10-03-08. Therefore, it took numerous actions to ensure its emergency preparedness prior to the 2011 Storms. CL&P Reply Brief, pp. 12-15.

The Authority employed Liberty Consultants to conduct its own comprehensive review of the 2011 Storms. Upon review of the Liberty Report, the Authority determines that none of its findings or conclusions with regard to Emergency Planning and Emergency Organization issues are contradicted by the record in this proceeding. Thus, the Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to Emergency Planning and Emergency Organization. Below, the Authority addresses certain issues that are outside the scope of the Liberty Report or that require additional analysis.

There has been much discussion in this proceeding and elsewhere regarding the definition of the worst weather event as an outage affecting “greater than 100,000 customers” also known as Severity Level 5, the worst weather event. Liberty determined that the event classifications are “in keeping with standard utility practice,” and that beginning with Severity Level 3 (outages to 20,000 customers or more), CL&P calls for full engagement of all resources available. Therefore, CL&P’s ERP severity level classifications called for an earlier engagement of resources than if it, for example, set its Severity Levels at a higher number of customer outages. The Authority does not agree with the conclusion of some Participants that the Severity Level 5 classification at “greater than 100,000 customers” establishes any expectation that 100,000 customers is the worst event expected. Rather, Severity level 5 establishes an earlier commitment of full resources to an event than would a higher outage level definition. The Authority therefore agrees with the findings of the Liberty Report on this matter. However, the Authority notes that Public Act 12-148, An Act Enhancing Emergency Preparedness and Response, requires that ERPs address plans for restoring power to 10%, 30%, 50% and 70% of an EDC’s customers. The Authority will review those plans in Docket No. 12-06-11, PURA Review of Connecticut Public Service Company Plans for Restoration of Service that is Interrupted as a Result of an Emergency.

The OCC and the CCM request that the Authority take action to direct CL&P to place higher priority on CCMS Work. According to the OCC, the record indicates that CL&P shifted resources from CCMS Work on November 2, 2011, when 25 roads in Tolland were still not passable for emergency vehicles or school buses. The OCC states that what is most troubling, is that some towns were fully restored, or nearly so, before CL&P began CCMS Work in others. The OCC states that the highest priority should be assigned to CCMS Work and restoration to critical infrastructure. The OCC requests the Authority to immediately order CL&P to make this change. The OCC further states

that towns should educate their residents to understand that power outages would last longer than would otherwise be necessary (as a result of this prioritization of lineworker resources). OCC Brief, pp. 40-43.

The Authority agrees with the concerns of the CCM and the OCC that clearing of roads should be one of the highest priorities to assure public safety. The Authority also believes that large blocks of customers who could easily be restored should not be ignored and left without power. This is clearly an issue that requires balance, not over-reaction in either direction. The Authority also calls to the attention Liberty's conclusions on this matter:

“...the crews worked with the towns for a longer period than they should. During this time, the crews were not doing restoration work. It is the widely accepted practice in the electric utility industry to coordinate with governmental entities to put top priority on clearing downed wires and poles so that public workers may clear the roadways. The assignment of crews to work with towns is unusual, and in these two storm responses, was a problem.”

Liberty Report, p. 165

Liberty concludes that committing crews to CCMS Work unnecessarily hinders storm restoration efforts, illustrating the sharp difference of opinion on this issue.

The Authority does not believe that the evidence of CCMS Work warrants any immediate action, but rather, any action should be thoughtful and deliberate. The electric system cannot be segregated into areas that serve critical care facilities, and general restoration areas, as seems to be the precept of the OCC's arguments. Further, the participants should recognize the public safety consequences of not restoring power to large areas, even though such areas may not directly supply critical care facilities. Finally, excessive allocation of crews to CCMS Work, while ignoring restoration efforts, as an outage progresses results in diminishing returns, as crews are diverted to smaller streets while large areas remain unrestored. The Authority does not agree that it is appropriate that it issue orders which would force such a result; rather, the electric utility companies should be capable of applying sound judgment to dispatch line crews to other vital public safety-related work. The same principle applies to the Four Towns' request to allocate each municipality a fixed number of line crews. This would result in inefficient dispersion of line crews among facilities with varying levels of damage, such that areas with little damage would conceptually receive equal resources as communities with extreme damage. The Authority finds that this is not in the public interest.

The Authority notes that CL&P is presently involved in a working group with DEMHS and the municipalities to determine enhancements in this area. Tr. 5/24/12, pp. 2849 and 2850. The Authority believes that CCMS efforts are among the highest priority activities during restoration from major storms, since blocked roads impede access of emergency services to imperiled residents. CL&P's ERPs as well as its line crew dispatch decision making should reflect this prioritization. The Authority concludes

that the proper action is that CL&P should continue negotiations on this issue with the towns and DEMHS, and modify its restoration practices to reflect an efficient use of line crews while ensuring public safety. The Authority further notes that the plethora of other improvements underway at CL&P, including infrastructure hardening and improvements in resource procurement practices, should vastly improve early storm response in the future, freeing resources for both CCMS Work and restoration activities.

In response to the Four Towns' request that CL&P certify local electricians to de-energize and ground high voltage conductors to assist road clearing work, CL&P states that using such electricians, who hold an E-1 license, to perform high voltage work violates Occupational Health and Safety Administration (OSHA) requirements, the National Electrical Safety Code (NESC) and the National Electric Code (NEC). CL&P also states that OSHA prohibits E-1 licensed electricians from approaching within 10 feet of a high voltage conductor, that the NESC requires workers to complete a 4-year apprenticeship program prior to working on high voltage equipment, and the NEC only qualifies E-1 licensed electricians to work on low voltages typically found in residential and commercial buildings. Furthermore, E-1 licensed electricians lack the proper safety equipment to work on high voltage lines. Finally, CL&P notes that it used E-1 licensed electricians to perform work on single service lines, which are lower voltage and within the E-1 electrician license restrictions. CL&P Reply Comments, pp. 49-51.

The Authority will not require CL&P to train local electricians to de-energize high voltage conductors as requested by the Four Towns. Clearly, such an initiative would violate safety codes and expose the workers to the potential of great bodily harm, and is not in the interest of public safety. The Authority believes that the proper resolution of the issue is an earlier acquisition and deployment of qualified resources, which will be a consequence of the actions taken which shall be ordered in this Decision.

The Authority agrees with concerns expressed by the OCC and in CL&P's own consultant's report that find a lack of organization and integration of transmission system repair and restoration into the overall restoration effort.¹⁷ CL&P is expected to file its revised ERP by July 1, 2012. The Authority expects CL&P's revised ERP to reflect enhancements to reflect these concerns and will review them during the course of its review in Docket No. 12-06-11. The Authority also notes that CL&P's review and implementation of various reviews and recommendations resulting from the 2011 Storms is a long-term effort and shall order CL&P to report to the Authority on its progress in reviewing and implementing those recommendations.

With regard to concerns that there was a lack of drills prior to the 2011 Storms, the Authority notes that the Liberty Report did not find that the lack of drills inhibited the company's response. In fact, Liberty noted that a drill took place days prior to Tropical Storm Irene, which was helpful in preparing for the oncoming storm. Liberty Report, p. 18. CL&P plans to conduct several large scale drills in 2012, including coordination with a State exercise in late July 2012. CL&P acknowledges the need for it to expand and coordinate emergency training and drills with the State and municipalities. The company states that it plans to conduct its own functional drill in July 2012, prior to its

¹⁷ The Liberty Report did not note any deficiencies in transmission system organization or restoration activities.

participation in a statewide drill July 28-31, 2012. CL&P Brief, pp. 26-28. The Authority finds the company should conduct large scale exercises at least annually going forward.

The CCM requests the Authority to order CL&P to establish a “hard and fast” listing of critical facilities by restoration priority. CCM Brief, p. 6. CL&P states that it has already solicited a list of critical facilities from each municipality in Connecticut, including fire stations, police stations, hospitals and sewage treatment facilities and has established circuit maps that show each facility’s location for use in restoration activities and restoration status updates. CL&P also states that a firm list of all critical facilities is not practical because critical facility definitions vary from town to town and by the time of year the event occurs (for example, schools during the school year). CL&P Reply Brief, pp. 52 and 53. The Authority believes that CL&P should continue working closely with each municipality to establish critical facilities, but that a commonly used definition of what constitutes a critical facility should be applied to each municipality. However, there needs to be flexibility since each storm is different, and situations may arise during each storm that require judgment and exercise of discretion in determining which facilities are critical at any given moment. The Authority notes that, in restoration from the October Storm, there was extensive deliberation between CL&P and government officials regarding whether restoring telecommunications towers should be a top priority given the failing wireless network. This is an example of how each major storm has unique characteristics and as such, the assignment of resources must be flexible to adapt to changing situations.

Relative to CL&P’s new ERP filed by July 1, 2012, the Authority expects many improvements in that filing. However, further changes to the ERP will likely be necessary to reflect this Decision and the results of the company’s review of other reports on the 2011 Storms. The Authority will thoroughly review the revised ERP’s enhancements, including emergency organization issues identified in this proceeding. In its Written Exceptions, CL&P requests that ERP issues related to ICS implementation, for which it has identified conflicting recommendations for improvements, be addressed in Docket No. 12-06-11, PURA Review of Connecticut Public Service Company Plans for Restoration of Service that is Interrupted as a Result of an Emergency. However, the Authority is required by Public Act 12-148 to render a decision in that proceeding by September 1, 2012, which leaves the Authority with insufficient time to consider complex issues such as ICS. Therefore, the Authority will consider ICS issues in its Docket No. 12-06-09, PURA Establishment of Industry Performance Standards for Electric and Gas Companies, which is due by November 1, 2012.

5. Maintenance, Inspection and System Design

CL&P states that in 2007, it embarked on a five-year tree trimming cycle, which will be completed by year end 2012. CL&P also states that its current tree trimming program has complied with the funding allowances in its last rate proceeding, Docket No. 09-12-05. Further, its spending on vegetation management was either consistent with or exceeded the amounts allowed in rates from 2006 through 2010. The company also states that its distribution system capital spending program for the past four years are consistent with funding levels in prior rate case decisions. CL&P asserts that the

Liberty Report noted that it has a superior distribution pole specification and ground line inspection program and that wood pole conditions did not appear to contribute materially to the effects of the 2011 Storms. CL&P Brief, pp. 17-19.

Regarding plans for future improvements in its infrastructure, CL&P indicates that it has allocated an additional \$7.3 million in 2012 to support additional maintenance tree trimming and an additional \$20 million to support additional enhanced tree trimming. CL&P intends to submit a “system resiliency filing” by July 9, 2012, which will include proposals for additional tree trimming and certain distribution system equipment upgrades.¹⁸ *Id.*, pp. 28 and 29.

The OCC supports some changes to the EDCs’ vegetation management practices, but questions whether increasing line clearance and tree removal efforts is a “complete solution” under major storm conditions. The OCC states that complete clearing of limbs overhanging lines is rarely practical or achievable and may increase the number of hazardous trees. The OCC suggests a more measured and considered approach to vegetation management, based on more frequent visual inspection and branch reduction. The OCC requests the PURA order a detailed study comparing the performance of circuits that received enhanced trimming to those that received routine maintenance. The OCC believes that the EDCs should increase emphasis on hazard tree removal. The OCC also notes that CL&P’s mid-cycle trimming efforts have declined in recent years and suggests the Authority order the company to recommence mid-cycle trimming at the level approved in the last rate case. OCC Brief, pp. 56-61.

Liberty found that the company’s performance-based tree trimming program leaves extensive vegetation in place that becomes problematic during a major storm and recommends that CL&P transition to a four-year interval based trimming cycle. Liberty also found that the amount of overhanging limbs left in place after standard tree trimming is accomplished is another concern. Liberty notes that its Enhanced Tree Trimming (ETT) program removes overhanging limbs outside the normal trim zone, but this program is not applied throughout CL&P’s system. Liberty further found that the hazardous tree removal budgets represent a concern, in that, given the high cost of removing a tree, hazardous tree removal is restricted to the most critical situations. Liberty Report, p. 35.

The Authority notes the conclusions of Liberty and other reports regarding the necessity of a four-year maintenance tree trimming program. The Authority finds the evidence and expert opinion on this subject is conclusive and that CL&P should implement a four-year-based trimming cycle, and so orders the company to do so. The Authority will examine funding requirements of this change in Docket No. 12-07-06, Application of The Connecticut Light and Power Company for Approval of its System Resiliency Plan.

With regard to other infrastructure maintenance issues, Liberty determined that wood pole failures did not materially contribute to the effects of the 2011 storms. Liberty also determined that CL&P’s pole maintenance program is adequate to maintain the poles to NESC safety requirements. Liberty did, however, determine that a high

¹⁸ This filing is required by the Settlement Agreement approved in Docket No. 12-01-07.

number of cross arms were broken during the storms and that CL&P should institute a program to verify the material condition of wood cross arms. Id., pp. 40 and 41.

The Authority determines that none of the Liberty Report's findings or conclusions with regard to vegetation management, system maintenance and system design issues are contradicted by the record in this proceeding. Thus, the Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to vegetation management, system maintenance and system design issues. Below, the Authority addresses certain issues that are outside the scope of the Liberty Report or that require additional analysis.

With regard to the OCC's recommendations for modifications to maintenance tree trimming, the Authority is receptive to ideas that would make tree trimming more effective and cost-effective. However, any departure from the straightforward, four-year trim cycle recommended by the Liberty Report (which, according to Liberty, is the industry standard) would need substantial proof of its effectiveness supported by case experience in other jurisdictions. The Authority finds that Connecticut should not be used as a test case to determine whether any non-standard approaches are effective or not. The Authority will consider modifications to the Company's tree trimming programs in Docket No. 12-06-09.

With regard to the OCC's recommendation that mid-cycle trimming should not be permitted to lapse, the Authority finds that this is an issue properly addressed in Docket No. 12-06-09. Mid-cycle trimming is primarily oriented toward reducing routine vegetation contacts, not major storm related contacts. The record demonstrates that major storm related vegetation contacts primarily originate from outside the normal trim zone and that enhanced tree trimming is the appropriate program for reducing the threat from vegetation outside the trim zone. Liberty Report, pp. 29, 34. The Authority will examine this issue more closely in Docket No. 12-06-09.

The Authority endorses the OCC's recommendation that the performance of circuits receiving ETT should be studied. The Authority believes CL&P already has extensive data and has already done much analysis in this area; however, a formal study ordered in this proceeding would be timely. The Authority will order the company to submit a study on ETT program effectiveness.

The OCC requests that the Authority find CL&P imprudent for failing to deploy mobile data terminals (MDTs) in line trucks, allegedly in violation of the PURA's orders in Docket No. 10-03-08. According to the OCC, failure to deploy MDTs adversely affected damage assessment and outage restoration activities by delaying restoration activity updates, which were often not relayed from crews in the field until the end of the day. OCC Brief, pp. 31-34.

CL&P states that the issue of MDT deployment in line vehicles is still under review. To date, its analysis indicates that, rather than deploying MDTs in each vehicle, it is equally efficient to assign laptops with air cards to field supervisors, who are directly overseeing the work of several line crews and should be able to provide the equivalent communications capability. Furthermore, during a major storm, MDT equipped vehicles would only exist in a small minority of line crews, since the vast majority of crews would

be from mutual assistance and not have MDTs. Field supervisors with laptops would oversee those crews, and thus provide them with equivalent electronic communication capability. Tr. 4/24/12, pp. 1242-1248.

The Authority has not ordered CL&P to deploy MDTs in line vehicles. In Docket No. 10-03-08, the Authority's consultant, Jacobs Consultancy, recommended in its report that CL&P "[c]onsider accelerating programs intended to provide mobile data terminals in line trucks." On this matter, the Authority has not reached a conclusion that CL&P must fully implement MDTs; however, CL&P should implement some technology that provides real time electronic communication capability to enable real time status updates from the field on restoration efforts. An equally important matter is that, many crews who were capable of relaying restoration status did not do so. Tr. 4/24/12, p. 1111. The Authority finds comprehensive action should be taken by the company to ensure real time data is available from all crews, both the company's own crews and from mutual assistance and contractors, and that action should be taken to assure those crews use that technology. The Authority orders the company to take such actions.

6. Storm Monitoring, Preparations and External Assistance

The AG states that CL&P took a number of steps to solicit assistance in preparation for Tropical Storm Irene, but was incapable of reacting quickly to the October Storm, when given less time to prepare. According to the AG, CL&P's own weather forecasts of October 28, 2011, showed that significant amounts of heavy, wet snow were expected to fall the next day, and by that afternoon, those forecasts called for as much as a foot of snow. However, in spite of those forecasts, as of 5:15 p.m. on October 28, 2011, CL&P had not requested any outside crews, had not pre-positioned any employees or materials, had not set up satellite staging areas, had not deployed liaisons to the towns, had not implemented its incident command structures, had not implemented its ERP and had not opened an emergency operations center. Finally, the AG asserts that CL&P did not properly manage outside crews once they arrived. AG Brief, pp. 7 and 8.

In rebuttal to the AG's concerns above, CL&P notes that the AG did not complain about the process CL&P used to obtain mutual aid during Tropical Storm Irene. Rather, the impact of the October Storm was attributable to larger and earlier snowfall than was forecast. CL&P also asserts that the AG ignored many of the steps CL&P did take in advance of the October Storm, such as placing all of its line crews and contractors on-call for the weekend. CL&P also notes that its EOC was opened at 2 p.m. on October 29, 2011, which was exactly the same time the State opened its center, and that the AG has not claimed the State was imprudent in not opening its center earlier. CL&P states that its requests for mutual aid during the October Storm were not late in comparison to other utilities, as no other utilities had requested aid during the October 29, 2011, morning conference calls. Finally, CL&P notes the Liberty Report's findings that the company's requests for assistance had disappointing results for reasons that were mostly beyond its control and that it is commonly accepted practice that utilities do not request assistance until they have actually experienced damage. CL&P Reply Brief, pp. 15-19.

With regard to oversight of outside crews, CL&P notes Liberty found that the company closely coordinated its oversight process and that it worked well. CL&P claims that it assigned supervisors to manage each work crew, in a ratio of between one and five crews per supervisor. Finally, CL&P claims that it provided the necessary levels of support service to outside crews and that by the end of the October Storm, it had managed 2,917 crews, which was over 10 times its normal complement. Id., pp. 19-21.

Regarding storm monitoring, Liberty noted that the October Storm was not in weather forecasts until October 27, 2011, two days prior to its occurrence, which did not give adequate time to prepare. Liberty concluded that the CL&P Storm Team lacks confidence in the present weather vendor and that it should address and correct issues which detract from confidence in that vendor. Liberty also determined that CL&P does not have an adequate pre-storm damage and resource prediction model to support planning and deployment decision making. With regard to pre-storm planning, Liberty determined that CL&P properly mobilized support resources and internal field response personnel prior to the storms. However, Liberty concluded that CL&P did not set the necessary level of external crew mobilization, and that it did not set up satellite staging areas in a timely manner. Id., pp. 49, 56.

Upon review of the Liberty Report, the Authority determines that none of its findings or conclusions with regard to storm monitoring, preparations and external assistance issues are contradicted by the record in this proceeding. Thus, the Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to storm monitoring, preparations and external assistance. Below, the Authority addresses certain issues that are outside the scope of the Liberty Report or that require additional analysis.

The October Storm clearly presented a challenge to CL&P to adequately prepare for the storm. A snow event was not predicted until two days prior to its arrival, and only a day before, predicted that the storm would bring heavy, wet snow. Furthermore, the magnitude of the damage to the system that resulted from the snow coincident with foliage existent on the trees was not fully predicted prior to this storm. For example, the December 1, 2011 Witt Report, noted that on the morning of the October Storm, no utilities in the Northeast had requested mutual aid in anticipation of the approaching storm. Witt Report, p. 21. The Authority believes that one of the greatest lesson to be learned from the October Storm is that decision making should be very conservative before an event of unknown impact. The Authority specifically notes the following conclusion of the Liberty Report:

CL&P was not aggressive in seeking outside help in advance in the October Storm. There was enough of a threat late Friday and early Saturday to justify a specific request for outside help in addition to the 30 contract line-crews already acquired, especially in light of the experience with Storm Irene only 60 days before.

Liberty Report, pp. 79 and 80.

Based on the Liberty findings and lack of CL&P initiative in obtaining assistance in advance of the October Storm, the Authority determines that CL&P's response to the October Storm was deficient. In the future, CL&P should place higher priority on taking aggressive action in anticipation of such events, including pre-staging resources and making earlier attempts to acquire resources.

The Authority finds that CL&P should establish a heightened state of readiness and be able to clearly document that such a state exists. In conjunction with this expectation, the Authority will order CL&P to report on actions it has taken to establish a heightened state of readiness in anticipation of a major storm including an assessment of its own lineworkers and lineworkers from sister companies and contractors. CL&P shall also state the mutual assistance organizations to which it belongs and the resources likely available from those organizations. The Authority requires that the primary emphasis of this report focus on those resources that are likely to be available during the first 48 hours of a major storm event to assist in efforts to ensure public safety. The Authority will also order the company to demonstrate its efforts to establish a heightened state of readiness. Recommendations EPP-10 and EPP-12 of the Davies Report already relate to this concern; however, the Authority finds that the benefits of such a heightened level of preparedness to public safety are great enough to warrant implementation. The Authority also requires that this report be filed by August 8, 2012, to coincide with its review of the Emergency Plan submittals required by statute and with the prime hurricane season and following winter period. The stated resources relied on in this report should be generally available annually from July 1 through the following March 31.

The Authority notes that utilities heavily rely on mutual assistance during major storm events. The Authority also notes the CL&P consultant recommendations that CL&P explore joining mutual assistance groups further away from Connecticut. Although the Authority agrees that while this option should be explored, the emphasis should be placed on ways to improve the responsiveness of mutual assistance in nearby regions. In this regard, the Authority finds that Liberty Report Recommendations VIII-CL&P-1 and VIII-CL&P-2 provide guidance to improve mutual assistance. CL&P reported that discussions are underway at various organizations on ways to improve the mutual assistance process. Because of the importance of this issue and its relationship to the heightened state of readiness concept above, the Authority will order CL&P to report on its efforts to improve the mutual aid process.

7. Damage Assessment

CL&P states that both its consultant's report and the Liberty Report identified opportunities for improvement in its damage assessment process, including its Outage Management System and use of technology improvements to facilitate the information gathering and reporting process. CL&P Brief, p. 25.

The AG states that, although CL&P had a defined process for conducting damage assessments, it was not executed well. The AG cites Simsbury and Ridgefield as towns that were unable to obtain accurate damage assessments for many days after the October Storm. The AG states that damage assessments were not reported in a timely manner and not consistently used to plan restoration activities and prioritize work.

Finally, the AG states that CL&P's failures with respect to the damage assessment process were largely the consequence of not having a robust training and certification program for non-line damage assessors/patrollers. AG Brief, pp. 15-17.

Liberty found that CL&P has in place a basic structure of a centralized damage assessment process, but that the company did not use damage assessment data on a system-wide basis to estimate resource requirements. Liberty also found that the damage assessment process was inconsistently applied at the district levels. According to Liberty, CL&P has a good plan for updating outage restoration status, but that it did not perform this function well during the 2011 Storms. Liberty Report, pp. 89 and 90.

Upon review of the Liberty Report, the Authority determines that none of its findings or conclusions with regard to damage assessment issues are contradicted by the record in this proceeding. Thus, The Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to damage assessment.

8. Post-Storm Activities

The Liberty Report found that CL&P has a good plan for conducting post-storm activities and performed well in all respects. However, Liberty also found that there is opportunity for improvement in the post-storm critique process. Liberty Report, p. 177.

The Authority determines that none of its findings or conclusions with regard to post storm activities issues are contradicted by the record in this proceeding. Thus, the Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to post storm activities.

9. Lineworker Staffing

CL&P requests the Authority find that the company's staffing levels are appropriate, or that it defer analysis of this issue to an appropriate docket in which rates can be amended or rate deferrals can be authorized. CL&P Brief, p. 32.

The OCC states that CL&P's lineworker count has decreased from 744 in 2006 to 704 in 2011, and that its count peaked at 774 in 2008. The OCC also asserts that a large number of lineworkers are expected to retire in the next five years and the company has no clear plans to replace them. By allowing attrition of its lineworker staff, CL&P may have diminished its capacity to respond to storms with in-house resources, and placed first responders and the general public at greater risk. Accordingly, the OCC requests that the PURA conduct a review of lineworker staffing levels, require CL&P to submit periodic reports and require the company to conduct periodic studies of lineworker resources. OCC Brief, pp. 51-53.

The Liberty Report found that CL&P's lineworker staffing level is reasonable. Liberty states that while CL&P has a slightly high ratio of customers per lineworker, it is significantly lower on miles of distribution line per lineworker. Liberty also notes that utilities-base lineworker staffing on the level of normal revenue and maintenance workload, routine storm requirements, and productivity and process improvements, not on major outage response. Liberty Report, pp. 167 and 168.

The Authority supports the conclusions of the Liberty Report on lineworker staffing, as it relates to non-major storm conditions. The Authority agrees with the premise of the OCC's concern, which, at its core, is a concern over the lineworker resources that can be brought to bear during the initial phases of a major storm event. As discussed previously, the Authority below orders the company to report on the various resources that would be available to it in a major storm. The Authority believes this approach comprehensively addresses concerns over staffing issues as they relate to major storms. Furthermore, the Authority will further analyze lineworker staffing in Docket No. 12-06-09 as required by Public Act 12-148.

C. UNITED ILLUMINATING

1. Effect of Storms on UI Customers

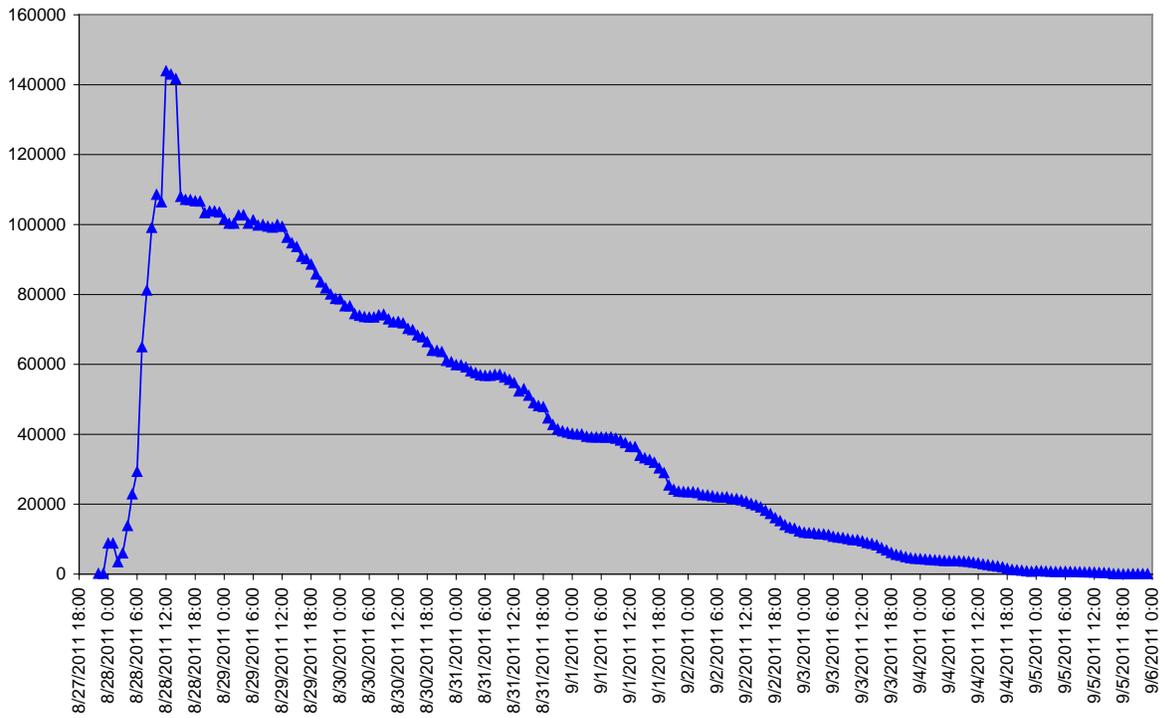
a. Tropical Storm Irene

Tropical Storm Irene caused a peak outage of 143,873 customers at noon on August 28, 2011. Due to that storm, 210,332 total outages took place affecting 66 percent of UI's 319,124 customers. Irene dropped three to six inches of rain and caused significant damage due to fallen trees and flooding along the coast line and rivers. Eight days later on September 5, 2011, UI's Storm Center Operation was deactivated and turned over to the Operations Dispatch and service to the last affected customers were restored. UI Responses to Interrogatories EL-1 and EL-4.

The following chart shows the history of UI customer outages due to Tropical Storm Irene.

UI Outage Curve for Tropical Storm Irene
August 27, 2011 to September 6, 2011

Customers Out by Hour



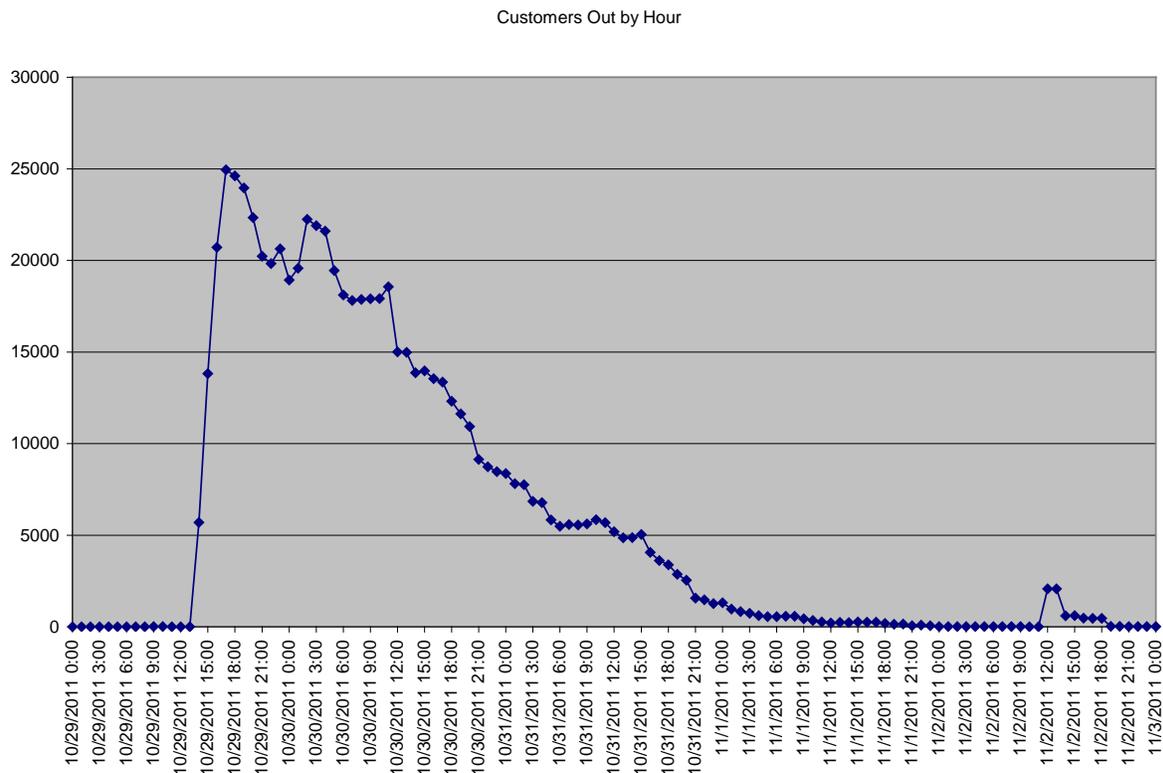
UI Tropical Storm Irene report filed October 4, 2011 in Docket No. 86-11-18.

b. The October Storm

The October Storm caused a peak outage of 19,565 customers on October 30, 2011. Due to that storm, 52,344 outages affected 16.4 percent of UI's customer base. On November 2, 2011, service to all affected customers' service was restored. UI Response to Interrogatory EL-16, p. 2.

The following chart shows the history of UI customer outages due to the October Storm:

UI Outage Curve for the October Storm
October 29, 2011 to November 3, 2011



UI October Storm report filed December 19, 2011 in Docket No. 86-11-18.

2. The Liberty Report Findings

The Liberty Report indicated that the effect of both Tropical Storm Irene and the October Storm on UI was not as severe as experienced by CL&P. This is due to UI's smaller and more compact service territory. Liberty concluded that the following items were beneficial aspects of UI's performance:

1. UI was well organized in its response to the two storms;
2. UI proactively communicated with the media, public officials, customers, and the public before, during, and after the storms;

3. UI managed the alert and mobilization processes well in both storms;
4. UI has an aggressive distribution-pole groundline program; and
5. UI used automatic meter reading technologies to communicate with installed meters during the storm to confirm restoration status.

Liberty Report, p. 2.

Liberty identified the most significant aspects of UI's performance that need improvement as:

1. UI could not handle the large volume of customers trying to communicate with the company during the Tropical Storm Irene;
2. The results of UI's efforts to procure outside resources were disappointing;
3. UI could not provide restoration estimates or restoration status to customers in a timely manner;
4. UI management did not have proper control over the Cut/Clear, Make Safe work done with the towns;
5. Hazard trees contributed to the effects of the storms; and
6. UI trims trees on single-phase circuits every eight years.

Liberty Report, p. 2.

3. Customer Communications

UI's customer service call center, located in New Haven, undertook a number of measures prior to both storms so as to respond to expected high call volume. Numerous storm preparation meetings to discuss items such as staffing, resources, logistics, transportation, and housing were held in advance of the two storms. UI Responses to Interrogatories CSU-1 and CSU-18. In addition to these meetings, UI also secured training resources to train non-traditional call center personnel, secured headsets for the additional phone answering resources, and readied a back-up call center location in Shelton in the event that call center resources needed to be relocated. Id.

In direct response to Tropical Storm Irene, UI also enacted other preparations. These preparations included actions such as establishing a dedicated phone line for employees to call in and receive updates concerning work schedules, establishing a database of employees' names and contact information to ensure that there was access to resources outside of the Customer Care Center that could assist during the storm, and providing the call center with a list of municipal liaisons assigned within the service territory. UI Response to Interrogatory CSU-1. In addition to these measures, on August 27, 2011, an outbound message was placed to all UI customers coded as "medical," advising them of the situation and the importance of having a contingency

plan in the event of an extended power outage. The message to these customers also provided information regarding Infoline and the American Red Cross. Id.

UI contends that its call center was fully staffed at the onset of the storm and resource availability was maximized throughout Tropical Storm Irene. UI Response to Interrogatory CSU-4. The call center was opened at 1:00 a.m. on August 29, 2011, and remained open on a 24 hours per day, 7 days per week basis until September 6, 2011. Id. The total calls handled by UI's IVR and its live customer service representatives was over 200,000. Id. A breakdown of the call center's performance metrics follows:

| Date | Calls Handled¹⁹ | ASA²⁰ | ACR%²¹ | Peak Headcount |
|-------------|-----------------------------------|-------------------------|--------------------------|-----------------------|
| 8/28/11 | 55,243 | 109 | 8.0% | 85 |
| 8/29/11 | 34,976 | 236 | 7.1% | 77 |
| 8/30/11 | 24,616 | 115 | 13.4% | 80 |
| 8/31/11 | 20,307 | 228 | 29.8% | 89 |
| 9/01/11 | 19,675 | 186 | 19.9% | 90 |
| 9/02/11 | 19,362 | 125 | 15.1% | 90 |
| 9/03/11 | 7,494 | 45 | 5.1% | 57 |
| 9/04/11 | 1,530 | 12 | 2.2% | 30 |
| 9/05/11 | 2,715 | 48 | 10.2% | 17 |

UI Responses to Interrogatories CSU-2 and CSU-4

In its review of UI's customer call center performance for Tropical Storm Irene, Liberty noted the high number of busy signals that customers encountered. According to UI's data, over 150,000 busy signals were received by customers, and on certain days, the number of busy signals exceeded the number of calls answered by both live agents and the IVR. Liberty's examination of UI's call center performance metrics indicated that more than 14% of the callers to UI abandoned their calls over the course of the storm. Liberty Report, p. 133. Liberty's assessment of the performance of UI's call center was that it struggled throughout Tropical Storm Irene, even though there was near-peak staffing in place before the storm hit. Liberty attributed this under performance in part to UI's lack of an overflow IVR provider. Id., p. 134.

As discussed previously, UI undertook a number of measures in anticipation of the October Storm. However, these measures were not at the same level as for Tropical Storm Irene. UI stated that at the onset of the October Storm, its call center was not fully staffed. Tr. 4/30/12, p. 1928. While UI stated that it was able to call in an additional 15 agents to the call center on October 29, 2011, the call center was not fully staffed until October 31, 2011. Tr. 4/30/12, p. 1928; UI Response to Interrogatory CSU-18. Also, unlike prior to Tropical Storm Irene, UI did not initiate an outbound calling campaign to customers coded as medical. UI Response to Interrogatory OCC-147. For the October Storm, UI's call center was open 24 hours per day, 7 days per week basis until service for all customers had been restored on November 2, 2011. UI Response to

¹⁹ Includes calls to live agents and calls handled by an IVR.

²⁰ Average speed of answer, in seconds.

²¹ Abandoned call rate for calls to live agents only.

Interrogatory CSU-21. In total, counting calls handled by its IVR and those answered by live agents, UI's call center answered over 62,000 calls during the October Storm. UI Response to Interrogatory CSU-19. A breakdown of the call center's performance metrics follows:

| Date | Calls Handled²² | ASA²³ | ACR%²⁴ | Peak Headcount |
|-------------|-----------------------------------|-------------------------|--------------------------|-----------------------|
| 10/29/11 | 18,661 | 526 | 13.8% | 29 |
| 10/30/11 | 17,259 | 298 | 7.5% | 48 |
| 10/31/11 | 9,702 | 63 | 5.8% | 79 |
| 11/01/11 | 9,880 | 113 | 7.0% | 76 |
| 11/02/11 | 6,528 | 515 | 23.8% | 76 |

Id.

In its review of UI's call center performance during the October Storm, Liberty found significant numbers of busy signals encountered by its customers during the first two days of the event. Liberty Report, p. 136. Similar to Tropical Storm Irene, there were occasions when the number of busy signals was almost equal to or greater than the total number of calls answered. UI Response to Interrogatory CSU-19. Liberty noted further that on October 29, 2011, UI began to call in additional call center resources when call volumes climbed. Due to deteriorating weather conditions, call center staff found it difficult to get to the facility. As a result, the level of staffing at UI's call center was at the lowest during the highest volume of calls. Liberty Report, pp. 135, 149 and 150. However, based upon its review of call center operations, Liberty found that UI has several opportunities to improve so that it is better prepared to handle customer calls in future large outage events. Id., pp. 137 and 138. In its report, Liberty recommended that UI create a call center staffing process that will facilitate a quick ramp-up of agents during a large outage. Also, to address the large number of busy signals and abandoned calls, Liberty also recommended that UI should redesign its call center technology to improve communications with customers during a large outage or storm. Id., pp. 152 and 153.

UI agreed that it had difficulties staffing up for the October Storm, based upon the nature of the storm, reaching its employees and their ability to get to the call center facility. Tr. 4/30/12, pp. 1928 and 1929. According to UI, plans to adopt an automated calling system with employees' primary and secondary contact numbers have already been made. This automated system will more readily address an emergency staffing situation as well as be more efficient and quicker than a manual process. Id., pp. 1929 and 1930. To address the number of busy signals, UI is also exploring the use of an overflow high volume call answering system. Concurrently, UI is also investigating whether it can consolidate the call centers of The Southern Connecticut gas Company (SCG) and Connecticut natural Gas Corporation (CNG) in the future. These two additional call centers could potentially add approximately 40 more agents to handle incoming customer calls. Id., pp. 1932-1934.

²² Includes calls to live agents and calls handled by an IVR.

²³ Average speed of answer, in seconds.

²⁴ Abandoned call rate for calls to live agents only.

Authority review of the Liberty Report determines that none of its findings or conclusions with regard to UI's call center performance are contradicted by the record in this proceeding. The Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to these issues.

Besides its call center, UI also utilizes its web site as a source of information to customers regarding storms and outages. On its Storm Center webpage, customers can find a significant amount of information such as an outage map, a town outage list, restoration priorities, storm tips and safety tips. UI Responses to Interrogatories CSU-7 and CSU-38. During both outage events, the UI website was very active. During Tropical Storm Irene, the outage map received over 200,000 page views; during the October Storm, the outage map received over 63,000 page views. Id. However, during Tropical Storm Irene, UI's website was unable to handle the volume of traffic that was occurring. In particular, the UI outage map was inaccessible for 6.5 days during this storm. According to UI, the amount of traffic encountered during this storm was unprecedented. To remedy that problem during Tropical Storm Irene, UI utilized a static page with a table by town of outage information. UI now has the capability of doubling the capacity of the website with a few minutes' notice, and if necessary, doubling that amount again within an hour's notice. UI Late Filed Exhibit No. 75; Tr. 4/30/12, pp. 1963 and 1964. During the October Storm, UI's website did not encounter any downtime or periods of inaccessibility. UI Response to Interrogatory CSU-39.

Liberty noted that UI was exploring ways to improve the outage information communicated through its website. Specifically, these improvements were to increase the interactivity of the site to allow customers to explore outage status information by hovering over a particular town on the map. Liberty Report, p. 149. UI has since implemented this upgrade to its outage map on its Storm Center webpage. The outage map now displays information such as the affected area and zip codes, the outage start and estimated restoral time, the number of customers out and the status of the outage. Tr. 4/30/12, pp. 1911 and 1912; UI Late Filed Exhibit No. 70.

Liberty also recommends that UI rigorously test its call-handling technology and website to ensure that technologies operate to expectations and specifications. Liberty Report, p. 153. Authority review of the Liberty Report determines that none of its findings or conclusions with regard to UI in this area are contradicted by the record in this proceeding. The Authority adopts the findings, conclusions and recommendations of the Liberty Report with regard to these issues.

The OCC recommended that the EDCs make improvements upon their policies and procedures for contacting medically vulnerable customers. The OCC stated that many towns established shelters during both outage events and many of them had only a small number of persons utilizing them. Further, the OCC noted that in the Governor's Report of the Two Storm Panel, recommendations were made for better planning to meet the needs of vulnerable citizens. Miller, DeVito and Townsley PFT, pp. 45 and 46. The OCC made four recommendations regarding medically vulnerable customers: (1) customers should be asked for secondary contact information and that the information be updated annually at a minimum; (2) during prolonged outages, the EDC should individually contact vulnerable customers to ensure that the customer is safe; (3) during the certification process to verify medically vulnerable customers, EDCs

should present customers with the option to waive their privacy rights under HIPAA so that their information can be shared with their town, the Red Cross or any other relevant state agencies or first responders; and, (4) for those customers who have waived their HIPAA privacy rights, contact information be shared with the emergency operations center of that customer's home town for additional monitoring and any necessary follow-up action. Id., pp. 46 and 47.

According to UI, there are 5,521 customers that are coded either as Serious Illness or Life Support/Life Threatening. A customer coded as Serious Illness means that the customer is seriously ill, but not having electric service would not endanger their life. A customer coded as Life Support/Life Threatening means that the customer has a condition that would endanger their life if electric service was terminated. UI Late Filed Exhibit No. 74. Presently, when a customer informs UI that there is a medical condition in the household, UI sends a certification form to determine if that customer has either a Serious Illness or Life Threatening/Life Support issue. The current form used by UI includes a request for a telephone number, but in light of the recommendation from the OCC, UI has proposed a revised form which will include a primary and secondary telephone number as well as an e-mail address. UI Late Filed Exhibit No. 73. Three outbound calling campaigns were conducted during this storm, August 27, 2011, August 31, 2011, and September 3, 2011. The first campaign on August 27, 2011, was conducted pre-storm to approximately 4,400 customers coded as medical. The other two outbound calling campaigns were conducted to approximately 3,200 customers coded as medical as a joint effort with some towns in UI's service territory.²⁵ UI Response to Interrogatory OCC-147. UI also provided data on the success rate of its outbound calling campaign to customers coded as medical during Tropical Storm Irene. According to the data, for the first two campaigns, UI was successful in reaching no more than 66% of their medically coded customers. During the third campaign, UI was successful in reaching 82% of their medically coded customers. UI Late Filed Exhibit No. 71.

There are no data to suggest that having secondary contact information on the medical certification form would have improved upon UI's success rate in reaching its customers coded as medical. However, the outbound campaigns conducted by UI were done via an automated process. Tr. 4/30/12, pp. 1945 and 1946. The Authority agrees with the OCC's recommendation that secondary contact information be included on the medical certification form. Further, it approves the revised medical certificate submitted by UI for use on an ongoing basis. The Authority will also order utility companies that utilize the medical certification form to revise their current form in use to include secondary contact information. In regard to having the information updated on an annual basis, the Authority notes that this recommendation should not impose any additional burden on utility companies given the requirements of Conn. Agencies Regs. § 16-3-100(e)(3)(B).²⁶

²⁵ The participating towns were New Haven, West Haven, Stratford, Shelton, Orange, North Branford, Milford, Hamden, Fairfield, Ansonia and Milford.

²⁶ Conn. Agencies Regs. § 16-3-100(e)(3)(B) states: "(3) In cases where residential utility service is continued pursuant to a serious illness certificate or life threatening situation certificate, the customer shall: (B) renew the serious illness certificate or life threatening situation certificate no later than the last day of the period specified by the physician as the length of the illness or life threatening situation, provided, however, that if the physician has failed to specify the length of the illness or life

UI disagrees with the OCC's second recommendation that during a prolonged outage the EDC contact customers on an individual basis that are known to be without power. UI claims that during a storm event it would not have the resources available to check on the safety of individual customers, but would agree to share the customer information with the relevant town or Red Cross official who might be better suited to perform this action. UI Late Filed Exhibit No. 72. The Authority recognizes the recommendation of the Governor's Report of the Two Storm Panel regarding the needs of vulnerable citizens. However, the Authority is unsure if tasking an EDC or other utility company with contacting customers on an individual basis to ensure that the customer is safe during such an event is an appropriate allocation of their resources. The Authority is also not prepared to order public service companies to offer customers the option to waive their privacy rights under the HIPAA law so as to facilitate the sharing of information. Additionally, the Authority does not know whether waiver of HIPAA privacy rights is permissible. Until further documentation is provided as to the mechanics of this recommendation, the Authority is unwilling to endorse it. However, the Authority notes that during the 2011 Storms, when CL&P contacted a portion of its medically coded customers, it offered an option to share the customer's name and telephone number with the Red Cross if that customer believed they required additional assistance. CL&P Late Filed Exhibit No. 42, Tr. 4/23/12, pp. 1061 and 1062. The Authority believes that CL&P's customer contact procedure for its vulnerable customers can be an effective substitute until the Authority has more information regarding HIPAA. Accordingly, the Authority will order UI to investigate the feasibility of providing this information to the Red Cross, which may be better situated to contact customers on an individual basis.

a. Municipal & Other Utility Company Communications

According to UI, its Municipal Liaison program has been in existence for at least two decades, but it was not until early 2010 that increased training and attention was provided. Tr. 4/30/12, pp. 1953 and 1954. UI has an established process to develop a list of company personnel with the necessary skills to act as town liaisons. That list is further divided into individual liaisons assigned to specific municipalities based on their skills, experience and existing contacts within the municipality. It is UI's intention that staff assigned as municipal liaisons remain the same from storm to storm so that relationships, experience and consistency can be developed. UI reviews the list annually and on an as-needed basis during the year. At a minimum, two UI employees are designated to a municipality in order to provide 24 hour coverage. UI Response to Interrogatory CSU-24. However, UI will also designate back up staff, so that depending on the size of the municipality, the total number of liaisons can range from three to five employees. Tr. 4/30/12, pp. 1964 and 1965. Some of the characteristics that UI looks for in selecting a town liaison include the employees experience in customer service, interpersonal and communication skills, experience with the municipality and UI's distribution system, the ability to work under pressure and extreme conditions, and if the employee is a resident of the town. UI Response to Interrogatory CSU-25.

threatening situation or if the physician has indicated that the length of the illness or life threatening situation is not readily available, then the serious illness or life threatening situation certificate shall be renewed every 15 days. Each renewal certificate shall be forwarded to the company.

UI's town liaison personnel have numerous duties and responsibilities once designated and assigned. During the 2011 Storms, the duties and responsibilities were similar. A small sampling of these duties and responsibilities includes reporting to the municipal emergency operations center, providing a direct communications link between the municipality and UI's EOC, working with the municipality to prioritize emergency locations and communicate this information back to UI, communicate special situations, requests, and UI's progress on emergency locations, providing daily updates to UI's EOC on the restoration status of pre-designated town priorities, keeping the municipality updated on restoration progress, and in some cases, working directly in the field with local public safety crews. UI Response to Interrogatory CSU-28. UI supports its town liaison personnel by providing ongoing training, some of it mandatory. Examples of the mandatory training provided include an annual municipal liaison class, UI's Outage Management System, UI's training seminar for municipal officials, and if available through the municipality, town liaisons participate in a municipal EOC training exercise. UI Response to Interrogatory CSU-32. UI also intends to implement a new training program for its town liaison staff that it has called "Electricity 101." This new training will focus on items such as the system infrastructure and distribution system, safety, and future upgrades. Tr. 4/30/12, pp. 1954 and 1955. Prior to the Storms, UI also held refresher training for its municipal liaison staff on June 17, 2011 and June 23, 2011. UI Response to Interrogatory AG-152. Besides training for its town liaison staff, UI has also held joint training with municipal officials. In August 2010, UI hosted a forum to discuss storm response and their towns. This forum was designed to provide municipalities with critical information that they would require during a storm or outage situation. UI explained that this forum also presented an opportunity for municipal officials to speak and interact with the town liaisons, account managers, electric system managers, and restoration managers. UI stated that this forum was attended by over 150 people representing all 17 municipalities it serves. UI expects to conduct this forum on a bi-annual basis. UI Response to Interrogatory CSU-33.

According to UI, its municipal liaisons are required to meet with their local counterparts at least once per year. Tr. 4/30/12, p. 1954. Prior to Tropical Storm Irene, several municipalities in UI's service territory held pre-storm meetings and all were attended by UI's municipal liaison personnel. UI Response to Interrogatory CSU-27. UI noted that not all municipalities it serves held pre-storm meetings, but their town liaison staffs were in contact with their respective town officials prior to Tropical Storm Irene. The purpose of this contact was to obtain information regarding the status of town emergency operation centers. UI also provided via e-mail to all of the municipalities it serves, its storm contingency planning and latest weather status prior to Tropical Storm Irene. UI stated that prior to the October Storm, no municipalities held pre-storm meetings, but the same procedures carried out for Tropical Storm Irene were implemented. Id.

UI provides its town liaison staff with the number and type of crews assigned to a municipality on a daily basis once the restoration process has begun. UI also provides the town liaison staff with crew assignments for daily restoration activities after the initial storm assessment and work packets are developed. UI Response to Interrogatory CSU-30. While town liaison staff does not have the ability to speak directly to UI crews in the area they are assigned to, the liaison staff can request a dedicated cut-clear/make-safe crew. UI Response to Interrogatory CSU-31. The municipal liaison

staff works with their municipal officials to develop a list of make safe locations which is then provided to the dedicated cut-clear/make-safe crew. In the case of an emergency situation, the municipal liaison contacts UI's Lead Municipal Liaison who will then coordinate with other UI staff to dispatch a crew to the requested location. UI Response to Interrogatory CSU-29.

Overall, UI's municipal liaison program was generally well received. The AG stated that it found UI's program to be more refined than the program offered by CL&P. AG Brief, p. 19. Liberty noted that while UI was able to implement and apply its communication plan with its municipalities for Tropical Storm Irene, there were still areas of the program where improvements could be made. Liberty described some of the lessons learned by UI from this storm:

- The volume of emergency calls from municipal emergency operations centers through municipal liaisons was much higher than anticipated during the storm. This made it challenging to communicate with UI's Storm Center to track and update the status of these calls.
- More than half of the towns served by UI had never opened an emergency operations center prior to Tropical Storm Irene. Because of this, many of the towns had not been able to coordinate critical infrastructure priorities with UI.
- The municipalities expressed a need to have more control over the assignments provided to UI crews along with a need for better coordination with local public works and tree removal crews.
- Municipalities requested that estimated restoration times be provided sooner.
- Due to customers' inability to reach UI's call center, municipalities were getting many calls from their residents regarding restoration times.
- Municipal officials wanted more information on the location of UI crews working in their towns and information on the circuits that were out. The provision of a map with trouble spots would be very helpful to the municipal officials as well.

Liberty Report, pp. 142-144.

Liberty noted that UI's municipal liaison program worked more smoothly during the October Storm due to changes implemented based upon the lessons learned from Tropical Storm Irene and the familiarity gained by the town liaison staff in the locations they were serving during that time. *Id.* Liberty also found that overall, UI's municipal liaison program enhanced communications between towns and utilities during both storms, but that there was room for improvement. Liberty Report, p. 151. Liberty recommended that UI enhance the municipal liaison program to create a more consistent approach to keeping community leaders and municipal officials better informed of storm restoration data. Liberty Report, p. 153.

UI recognized that there were areas of the municipal liaison program that could be improved. UI stated that it has responded to requests from its municipalities to increase the number of town priorities/critical facilities. Each town served by UI can now identify 10 critical facilities that will receive priority restoration. UI Brief, pp. 12 and 13. UI also has agreed with a number of recommendations made by the OCC regarding the municipal liaison program. For instance, UI plans to participate in a July 28, 2012 emergency management planning exercise with municipal officials. UI agrees that town liaisons should thoroughly understand the towns they are working in and is equipping its liaison staff with town priority maps. UI also agreed that its municipal liaison staff should develop working relationships with utility operations personnel before major outages occur. UI Late Filed Exhibit No. 72. UI also agrees with the Liberty recommendation to enhance the municipal liaison program to create a more consistent approach to keeping community leaders and municipal officials better informed and intends to incorporate this into its preparedness and training of its municipal liaison staff. *Id.* Also, UI is in the process of meeting with each of its municipalities so it can expand post-storm follow-up to improve the capture of feedback regarding the quality of its municipal liaison program. UI May 14, 2012, Correspondence Regarding Comments of the Liberty Consulting Group.

Based upon these improvements that UI has either implemented or intends to implement, the Authority finds that UI's municipal liaison program will continue to provide the necessary and critical communications to the municipalities that it serves.

Regarding communications with other utility companies, UI notes that its municipal liaison process does not incorporate AT&T or other telecommunications entities. UI states that during the tri-annual Joint Utility meetings that are attended by all the utilities and pole attachers, emergency response numbers are reviewed and revised for each company. According to UI, these numbers are the contact numbers for each company or third party to be used during emergencies and storms. UI stated that in the event a large storm is predicted, it will contact each utility/pole attacher prior to the storm and provide to them a direct contact number for its EOC. UI will also offer space to each company at its EOC if they would like to send a representative. UI Response to Interrogatory CSU-35.

4. Liberty Recommendations

Liberty identified the most significant aspects of UI's performance that required improvement listed in the findings noted above. *Id.* UI agrees with all of the significant performance aspects needing improvement and has taken action to improve its future performance in all the areas identified. UI Late Filed Exhibit No. 72-1.

The Authority adopts the Liberty Report findings and recommendations for UI with the exceptions described below.

5. Emergency Plans

For at least six months prior to Tropical Storm Irene, UI was in the process of creating a 2011 EPP in order to update its 2006 plan. The 2011 plan was based on the

National Incident Management System and included forming an incident command structure. Tr. 05/02/12, pp. 2432-2334.

On August 22, 2011, UI conducted a tabletop exercise to review the 2011 EPP with its team leaders. However, on that afternoon, upon learning that Tropical Storm Irene was expected to hit the area, UI decided to implement the 2011 EPP. Id. Many assignments in the 2011 EPP were the same as in the 2006 EPP. Tr. 05/02/12, pp. 2432-2334.

As a result of the early warning, UI initiated its restoration planning efforts on August 23, 2011. The preparation included storm team planning meetings, defining the potential damage impact, acquisition of additional line clearance and line construction crews, development of the specific storm staffing plan and schedules, restoration strategy development, communication planning and stakeholder contact, safety training, logistics planning, and system integrity activities such as returning the transmission and distribution systems to normal prior to the storm, substation inspections, and the cancellation of all planned work. UI Response to Interrogatory EL-1.

Following the planning stage, UI pre-staged all storm responders by staffing all key substations and having all company storm personnel report for their assignments. Logistic needs such as pre-staging material at strategic locations throughout the service territory, procuring staging locations and accommodations for mutual assistance and contractor crews were also pre-staged prior to the storm in order to be able to utilize fully all available resources during the response. Id.

Due to a late forecast of the October Storm, UI started to prepare for the October Storm on October 27, 2011, a day before the snowstorm. UI Response to Interrogatory EL-13-1. UI implemented the 2011 EPP and claimed that it worked effectively. Tr. 05/02/12, pp. 2432-2334.

Liberty could not determine which EPP UI used during the 2011 Storms because the 2011 EPP that was due on June 1, 2011, was not filed until December 1, 2011. Liberty Report, pp. 24 and 25. Liberty commented that UI's failure to have a definite plan for the responders was a confusing and negative factor in their response efforts. Id., p. 25.

UI testified that although the 2011 EPP had not been filed with the Authority, the company implemented the 2011 EPP for the two storms because its employees were familiar with the plan. Tr. 5/2/12, p. 2433. Based on review of the UI chronological notes for the two storms and UI testimony, it appears to the Authority that UI implemented an EPP that was very similar to the 2011 EPP filed on December 1, 2011. UI Responses to Interrogatories EL-1 and EL-13.

Liberty made recommendations to update the EPP sooner than every five years. Liberty Report, pp. 4 and 5, 25. UI indicated that it concurs with Liberty recommendations to modify the EPP. UI Late Filed Exhibit No. 72, p. 5. In light of enactment of Public Act 12-148, UI is required to file an updated EPP with the Authority by July 1, 2012, in Docket No. 12-06-11. The Authority will require that the Liberty recommendations to modify UI's EPP be made in that proceeding.

6. Preparedness

Liberty determined that UI's pre-storm planning actions properly mobilized the support functions and achieved full readiness status of the internal field response personnel. Liberty made no recommendations for storm preparations. Liberty Report, p. 58.

The AG cited to UI's testimony, where it stated that the last time the company conducted drills and exercises to practice the implementation of its EPP was in 2009 and it did not include practicing the management of large numbers of outside crews. Tr. 5/2/12, p. 2489. Prior to the 2011 storms, UI did not drill or exercised its 2011 EPP and its ICS. Id., p. 2483; AG Brief, p. 41.

In addition, although UI annually conducted training for its liaisons, prior to the 2011 Storms, it had not conducted emergency drills or exercises to evaluate the performance of its liaisons. Tr. 4/30/12, pp. 2028 and 2029; 1978 and 1979. UI acknowledged that such training sessions would be extremely valuable in addition to its annual internal training sessions. Id., pp. 1978 and 1979. UI's hands-on liaison training only occurred if a particular town was conducting its own exercise. Id., p. 2029.

UI testified that its liaisons attend town drills when they occur. UI also testified that it should train with the towns at least once a year. Id., p. 1981. The State will be conducting a state-wide emergency drill at the end of July 2012, but not all towns will be participating in the drill with UI. Id., pp. 1979 and 1980. The Authority agrees with UI that emergency drills should be conducted at least once a year with each town regardless of who initiates the drill. UI should encourage all towns to participate in the upcoming state emergency drill and focus on the restoration of utility services, coordination of make safe work and communications with and through the company's liaisons.

7. Restoration

a. Staffing the EOC

Due to the size and compact nature of the UI service area, the response was under the command and control of one incident manager who reported directly to UI executive leadership. The incident commander for both storms was the UI Director, Operations, an experienced utility operations veteran. Liberty determined that the UI emergency organization was well structured for its service area, and contributed positively to the restoration of electricity. Liberty Report, pp. 67 and 68.

UI has a relatively small emergency organization due to the size of its service area. As a result, it easily communicated and accomplished alerts and mobilization. UI managed the alerts and mobilizations with the exception of being late in fully staffing the EOC in both storms. For Tropical Storm Irene, outages began increasing at 10:30 p.m. on August 27, 2011. Tropical storm force winds started at 2:00 a.m. on August 28, 2011, and continued until 10:00 p.m. that day. Full storm center staffing did not arrive until 6:00 a.m. that morning.

For the October Storm, UI began to prepare on October 27, 2011. At 2:00 p.m. on October 29, 2011, the storm classification was increased to Level 3. Significant outages were occurring and the storm center was opened and the Wires Down Process was activated.

Liberty recommends that UI change its practice to ensure that it opens the EOC prior to the onset of major events. Specifically, in the case of major events where advance notice is provided, such as a hurricane, or when there is enough advance notice to begin tracking the storm at least 12 hours in advance of the expected impact, UI should fully staff the EOC a minimum of 12 hours. Liberty Report, pp. 74 and 75.

UI disagrees with this recommendation. UI Late Filed Exhibit No. 72-1, p. 5. UI testified that if it had staffed for Tropical Storm Irene at 10:00 a.m. on August 27, 2011, as recommended, there would be nothing that could have been done for the first 12 hours while waiting for the storm to hit. UI noted that there would have been a shift change at 10:00 p.m. and workers still would have been unable to do anything due to tropical winds occurring on Sunday morning from 2:00 a.m. to 10:00 p.m. As a result, staff could not be deployed until 10:00 a.m. at the earliest the next morning. Tr. 4/30/12, p. 2074.

For the October Storm, UI opened its EOC on October 29, 2011, at 2 p.m., and ramped up its entire work force on October 30, 2011, at 6:00 a.m. Response to Interrogatory EL-13, Liberty Report, pp. 74 and 75, and *Id.*, 2075. Because of the severe weather, workers could not go into the field. When the weather was calm, then the damage assessors went out. If UI had implemented its workforce 12 hours in advance of the time that its workers were to go out, there would have to had been another shift change. Tr. 4/30/12, p. 2075.

The PURA finds that UI has presented a reasonable argument against fully staffing the EOC at least 12 hours before the storm. In this case, staffing 12 hours in advance would have resulted in a shift change at the time of storm impact and the inefficient use of a shift. The time to fully staff the EOC should be left to the judgment of the EOC managers who are monitoring storm conditions during the 12 hours prior to impact. In many major storms, it is common for weather conditions to stop or restrict restoration efforts for hours until after storm impact. In the opinion of the Authority, the start of the UI storm restoration was not affected by when it chose to fully man its EOC.

Accordingly, the Authority will not accept Liberty's recommendation to order UI to fully man its EOC 12 hours in advance of the arrival of a major storm. Rather, the Authority will examine this recommendation further in Docket No. 12-06-09 when other utilities can provide comment on their experience during the two storms.

b. Damage Assessment

The Damage Assessment guidelines in the 2011 EPP are essentially the same as those items in the 2006 EEP. UI performed well in evaluating the system damage in the field.

UI's Damage Assessment teams gathered notes and provided them along with maps to Classifiers who entered the data and printed packets for the work crews. UI entered all data manually. Liberty Report, p. 92. Job completion information from the field came back in batches. UI's receipt of this information and updating its outage management system was labor-intensive and cumbersome causing delays in updating the restoration status. Liberty recommends that UI provide field crews with mobile data terminals to improve the process and increase the frequency of field feedback. Id., pp. 92 and 93.

UI did not use the damage assessment data on a system-wide basis to estimate resource requirements. The current process does not collect or use this data. For the 2011 Storms, there was no process in place for totaling up damaged equipment for use in estimating resource needs. It is an industry best practice to use statistical damage assessment data to predict accurately overall resource requirements and associated system restoration timelines. Id., p. 93. Liberty recommends that a process be developed to use damage assessment information in a statistical manner for overall crew resource-requirement projections. This new function should improve data analysis in the damage assessment process. Id.

UI agrees with the recommendation to strengthen the procedures to get regular, timely restoration status updates from crews in the field and has set this as an expectation of the field crews and as a management goal. UI Late Filed Exhibit No. 72-1, p. 5.

c. Mutual Aid

UI is a member of NEMAG and the Edison Electric Institute (EEI). Liberty Report, p. 81

On August 25, 2011, UI began to participate in NEMAG conference calls. At that time, all NEMAG participants were holding crews, including Hydro Quebec, in Canada. On August 26, 2011, UI requested 100 crews from NEMAG and requested another 200 crews between August 27, 2011 and September 1, 2011. UI Response to Interrogatory EL-1.

UI relied heavily on NEMAG for help securing outside line crews. The results were disappointing and for the most part, beyond UI's control. UI also inquired about help from states to the west, Kansas, Wisconsin, Indiana, and Missouri. Liberty Report, p. 82. Because both of the storms were regional in nature, neighboring utilities and mutual assistance groups were unable to provide help. The total outside help for Tropical Storm Irene was slightly over 50 line crews and 75 tree crews. The October Storm impact on UI was considerably less from Tropical Storm Irene. Consequently, UI did not need a large amount of outside resources. Id.

Liberty notes that there are several key issues in the Mutual Assistance process that limits access to crews (e.g., in the interaction of the mutual assistance groups and political influence). The affiliation between operating companies is also a factor. Companies who once were more readily available to provide assistance are also now bound first to their affiliated companies. Id. Additionally, mutual assistance groups

have agreements with their member companies that they will not send assistance outside the bounds of their respective groups until it is certain that the group will not need help. Also, it is a generally accepted practice that utilities will not request resources until it sustains damage. Id.

Liberty recommends that UI explore joining NYMAG and Mid-Atlantic Mutual Assistance (MAMA) since they are in close proximity to the UI service area. UI should also explore joining groups that are less likely to be affected by the same storm, such as the Southeastern Electric Exchange, the Mid-West Mutual Assistance Group, and the Texas Mutual Assistance Group. Id., p. 83

UI agrees with Liberty's recommendation and is currently working with NEMAG and EEI. UI Late Filed Exhibit 72-1, p. 5.

d. Make-Safe Work

Down wires created a public safety issue throughout the area during both storms. When requested by a municipality, UI provided a dedicated make-safe crew consisting of one line construction crew and one tree clearance crew to verify that wires were de-energized and also to de-energize live wires so town employees could move trees and open the roads safely. UI Response to Interrogatory EL-20. The make-safe crews worked under the towns' EOC and not under UI's dispatch. Liberty concluded that UI's management of the make-safe assistance delayed restoration. Liberty Report, p.174.

UI testified that a benefit of the make safe crews work in helping to open roads for public safety creates earlier access for damage assessors to access damage and for line trucks to get to critical areas earlier in the restoration process. Tr. 4/30/12, pp. 2081 and 2082.

Liberty recommended that specific guidelines be establish for the make-safe work to be performed with the towns. Liberty also indicated there must be a clear understanding and agreement as to what UI will do in this area. Id., p.175. UI agrees with the Liberty recommendation and is working with the state, towns and other utilities to develop specific guidelines for Make-Safe work. UI Late Filed Exhibit No. 72-1, p. 5.

8. Other Issues

Prior to the 2011 Storms, UI trimmed trees for three phase lines on a four-year cycle and for single phase lines on an eight-year cycle. Mid-cycle trimming was performed as needed based on circuit performance. Tr. 4/30/11, pp. 2091 and 2094. UI has proposed a four-year cycle for all of its distribution circuits. Id., date, p. 2091. UI is seeking the Authority's approval in this proceeding to expand its clearance specifications and for a proposed enhanced tree trimming program that could include "blue sky" clearance, or eliminating all tree branches above its distribution lines. Id., pp. 2092, 2100 and 2101; AG Brief, p. 44.

UI has proposed to increase horizontal clearances from 6 to 10 feet, below conductors from 5 to 8 feet and above conductors from 12 to 15 feet. UI Response to Interrogatory AG-17.

By letter dated April 19, 2012, UI requested the Authority's approval to start an enhanced tree trimming program and tree removal program (ETT) similar to CL&P's ETT program. UI is ready to start its ETT in targeted trouble spots while it completes its evaluation of the full extent of the program in terms of overall timing and cost, and how best to proceed to address both mainline and sidetaps throughout UI's service territory. UI believes that ETT can be done on neutral revenue requirements basis in the near term, so that its overall tree trimming costs are essentially unchanged from the company's tree trimming revenue requirements approved in rates, provided the ETT costs are capitalized consistent with past regulatory approval of ETT. UI Letter to Kimberley Santopietro dated April 19, 2012; UI Brief, p.3.

UI testified that the ETT program would be an expansion of the current trim program without the additional massive removal of trees that there is no industry standard for the program as it was developed by CL&P. Tr. 5/24/12, pp. 2922, 2924.

By July 2012, UI is expected to have spent approximately \$1 million of its \$2 million annual O&M budget. Revenue requirements for the \$1 million of O&M are the same as that of \$6 to \$7 million in capital expenditures. Tr. 5/24/12, p. 2924.

The OCC claims that increasing tree clearances will affect tree health. Increasing the amount of tree clearance would likely result in some improvement in reliability year over year, but the impact on the system's performance under major or catastrophic storm conditions is less certain. The OCC also claims that there is a limit to the extent to which risks to the overhead distribution system posed by trees can reasonably or practically be reduced under such serious storm conditions, given that in major storms, entire trees or major sections of tall trees may fall. Goodfellow/Townsley PFT, p. 16. Spending more money for additional tree work that results in obtaining more line clearance and removing more trees is not a complete solution to the problems resulting from major and catastrophic storm conditions similar to or more severe than the 2011 Storms. Id. Accordingly, the OCC concluded that the EDCs should increase their emphasis on hazard trees. Id.

Liberty noted that UI trims single-phase circuit portions every eight years. While there is also some reliability centered maintenance being conducted on these lines, the eight-year cycle allows for increased vegetation density that will cause storm outages. In addition, the hazard-tree removal budget has not had consistent funding in past years. The budgeted rate of \$53 per mile allows the removal of only very high priority hazard trees. Id. Liberty recommends that UI institute a four-year full cycle trim program to reduce overhanging material and increase clearances and a more aggressive hazard tree removal program, that will improve both storm and non-storm reliability. Liberty Report p. 44.

The OCC and the AG disagree with UI's proposed ETT program and recommend that it be disallowed because of the unknown effect on future revenue requirements, its impact on the system and that this docket is not the appropriate proceeding to resolve revenue requirement issues. OCC Reply Brief, pp. 9 and 10; AG Reply Brief, pp. 6-8.

The Authority agrees with the OCC that increasing clearances may lead to more hazardous trees and may not be necessary if the tree cycle is reduced. The EDCs should target a four-year tree cycle. In Docket No. 12-06-09, the Authority expects to establish tree trimming standards and evaluate a move to a four-year trim cycle, the effects of removal of hazard trees and the impact on ratepayers.

The Authority also agrees with the OCC and the AG that changing revenue requirements must be addressed in a rate case, not during a storm investigation. Sufficient details of what is encompassed in the proposed ETT program have not been submitted for review by the Authority. The company has not completed its evaluation of its ETT program in terms of overall timing and cost, and how best to proceed to address both mainline and sidetaps. UI testimony indicates that there are no standards for the ETT program and that it does not include additional tree removal. The effect of the proposed ETT program for 2012 and beyond on revenue requirements is unknown. Additionally, revenue requirements should be addressed in a rate case proceeding as opposed to an investigation. For these reasons, the Authority will not approve UI's proposed ETT program.

UI can propose its ETT program again in its next rate case, but it must include specific details about the content of the program, the overall costs, benefits and effect on system reliability excluding and including major storms. UI may also consider proposing details of its ETT program in Docket No. 12-06-09.

D. WIRELINE TELECOMMUNICATIONS COMPANIES

1. AT&T Connecticut

Following both Tropical Storm Irene and the October Storm, AT&T activated two response centers: the Northeast Emergency Operations Center (NEOC) and its Local Response Center (LRC). These centers support Connecticut's restoration efforts with teams dedicated to providing direction, coordination and overall management of the emergency operations in response to the storm. AT&T Response to Interrogatory TE-1. According to AT&T, the NEOC regional center's purpose was to determine the efforts for restoring and provisioning service in the affected areas. The LRC, located in Meriden, has local subject matter experts who, working with the NEOC staff, coordinate the response and recovery efforts of the local personnel in response to local issues. AT&T Responses to Interrogatories TE-1 and TE-13. Both the NEOC and LRC center provide input into the AT&T Global Network Operations Center (GNOC), the command-and-control that monitors and proactively manages data and voice traffic flowing across AT&T's domestic and global networks 24 hours per day, seven days per week. Id. The GNOC's monitoring capability has enabled AT&T to begin pre-planning with local resources for the arrival of both storms well before they actually hit Connecticut. Id.

a. Tropical Storm Irene

Prior to Tropical Storm Irene, from August 24, 2011 to August 27, 2011, AT&T held discussions with CL&P and UI to establish a process to communicate and coordinate each company's efforts. AT&T distributed the "Storm Irene Responder Access Letter to AT&T" and contacted employees for their presentation to safety and

public officials. The letter was designed to facilitate movement throughout the state in the event of curfews or restrictions. AT&T Response to Interrogatory TE-1. During that timeframe, AT&T continued to communicate with all stakeholders and advised its employees in the potential storm strike areas to take necessary precautions to remain safe during the catastrophic event and to continue monitoring local news reports for weather advisories or changes in forecasts. Id., p. 4.

From August 28, 2011 through September 5, 2011, AT&T participated in the daily Governor's briefing, participated on the State Telecommunications Task Force (TTF) at the EOC to address restoration of service post-storm and continued to manage State storm restoration. AT&T worked with the utility power companies to assess where power was being restored so that restoration could be prioritized. Employees involved in restoration activities were reminded that safety was paramount. Equipment functionality continued to be assessed and in instances where required, was restored to operating condition. On September 5, 2012, AT&T's Meriden LRC and NEOC were deactivated for Tropical Storm Irene.

b. October Storm

Prior to the October Storm, AT&T mailed letters to municipal officials to ensure that the municipalities were aware of the emergency contact information for their specific AT&T contacts. During the days preceding the storm, AT&T personnel initiated a review and inventory of materials it anticipated would be in high demand due to the impact of the storm. AT&T personnel verified the availability of supplies, including replacement poles, drop wire, cable and other hardware and ensured the fueling of all vehicles and generators, brought central office switching equipment to the designated staging areas, and developed and communicated its work force plan. From October 27, 2011 through October 28, 2011, AT&T participated in calls with the Governor's storm team on storm preparation. AT&T External Affairs identified a point of contact within the local network organization to support requests for information. AT&T staffed its personnel at the State EOC on October 30, 2011. AT&T Response to Interrogatory TE-1.

From October 29, 2011 through November 3, 2011, AT&T worked with UI and CL&P to formulate plans to report to the EOC and it activated the LRC on a "virtual basis."²⁷ It had a liaison at CL&P's EOC, who remained at that location for at least 12 hours each day until November 6, 2011. The Meriden LRC began operating on a 24 hours a day, 7 days per week schedule on a virtual basis with status calls held twice daily to share information with affected internal organizations. AT&T provided information to the state for the Governor's briefing and to the TTF. A satellite cell on light truck (COLT) was dispatched to Bradley International Airport in Windsor Locks as requested by the Federal Emergency Management Agency (FEMA). Id.

From November 1, 2011 through November 3, 2011, AT&T emailed each municipality reconfirming its availability during this emergency event. LRC status calls

²⁷ AT&T personnel performed its emergency functions from its daily work locations instead of the physical Meriden location. AT&T Response to Interrogatory OCC-3.

continued to occur twice daily. The State EOC staffing continued with periodic reports provided for the Governor's briefing and to the TTF. AT&T continued to evaluate staffing plans. On November 4, 2011, AT&T was no longer required to staff the State EOC but it remained "on call." AT&T's virtual LRC ceased operation as it returned to business as usual mode. Id.

c. Customer Communications

The Authority sought to ascertain the effectiveness of certain customer communications through the course of the 2011 Storms. One of the areas that the Authority explored was customer call center operations and performance. AT&T provided to the Authority, statistics for its repair call centers. Presently, repair calls for Connecticut AT&T customers are handled by four call centers: Brecksville, Ohio, Hoffman Estates, Illinois, Houston, Texas, and North Hollywood, California. AT&T Responses to Interrogatories CSU-12 and CSU-43. AT&T's repair call centers are normally available on a 24 hour a day, 7 days per week basis. This availability did not change during the course of Tropical Storm Irene or the October Storm. AT&T Responses to Interrogatories CSU-14 and CSU-43. The following is a sample of the repair call center performance metrics reported by AT&T during the two outage incidents:

| Date | ASA ²⁸ | ACR% ²⁹ | Total Calls ³⁰ | Date | ASA | ACR% | Total Calls |
|---------|-------------------|--------------------|---------------------------|----------|-------|-------|-------------|
| 8/27/11 | 110.7 | 4.7% | 1,675 | 10/29/11 | 83.7 | 5.9% | 3,040 |
| 8/28/11 | 48.5 | 3.3% | 6,752 | 10/30/11 | 416.8 | 23.6% | 8,235 |
| 8/29/11 | 270.8 | 15.2% | 19,435 | 10/31/11 | 16.6 | 0.9% | 8,281 |
| 8/30/11 | 42.2 | 2.2% | 10,644 | 11/01/11 | 51.4 | 2.7% | 6,574 |
| 8/31/11 | 24.5 | 1.3% | 7,319 | 11/02/11 | 32.1 | 1.5% | 6,845 |
| 9/01/11 | 8.7 | 0.5% | 6,094 | 11/03/11 | 51.4 | 2.7% | 6,575 |
| 9/02/11 | 38.5 | 1.6% | 5,237 | 11/04/11 | 28.3 | 1.3% | 5,827 |
| 9/03/11 | 68.8 | 2.0% | 3,357 | 11/05/11 | 66.8 | 2.8% | 4,046 |
| 9/04/11 | 727.4 | 32.1% | 2,524 | 11/06/11 | 189.6 | 9.2% | 3,215 |
| 9/05/11 | 4.5 | 0.8% | 2,622 | 11/07/11 | 55.5 | 2.3% | 7,124 |

Source: AT&T Responses to Interrogatories CSU-12 and CSU-43.

During Tropical Storm Irene, staffing at AT&T's repair centers averaged approximately 268 agents during the time period of August 27, 2011 through September 6, 2011. During the October Storm, staffing at AT&T's repair centers averaged approximately 296 agents during the time period of October 29, 2011 through November 13, 2011. Id. AT&T indicated that its repair call center staff was not provided any material or instructions specific to addressing questions or complaints regarding outages during the two events. However, AT&T did instruct its agents to be especially empathetic and understanding to customers calling with service outages. AT&T Responses to Interrogatories CSU-17 and CSU-44. During times of high call

²⁸ Average Speed of Answer, in seconds.

²⁹ Abandoned Call Rate.

³⁰ Includes live calls and calls answered by an automated Interactive Voice Response (IVR) unit.

volumes, AT&T will monitor the incoming traffic, as well as the service level metrics such as the number of calls, average speed of answer and abandoned call rate. Tr. 3/19/12, pp. 212 and 213. If necessary, call volume can be shifted between company repair call centers. Tr. 3/19/12, pp. 91, 213 and 214.

AT&T also maintains a website that includes a significant amount of information regarding storm and emergency preparedness. However, this webpage does not contain Connecticut-specific data regarding the number or location of outages nor information regarding restoration estimates. AT&T Response to Interrogatory CSU-15.

With the exception of a few occasions, the Authority finds that incoming calls were answered in a reasonable and timely manner during the two outage events. However, responsiveness to incoming calls is not the entirety of customer communications during outage events such as Tropical Storm Irene and the October Storm. Providing customers with the most accurate and updated information on outages and restoration efforts are an additional component. In its Brief, the OCC questioned AT&T's dissemination of outage information to its customers related to its ability to accurately estimate the number of customers experiencing outages. OCC Brief, p. 79. The OCC noted that AT&T relies on its wireline customers to call in when they are out of service to measure the number and location of out-of-service lines. AT&T Response to Interrogatory OCC-2. Further, when asked to provide data on the total number of wireline services that were out of service at any time during the day during the two outage events, AT&T stated that it did not have that information, as there is subscriber lag time in reporting a service outage. AT&T Response to Interrogatory OCC-265. The OCC maintained that AT&T's use of the number of customers calling in outage reports is not a plausible method of estimating the number of outages. The OCC noted a disparity in the number of calls to AT&T's repair call centers compared to the percentage of access line outages during peak times of the two outage events as further skepticism of AT&T's methods. OCC Brief, pp. 79 and 80.

The OCC contends that AT&T has the capability to develop a more accurate method of estimating the number of system outages through the utilization of its own equipment and infrastructure. The OCC questions the accuracy of AT&T's methods in the event customers do not complete their call to the repair center, or are confused by automated voice response systems. The OCC recommended that AT&T be required to develop and report on an improved system to estimate outages based upon equipment and infrastructure failures. The OCC contends that by improving the method of estimating this information, AT&T would be able to access better information to assist in storm recovery. In addition, this improved method would allow AT&T to provide its customers and governmental officials the benefit of accurate information regarding outages and restoration. OCC Brief, pp. 80-83.

AT&T does not maintain on its website any information for customers regarding outages and restoration estimates. The Authority agrees with the OCC and considers the dissemination of the most accurate outage and restoration information to AT&T customers to be vital during incidents such as the two outage events. Accordingly, AT&T will be ordered to investigate and develop a method of estimating outage information other than relying on customer calls to report an out of service situation.

AT&T should also develop a method to make the outage and restoration information available to its customers.

d. Municipal & Other Utility Company Communications

During and after both outage events, AT&T maintained communications with state and municipal officials as well as providing trained staff at the State EOC. AT&T Responses to Interrogatories TE-9 and TE-20R. The AT&T staff installed at the EOC worked on a 24 hours a day basis and were available to address any concerns raised by state, municipal or safety officials. Along with these measures, AT&T also established a Local Response Center (LRC) that was responsible for the overall network restoration efforts. Id.

AT&T's LRC, located in Meriden, serves as the designated emergency command and control site and is activated in response to a disaster or an extraordinary emergency event. When activated, the LRC can either be staffed virtually or physically depending on the type and severity of the event. When staffed virtually, AT&T employees perform their LRC functions in response to emergency events from their daily work locations. However, if conditions warrant, that coordination of storm response can be enhanced by having the AT&T staff working in the same location. In these instances, those staff members will be brought together at the LRC's physical location. AT&T Response to Interrogatory OCC-3. One function of the LRC during the two outage events was to respond and follow-up on issues identified to AT&T staff at the State EOC. Along with these duties, AT&T staff also participated on the daily Governor's conference calls with municipalities. AT&T Response to Interrogatory TE-20R.

When an AT&T External Affairs manager is assigned to a municipality, depending on the services provided, there may also be an account manager assigned. Tr. 3/19/12, p. 93. Typically, AT&T's External Affairs managers are responsible for multiple towns as they serve geographic areas. For instance, an External Affairs manager might be assigned a large city and a number of smaller towns. Tr. 3/19/12, pp. 94 and 95. AT&T stated that at least on an annual basis, municipalities are provided with a copy of its emergency plan. On October 21, 2011, and in an effort to strengthen communications, AT&T issued a letter (October Letter) to all of the municipalities with the contact name of its designated AT&T External Affairs manager as well as key AT&T telephone numbers to call in the event of another major storm. AT&T Response to Interrogatory TE-9, Attachment A. According to AT&T, that letter was drafted in response to the experiences that it had encountered subsequent to Tropical Storm Irene. Tr. 3/19/12, pp. 95 and 96. The information contained within the October Letter issued to municipalities is very important to those municipalities. Accordingly, the Authority will order AT&T to provide, on an annual basis, a letter similar to the October Letter that updates and describes all of the important information and telephone numbers regarding its External Affairs manager and all storm or emergency related communications.

During and after both outage events, AT&T also embedded liaisons at the electric distribution companies' emergency operations centers. AT&T Responses to Interrogatories CSU-13 and TE-13. According to AT&T, this process of placing staff at

the electric distribution companies' emergency operations centers has been done in response to other storms or occasions prior to the two outage events. Further, AT&T states that this coordination between the companies has been very well received by all of the participants. Tr. 3/19/12, pp. 214 and 215.

e. Communications with State Municipal Officials

During and after both storms, AT&T communicated through its Connecticut's State President to the Governor's General Counsel and staff, Department of Environmental Protection Commissioner and PURA Chairman, to advise them of storm preparations and plans underway to facilitate restoration after the storm passed. AT&T's personnel responsibilities included maintaining up-to-date contact lists, compiling damage information, providing guidance and coordination of service restoration activities, communicating status internally and externally and debriefing after each emergency to review actions taken and made recommendations for improvement. AT&T Responses to Interrogatories TE-9 and TE-20. During this time, AT&T also investigated and resolved any inquiries or concerns raised by officials that were provided to company personnel stationed at the State's EOC. Beyond AT&T's presence at the State EOC, AT&T's External Affairs team was assigned to each municipality to provide coverage during the storm event. Id.

AT&T received feedback from municipalities, including the CCM regarding storm-related communications. AT&T's External Affairs team sent a letter to all municipalities with the contact name of its designated AT&T External Affairs manager, as well as key AT&T telephone numbers to call when another major storm event impacts Connecticut. Because nearly 98 percent of AT&T's access lines did not experience a service outage, the majority of issues raised by state and local officials to AT&T were not specific to wireline service outages. Id.

f. Communications with Electric Companies

With respect to AT&T's coordination with the electric companies, the designated AT&T liaisons were stationed at the CL&P and UI EOCs. AT&T liaison's main role was to share information between the two companies to help facilitate restoration efforts and resolve any issues either company has with the other in coordinating work activities related to jointly owned poles. AT&T Responses to Interrogatories TE-1 and TE-13.

According to AT&T, the liaison's role supplements, but does not replace, normal work activities done by the schedulers or construction managers to report work completions or coordinate work activities between the companies. AT&T liaison's role includes the following: (1) notify power company of AT&T's critical facility priorities for power restoration (e.g., remote terminals, central offices, and command centers); (2) take requests for AT&T to restore telecommunications facilities at electric companies' critical command center and field satellite locations; (3) serve as a Single Point for collection for AT&T pole/cable damage reported by power company or AT&T patrols; (4) report damages to the AT&T Construction Management Center bridge/personnel and to the power companies; (5) handle correspondence with the State and municipal officials to report critical AT&T work required to help open roads and make an area safe; (6) manage any AT&T issues regarding specific requirements for work coordination (e.g.,

need for tree trimming or making an area safe before AT&T can do its work); and (7) serve as a single point of contact for any issue AT&T wants to raise with power companies or vice versa (e.g., the need for one company to help the other with pole sets in a particular area). Id.

g. Tropical Storm Irene and October Storm Restoration

AT&T indicated that the 2011 Storms were extraordinary statewide weather events due to the massive strength, slow movement and long duration of the tropical storm and the early arrival of snow with high winds during the snowstorm. The primary hindrances to service restoration included: the statewide nature of the storm; inland and coastal flooding; extensive tree damage causing damage to AT&T's facilities and restricting travel; and massive and widespread commercial power outages. AT&T Responses to Interrogatories TE-1 and TE-13.

AT&T jointly owns 799,702 poles with CL&P and UI in the State. AT&T is custodian of approximately 357,000 of the poles that it jointly-owns and is sole owner of an additional 17,011 poles. AT&T Response to Interrogatory OCC-334. Of these, AT&T replaced 598 utility poles as a result of Tropical Storm Irene and 811 utility poles as a result of the October Storm. AT&T Response to Interrogatory OCC-330.

For both storms, AT&T coordinated and managed all restoration work activities for both inside/outside forces using AT&T's workforce systems. Under the unique conditions created by Tropical Storm Irene, coordination between the Installation and Maintenance (I&M) and Construction and Engineering (C&E) crews and the Network Dispatch center, all monitored by the Meriden LRC, served to facilitate the restoration. The frequent and ongoing communication between managers responsible for I&M and C&E enabled real time identification of downed facilities, enabling a faster restoration to larger numbers of customers. In addition to receiving their work via existing dispatch systems, field personnel received direction from the LRC managers in cases where the need for an urgent restoration was identified. AT&T Responses to Interrogatories TE-1 and TE-9.

h. Wireline Service Trouble Reported

AT&T monitored out of service troubles by network regions (or turfs), each of which are comprised of multiple wire centers. The regions include Berkshire (Route 8 corridor from Shelton to Northwest region of the state), Bridgeport/Gateway (Stratford to Old Greenwich), New Haven (shoreline, Milford to Madison, inland, New Haven to Meriden), East (shoreline, Clinton to Pawcatuck, inland, Middletown to Putnam), and Capital (New Britain north to Enfield). The table below provides specific out of service (OOS) for plain old telephone service (POTS) by regions:

| Storm | Berkshire | Bridgeport | Capitol | East | Gateway | New Haven | Total |
|---------------|-----------|------------|---------|-------|---------|-----------|--------|
| Irene | 4,883 | 2,841 | 3,426 | 7,582 | 2,139 | 4,587 | 25,458 |
| October Storm | 8,916 | 1,162 | 8,366 | 3,014 | 1,127 | 1,769 | 24,354 |

AT&T Responses to Interrogatories TE-4 and TE-16.

For Tropical Storm Irene, the OOS troubles reported, from August 27, 2011 through September 6, 2011, totaled 25,458. During that time, AT&T received 73 complaints associated with wireline services. Of the 73 complaints, 26 either mentioned the storm or could reasonably be construed as being storm-related based on the nature of the complaint (i.e., no dial tone). AT&T Response to Interrogatory CSU-6. For the October Storm, the OOS troubles, from October 29, 2011 through November 9, 2011, totaled 24,354. During that time, AT&T received approximately 80 complaints associated with wireline services. Of the 80 complaints, 56 either mentioned the storm or could reasonably be construed as being storm-related based on the nature of the complaint (e.g., no dial tone, downed telephone wires and appointment delays). AT&T Response to Interrogatory CSU-44.

AT&T required its network staff to be available 24/7 and its technicians worked mandatory 12-hour days. AT&T estimates its Connecticut network storm-related overtime to exceed \$4 million for Tropical Storm Irene and \$3.5 million for the October Storm. Responses to Interrogatories TE-3 and TE-15.

During the 2011 Storms, AT&T utilized approximately 1,600 Connecticut network employees in support of restoration efforts for its wireline services. AT&T's C&E is comprised of 742 employees which includes 108 AT&T line construction employees. AT&T's I&M has 598 employees in Connecticut who worked on restoring individual service outages. Premise technicians were also utilized to perform drop wire restoral work. Finally, AT&T's network staffing also includes an additional 202 employees from its Global Network Field Organization who support other aspects of AT&T's wireline network such as its central offices. Id. For Tropical Storm Irene, there were 81 out of state AT&T technicians integrated with Connecticut crews to address the repair workload. For the October Storm, there were 119 AT&T C&E technicians from other AT&T states that assisted in the storm restoration. AT&T has access to over 100 outside contractors to assist in restoration. Id.

i. Authority Analysis

Both Tropical Storm Irene and the October Storm were extraordinary statewide storms. Both storms caused sustained commercial electric power which was the primary cause of communications outages. Telephone companies' restorations were delayed due to high voltage electrical hazards that had to be cleared and made safe first by the electric companies. The Authority finds AT&T had appropriately operated its network under a state of emergency situation during and post Tropical Storm Irene and the October Storm.³¹ Based on the AT&T 2010 Annual Report filed with the Authority, AT&T has 1.147 million access lines. During both storms, about 2% of AT&T's access lines were affected during the peak of Tropical Storm Irene [(25,258/1,147,000) and the

³¹ On March 14, 2012, AT&T received the first certification of the Department of Homeland Security's Voluntary Private Sector Preparedness Accreditation and Certification Program (PS-Prep™). The PS-Prep™ program enables private sector organizations to enhance their capabilities for planning, responding to, and recovering from natural disasters and other threats.

October Storm (24,354/1,1147,000)]. The Authority finds OOS troubles for AT&T's wireline service was minimal considering nearly 98% of its access lines were not affected by either storm.

No AT&T central offices lost power during the storms and maintained service due to back-up generators. AT&T Response to Interrogatory TE-4. Regarding AT&T's outside plant network, all of the remote terminals (RTs; used in wireline switch access network) and Video Remote Access Devices (VRADs; used in AT&T's U-verse network) all had back-up batteries providing power for approximately 12-24 hours. After the storms, AT&T deployed generators to all RTs and VRADs. AT&T Responses to Interrogatories TE-25 and OCC-247.

The Authority finds AT&T took additional measures to prepare for an extended commercial outage. In addition to the 240 portable generators already present in the state, during its pre-storm preparation efforts, AT&T positioned an additional 1,000 portable generators outside the storm area to be deployed after the storm had passed. After the storm, AT&T deployed generators to remote terminals and VRADs as needed to replace the lack of commercial power during the storm period. AT&T Responses to Interrogatories TE-24 and TE-25. AT&T also deployed tanker trucks and smaller vehicles that provided both unleaded gasoline and diesel fuel to refuel its generators and vehicles and to provide its own fuel to avoid commercially powered gas stations. These efforts were coordinated by a telephone bridge open 24/7 that allowed command personnel in the Meriden LRC to communicate the status of refueling to workers in the field at all times. AT&T Response to Interrogatory OCC-247. AT&T also doubled its inventory of utility poles, from 500 to 1,000, prior to Tropical Storm Irene. Prior to the arrival of the October Storm, AT&T had 700 poles in inventory and ordered an additional 500 poles after the storm's arrival, which were delivered within one day. AT&T also ordered additional cable prior to the October Storm which was not needed. Tr. 03/19/12, pp. 249-251.

2. Verizon

Verizon prepared its facilities, property, employees etc., in advance of a major storm to ensure a swift response upon the passing of the storm. On August 24, 2012, Verizon contacted its fuel vendor to arrange for topping off the backup generator fuel tanks for the central offices that serve Greenwich. In addition, the generators were tested to ensure that they were in good working order. Verizon Response to Interrogatory TE-1. Prior to Tropical Storm Irene, Verizon activated its EOC and declared a state of emergency on September 2, 2012. Verizon's EOC established a daily conference call to ensure preparation plans were implemented, including topping off all vehicle fuel tanks, securing adequate drop wire, cables and poles and to finalize technician coverage plans. Id. The October Storm had very little effect on Verizon's wireline service area in Greenwich, and the outside plant facilities sustained minimal damage. Verizon did not activate its EOC or declare a state of emergency following the October Storm. Verizon Responses to Interrogatories TE-13 and TE-19.

a. Customer Communications

Verizon stated that its service territory in Greenwich was minimally impacted by both storms, as compared to other parts of the State. Verizon Response to Interrogatory CSU-45. The number of complaints or inquiries received by Verizon supports this statement. During Tropical Storm Irene, Verizon received one business complaint and no inquiries. Verizon Response to Interrogatory CSU-16. During the October Storm, Verizon received no complaints or inquiries. Verizon Response to Interrogatory CSU-44.

Verizon maintains four call centers outside of Connecticut that serve customers in its Greenwich service territory. These call centers are staffed on a 24 hours a day, 7 days a week basis. Verizon Responses to Interrogatories CSU-12 and CSU-43. During Tropical Storm Irene, Verizon staff at the call centers worked 12 hour shifts. During the October Storm, Verizon maximized its workforce by offering and scheduling overtime for each agent. *Id.* Verizon did not have need to open or establish any other call centers during either of the two outage events. Verizon Responses to Interrogatories CSU-13 and CSU-43.

There is only one item that the Authority takes issue with regarding Verizon's customer communications. Verizon stated that it does not have a web page for Connecticut-specific information on storms or outages. Verizon Response to Interrogatory CSU-15. While Verizon's Greenwich service territory might have been minimally impacted during both storms, this might not be the case in the next storm or emergency event. During events such as Tropical Storm Irene or the October Storm, the dissemination of accurate information to utility customers is as equally important to the answering of customer calls and the acquisition of information from customers. Accordingly, Verizon will be ordered to create a webpage that contains storm and other emergency information for its customers in the Greenwich service territory.

b. Municipal & Other Utility Company Communications

During Tropical Storm Irene, a Verizon Government Affairs Manager was in daily contact with the Greenwich Town Administrator. Throughout these calls, the Verizon staff member would provide a status report on restoration efforts. During the October Storm, daily calls did not take place as the damage to the Verizon system in Greenwich was minimal. Verizon Response to Interrogatory CSU-45. Verizon stated that it also participated daily in the State Telecom Task Force calls to provide restoration updates to state officials. *Id.* Verizon also had a liaison process in place with its counterparts at CL&P to coordinate restoration activities and priorities. Verizon Response to Interrogatory CSU-46. The liaison process did not involve a Verizon employee at CL&P's emergency operations center, but consisted of one-on-one communications between the Verizon and CL&P operations staff. Verizon states that through this process, it is capable of coordinating its restoration work as efficiently as possible. Tr. 3/19/12, pp. 104 and 105.

c. Communications with State and Municipal Officials

Verizon participated daily on the TTF calls to provide restoration updates to officials. A Verizon Governmental Affairs Manager also contacted the Authority and Greenwich Town Administrator daily and provided a status report on the Verizon

restoration effort. Verizon Response to Interrogatory TE-9. Since Greenwich was minimally impacted by the storm as compared to other parts of the State, restoration efforts went well. Verizon did not receive any complaints from municipal officials regarding its communications during and after the storm. Id.

d. Communications with Electric Companies

Verizon was in daily contact with CL&P during Tropical Storm Irene to determine when and where it would be safe for Verizon crews to restore service. Verizon Response to Interrogatory TE-1. However, during the October Storm because damage in the Greenwich area was minimal, Verizon's EOC was not activated and daily conference calls were not held. While there was an increase in trouble reports on the day following the October Storm, service restoration was not hindered and resource development was not constrained. Verizon Response to Interrogatory TE-13.

e. Tropical Storm Irene and the October Storm Restorations

Verizon indicated that the major factor in service restoration was the restoration of commercial power by the electric companies. Immediately after Tropical Storm Irene passed, 52% of Verizon's service area was without power, with 85 roads totally closed and another 35 roads partially closed. Verizon's ability to restore landline telephone service was delayed until hazardous conditions were removed. Verizon Response to Interrogatory TE-1. On September 2, 2012, after CL&P had cleared much of the Verizon service area of hazardous conditions, Verizon declared a state of emergency. Verizon Response to Interrogatory TE-7. In light of the minimal damage from the October Storm, service restoration was not hindered by any unique factors. Resource development was not constrained. Verizon Response to Interrogatory TE-13.

f. Wireline Service Trouble Reported

Verizon stated that despite the extensive power outage in its service area, its OOS trouble load after Tropical Storm Irene had not exceeded 316 customers (which occurred on August 31, 2012). For the October Storm, the trouble load had not exceeded 130 customers (which occurred on October 31, 2011). The table below provides specific Verizon OOS customers associated with each storm:

| Storm Irene & Out of Service Reported | | October Storm & Out of Service Reported | |
|---------------------------------------|-------|---|-----|
| 8/27/11 | 76 | 10/29/11 | 30 |
| 8/28/11 | 107 | 10/30/11 | 60 |
| 8/29/11 | 193 | 10/31/11 | 130 |
| 8/30/11 | 273 | 11/01/11 | 124 |
| 8/31/11 | 316 | 11/02/11 | 129 |
| 9/1/11 | 218 | 11/03/11 | 79 |
| 9/2/11 | 222 | 11/04/11 | 50 |
| 9/3/11 | 220 | 11/05/11 | 44 |
| 9/4/11 | 216 | 11/06/11 | 31 |
| 9/5/11 | 159 | 11/07/11 | 40 |
| 9/6/11 | 156 | 11/08/11 | 32 |
| | | 11/09/11 | 27 |
| Total | 2,156 | Total | 776 |

Verizon Responses to Interrogatories TE-4 and TE-16.

g. Authority Analysis

The Authority finds that Verizon appropriately operated its network under a state of emergency situation. According to the Verizon's 2010 Annual Report, Verizon has 22,046 access lines. There were approximately 9% of Verizon's access lines affected (2,156/22,046) during Tropical Storm Irene and approximately 3.5% (776/22,046) access lines affected following the October Storm. Based on the number of Verizon customers in Connecticut, POTS wireline service affected by both storms was minimal. Neither of its two central offices serving its Connecticut service area lost commercial nor back-up power. Verizon Response to Interrogatory OCC-337. Verizon deployed back-up generators to a small number of remote terminals that lost commercial power during the storm. Verizon Response to Interrogatory OCC-267.

3. Post-Storms Review

AT&T received feedback from municipalities, including the CCM, regarding post-storm communications with AT&T. In an effort to strengthen communications, AT&T's External Affairs team recently sent a letter to all municipalities with the contact name of its designated External Affairs manager as well as key AT&T telephone numbers. It has had several internal reviews at the departmental and LRC/EOC levels that are still ongoing with action items being addressed.

AT&T's post-storms review items that have been completed are: (1) expanding the use of existing databases by the LRC personnel to further assist in the prioritization of work; (2) creating in-state warehouse stocking of ready-to-eat meals (MREs) for easier transportation to technicians; and (3) enhance procedures, databases and practices to better utilize resources for generator deployment during periods of extended commercial power failure. AT&T Responses to Interrogatories TE-10 and TE-21.

Given the limited effect of the 2011 Storms on Verizon's customer base, it has no specific plan to complete a post-storm review for Connecticut. However, Verizon indicated that in order to ensure the availability of adequate resources in Connecticut, it will continue shifting workforce from other service areas to meet demand for additional personnel in areas affected by significant storms or other unusual events. Verizon Response to Interrogatory TE-21.

AT&T and Verizon will be required to update their emergency plans to include the above post-storms reviews in Docket No. 12-06-11.

4. Live Emergency Drills

The OCC contends that AT&T and Verizon rely on table-top exercises rather than live emergency drills in Connecticut. AT&T conducts table-top exercises as part of its emergency planning, which are "a virtual exercise where a scenario is laid out at the beginning of the exercise ... that's walked through and learnings are discussed." One of these table-top exercises was conducted by AT&T in 2011, but there is no company requirement for an annual table-top drill in Connecticut. AT&T did not perform a live, physical emergency storm drill involving the movement of equipment in Connecticut in 2010 or 2011. Verizon similarly relies on table-top exercises rather than physical drills, where tabletop exercises deal with "different areas in the northeast." OCC Brief, p. 45.

The OCC recommends that the Authority require AT&T and Verizon to develop and submit Connecticut-specific emergency plans containing, among other things, relevant Connecticut locations and listing Connecticut-based employees with their responsibilities and contact information. The OCC also recommends that the Authority direct AT&T and Verizon to develop emergency preparation exercises annually that are specific to Connecticut. OCC Brief, 46.

AT&T and Verizon filed their national emergency preparedness plans in Docket No. 11-05-22 DPUC Review of Updated Emergency Plans. AT&T's plan is a "national" plan, while Verizon's plan is a "northeast area" plan. Neither of the companies' plans have a section that is specific to Connecticut. The Authority finds the OCC's recommendations have merit and will require AT&T and Verizon to develop emergency preparation exercises annually and report to the Authority, not later than January 1 of each year beginning January 1, 2013. AT&T and Verizon shall include these requirements in the companies' updated emergency plans.

5. Service Outage Reporting

The OCC also recommends that the Authority require AT&T to develop and include in its future reports better estimates of outages based on information regarding equipment and infrastructure failures, including RT failures. According to the OCC, AT&T knows of the RT failures but does not at this point use that information to develop better outage estimates. OCC Brief, p. 77. The Authority agrees.

AT&T and Verizon currently report OOS troubles from calls made to each company's repair centers by the affected customers. By tracking the number of outages caused by troubled RTs and other equipment failures, both AT&T and Verizon would be

able to access, assess and better report information to manage its storm recovery and/or any service outages.³² Thus, the Authority will require AT&T and Verizon to use and track such mechanisms in formulating the outage reports.

The Communications Workers of America (CWA) commented that AT&T's staffing cuts have adversely affected its outside plant maintenance, storm restoration and service quality performance. CCW requests that the Authority establish standards in this proceeding including a minimum staffing level requirement. Tr. 03/19/12, p. 22.

The Authority has initiated Docket No. 12-06-10 PURA Establishment of Industry Performance Standards for Telecommunications Companies that is expected to establish standards for restoration of intrastate telecommunications services after any emergency. In the opinion of the Authority, the CWA's concerns should be addressed in that proceeding.³³

E. POLE INSPECTION

Most utility poles in Connecticut are jointly owned between an EDC and a telephone company. Approximately half of all utility poles that support electric facilities are maintained by the EDCs; the others are maintained by AT&T and Verizon.³⁴ AT&T and Verizon Responses to Interrogatory OCC-7; CL&P Response to Interrogatory AG-22; UI Response to Interrogatory OCC-339.

The EDCs have long had a pole maintenance process by which each pole is inspected and maintained on a regular basis. The EDCs report to the Authority on their pole maintenance practices annually in compliance with Conn. Gen. Stat. 16-32g.³⁵ This statute only applies to maintenance practices of EDCs, not to those of AT&T or Verizon, for which there is no statutory maintenance reporting requirement.

AT&T states that it currently inspects the utility poles that it owns on a 10-year inspection cycle. Prior to 2010, AT&T did not have a centralized, formalized pole inspection process that ensured poles were consistently inspected and maintained, and it did not have easy access to its own pole inspection data. Tr. 03/19/12, pp. 226-231. Verizon states that it does not inspect the utility poles on a formal cycle basis; however its employees are directed to inspect poles prior to climbing and performing any work

³² This mechanism should not be an administrative burden to the companies. The record indicated that AT&T's RTs reported approximately 14,000 access lines were out of service during the peak of each storm. Late Filed Exhibit No. 11.

³³ The Authority has already addressed AT&T's service quality performance by its July 27, 2011 Decision in Docket No. 10-04-12RE01 DPUC Proceeding Pursuant to Section 16-41 of the General Statutes of Connecticut to Determine Whether The Southern New England Telephone Company d/b/a AT&T Connecticut Should be Fined for Failure to Comply with Quality of Service Standards for the Provision of Telecommunications Services - Settlement Agreement.

³⁴ A small proportion of poles are solely owned by either an EDC or a telephone company.

³⁵ The current pole maintenance practices are filed in Docket No. 11-12-13, PURA Review of Electric Companies' and Electric Distribution Companies' Plans for Maintenance of Transmission and Distribution Overhead and Underground Lines.

and make observations while they are in the field. Tr. 03/20/12, pp. 326, 341. The vast majority of AT&T and Verizon custodial poles support electric distribution facilities. Failure to properly maintain poles that support electric facilities could endanger public safety as well as result in negative consequences to electric distribution system reliability. To ensure the integrity of equipment attached to the poles, the Authority requires assurances from AT&T and Verizon that, as long as they are responsible for maintaining utility poles, they should be reporting to the PURA their maintenance practices. Therefore, the Authority will order AT&T and Verizon to file their pole maintenance practices annually, as do the EDCs. The utility pole inspection plans shall include, but not be limited to, the inspection interval, number of poles inspected, replaced and associated trained personnel involved in the inspection and a detailed description of the inspection techniques that will be applied.

F. POLE ADMINISTRATION

The Authority investigated the appointment of a third-party pole administrator in this proceeding to determine if the current pole administration structure had a negative effect on the overall service restoration process. Specifically, the Authority investigated utility pole restoration issues and whether they could be improved with the appointment of a third-party statewide utility pole. Response to Motion No. 21.

There were many recommendations from various participants to change or modify the structure of the current pole administration. The Authority finds that no evidence presented supports the notion that the current pole administration structure delayed the restoration of services during the 2011 Storms. The evidence indicates that the issue with utility pole administration is not restoration, but a claim that there is an unacceptable delay in allowing third parties to attach their facilities to utility poles and that the current pole attachment process has become inefficient.

The Authority will require that the Pole Attachment Working Group (Working Group) reconvene under Docket No. 11-03-07, DPUC Investigation Into the Appointment of a Third Party Statewide Utility Telephone Pole Administrator for the State of Connecticut no later than September 1, 2012. The Working Group is hereby directed to submit a status report to the Authority on resolved and outstanding issues by November 15, 2012. The Authority will require the Working Group to develop and recommend to the Authority, no later than January 31, 2013, a consensus pole administration structure to facilitate utility pole attachments. The Working Group should begin its discussions with the proposals submitted in this proceeding by the OCC, CL&P, UI and Fiber Technologies. The above reports shall be submitted in Docket No. 11-03-07.

G. WIRELESS SERVICE OUTAGES

1. Wireless Carriers' 2011 Storm Experience

Throughout this proceeding, the wireless carriers have argued that the Authority has no jurisdiction over the wireless industry relative to storm outages and service restoral. Indeed, they have continually referred the Authority to the Federal Communications Commission (FCC), citing their disaster reporting responsibilities

pursuant to the FCC's Disaster Information Reporting System (DIRS). Nevertheless, despite these arguments, the carriers responded to Authority staff and party data requests, providing the requested information either on the public record or pursuant to protective order.

In reviewing these responses, the Authority finds that, in general, the delivery of the wireless carriers' services immediately following the two storms was affected by two key issues: (1) the predominant loss of commercial power to the cell sites and (2) the loss of commercial power to the backhaul facilities between carrier cell sites and their respective switching centers. In a minimum number of cases, some site equipment was damaged that also affected the provision of service. AT&T Mobility Response to Interrogatory CMRS-16; Sprint Response to Interrogatory CMRS-16; T-Mobile Response to Interrogatory CMRS-16; and Verizon Wireless Response to Interrogatory CMRS-16.

The wireless carriers also provided on the public record and pursuant to protective order, the measures that they have taken to address the service outages resulting from the 2011 Storms and the actions that they have taken to improve network reliability. For example, AT&T Mobility discussed its deployment of a self-optimizing technology, the actions it has taken to enhance battery performance, the addition of more back-up generators to critical cell sites and standardizing its generator electrical plugs. AT&T Mobility has also deployed fiber transport facilities to its cell towers to improve backhaul transport. Lastly, AT&T Mobility stated that it has incorporated the knowledge gained from the various disaster events across its footprint, and strives to improve efficiencies going forward, such as increasing the inventory of portable generators, and implementing improvements in the deployment and fueling and refueling of its generators. Tr. 3/21/12, pp. 478-480; Late Filed Exhibits No. 18 and 20.

Sprint, through its Network Initiative, has deployed new technologies that provide for greater output power to its tower antennas. According to the Sprint witness, this is expected to increase its cell tower footprint producing greater overlap between its cell sites. Sprint has also begun to sunset its iDEN technology that will free up additional spectrum and provide for more efficient use of that spectrum. Sprint provided under protective order more specific details concerning its plans for spectrum efficiencies, battery improvements, reliability improvements, etc. and the deployment of fiber transport to cell sites to replace the T-1 facilities currently in place. Tr. 3/21/12, pp. 483-486, 489-492; Late Filed Exhibits No. 19 and 22.

The witness for T-Mobile testified that the company was looking to enhance its network by hardening site reliability through its network modernization projects. These enhancements are expected to provide for improved network optimization, increase coverage, and reliability. T-Mobile also described its "transport reliability hardening" project that uses a newer technology called ring topology for all its voice and data communications as well as to transition more network facilities from T-1 lines to Ethernet backhaul/fiber. The company is also replacing certain antennas with integrated radio. Tr. 3/23/12, pp. 546-551; Late Filed Exhibits No. 27 and 28.

Verizon Wireless indicated that while it has no specific initiative to upgrade its network, it is constantly focusing on network redundancy relative to equipment or

design. The company witness also testified that it is building redundancy into its switching center equipment so that if a piece of equipment fails, there are others present to keep service up and running. Verizon Wireless also regularly checks its cell site batteries to make sure that they are at the proper charge so that they are fully functional.

Lastly, Verizon Wireless is taking several steps to address the loss of back-haul facilities. For example, it is pursuing the installation of permanent back-up generators at all cell sites that are not currently so equipped (approximately 10%). It is also working to convert from a traditional "copper wire" to a fiber-based backhaul system. Additionally, where feasible and permitted by the local backhaul provider, the company is seeking to provide emergency back-up power to fiber electronic equipment locations. Finally, Verizon Wireless is expanding the number of vendors it uses to provide fiber backhaul services so that its network is robust and reliable. Verizon Wireless Response to Interrogatory CMRS-16; Tr. 3/21/12, pp. 492-495.

2. Wireless Carrier Service Outage Reporting Requirements During Declared State and Federal Emergencies

The FCC and the Federal Department of Homeland Security (DHS) have concluded that common carrier network information, including such information maintained by wireless carriers, must presumptively be treated confidential by federal and state government entities to ensure that national homeland security efforts are not compromised by the release of confidential service provider network information to the public. T-Mobile Response to Interrogatory CMRS-1. According to T-Mobile, all information is collected and submitted into the FCC's DIRS database, which was activated by the FCC prior to the 2011 Storms making landfall and the anticipated advancement along the Atlantic seaboard. *Id.* The DIRS database is a voluntary, web-based system that communications providers, including the wireless carriers, use to report communications infrastructure status and situational awareness information during incidents such as the 2011 Storms. T-Mobile states that the FCC shares its aggregated information from the DIRS database with other agencies to inform federal, state and local government of impacted communications services. *Id.*

Immediately following Tropical Storm Irene and the October Winter Storm, during state service restoral efforts, the TTF was established and staffed by various state agencies and the telecommunications carriers as a means of expediting the restoral of service throughout the state. While activated, the carriers were required to report to the TTF, in most cases, twice daily on the status of their service restoral efforts. Wireless carrier information requested by the TTF included the total number of service outages affecting each company, an estimate of the total number of customers/access lines/wireless numbers without service as well as an update of each company's latest restoral efforts. AT&T Response to Interrogatory OCC-34, Attachment A; AT&T Supplemental Response to OCC-34, Attachments C Parts 1 and 2, Attachment D.

The Authority notes that pursuant to 47 CFR §4.2 Availability of Reports Filed Under this Part, this information is confidential. Thus, the Authority's access to this information is not readily available and would also require a formal request to, and approval from the FCC in order to gain access to any of the carriers' storm related data.

Tr. 3/21/12, pp. 520 and 521. Clearly, during times of storm recovery when immediate access to this information by the Authority is imperative, receipt of this information by the PURA after following these FCC requirements would be difficult to obtain and most likely untimely.

The Authority recognizes the importance and value of the DIRS. However, accessing the information through the DIRS during these types of events may not be timely and would require a formal process pursuant to federal regulations. See 47 CFR 0.461, Requests for Inspection of Materials Not Routinely Available for Public Inspection. To make access to this information more readily available during declared state and federal emergencies, the Authority convened a technical meeting with the wireless industry to discuss the best means to accomplish access to this data. May 18, 2012 Notice of Technical Meeting. Following that technical meeting, the industry filed its proposal (Wireless Proposal). See the Attachment to the June 13, 2012 Letter from David W. Bogan to Ms. Kimberley J. Santopietro.

The purpose of the Wireless Proposal was to describe the collaborative efforts between certain wireless carriers and the Authority relating to the mutual sharing of information regarding situational awareness and operational status during times of crisis. Specifically, the wireless carriers have committed to provide the Authority with certain information regarding the operational status in the event of a state and federally declared emergency in Connecticut consistent with the FCC's DIRS. According to the Wireless Proposal, the wireless carriers will provide the information on a daily basis, except when there is a material change in status, in which case the wireless carriers will provide the PURA with the updated information.³⁶ The carriers will also provide such communications to convey the status of operations during emergency situations. The sharing of such information would be limited to efforts to stabilize, recover and restore operations to levels necessary to support the communications needs of the carrier's respective customers within Connecticut. Therefore, the information provided to the PURA is intended to eliminate duplicative requests for such information from various state and local agencies.³⁷

The Authority finds the Wireless Proposal to be responsive and satisfies the PURA's needs when conveying outage/restoral information to other state agencies. The Authority acknowledges and appreciates the wireless industry's efforts in meeting the PURA's goals of expediting service restoral in times of emergency situations and recognizes that this results from the mutual collaborative relationship that the PURA has developed with the carriers over the years. Clearly, the Wireless Proposal reflects that relationship, which is mutually beneficial to the Authority and the industry, and ultimately to the businesses and citizens of the state.

H. VIDEO CERTIFICATE HOLDERS' STORM PREPAREDNESS

Seven of the eight holders of Certificates of Video Franchise Authority (CVFA) and Certificates of Cable Franchise Authority (CCFA, collectively Certificate Holders)

³⁶ Connecticut Emergency Support Function #12 provides the types of information and times by which it should be reported by the carriers.

³⁷ Id., Attachment, p. 1.

named at least one weather forecasting service or resource that they rely upon in determining staffing. Only TVC did not name any weather forecasting specific resource it uses. Certificate Holders Responses to Interrogatories CA-2 and CA-12. Among the weather forecasting resources used by Certificate Holders were the National Weather Service, the Weather Channel and local broadcast news programs, the National Oceanic and Atmospheric Administration and the National Hurricane Center. Id. All Certificate Holders filed copies of their emergency disaster or response plans required pursuant to Conn. Gen. Stat. §16-32e. Certificate Holders Responses to Interrogatory CA-7.³⁸ Except for TVC during the October Storm, which did little damage in extreme Southeastern Connecticut, Certificate Holders activated their emergency plans or parts of them for both storms. Certificate Holders Responses to Interrogatories CA-1 and CA-11.

Certificate Holders activated their emergency plans at different times prior to or about the times that Tropical Storm Irene and the October Storm began to impact Connecticut. Id. Below is a sampling of the specific emergency response preparation activities the Certificate Holders engaged in as the 2011 Storms approached.

For Tropical Storm Irene, MetroCast initiated actions on August 26, 2011, identifying areas of its Connecticut footprint that were likely to be impacted, in addition to determining that customer calls would be redirected if the Connecticut call center was adversely affected. Outside contractors were also contacted and local management contacted CL&P to establish direct contact for local inquiries related to power issues. MetroCast Response to Interrogatory CA-1. When it became apparent to TVC that Tropical Storm Irene was going to hit land, emergency steps were implemented, including acquiring generators. TVC Response to Interrogatory CA-1. Charter began preparations for the potential effects of the Tropical Storm Irene on August 25, 2011, which included the establishment of emergency operations centers in Newtown and Windham and the fueling and deployment of back-up generators. Charter Response to Interrogatory CA-1.

For both storms, Comcast monitored and tracked the impending weather events. When Comcast determined that each storm would have an impact on the state, it increased staffing and set up call-in numbers for employees. Its own work crews and contractors were deployed, with Comcast also making plans for accommodations and meals, where necessary. Comcast Responses to Interrogatories CA-1 and CA-11. Cablevision stated that before each storm, each Operations and Network Center goes through a checklist to determine staff needs. Cablevision also indicated that the pre-storm preparation for the October Storm was more compressed because there was less warning about its potential effect. Cablevision Responses to CA-1 and CA-11.

Verizon began to monitor Tropical Storm Irene on August 22, 2011. Among the storm preparation activities Verizon engaged in were topping off back-up generators with fuel and daily conferences to ensure that other preparation activities were being

³⁸ Emergency plans filed in this docket were those that were filed in Docket No. 11-05-22, DPUC Review of Updated Emergency Plans (Emergency Plans Docket). The Emergency Plans Docket was suspended pursuant to the Authority's December 29, 2011 letter to the participants in the Emergency Plans Docket.

implemented. For the October Storm, Verizon's emergency plan was not activated. Verizon Responses to Interrogatories CA-1 and CA-11.

For Tropical Storm Irene, AT&T took action to prepare for the event when weather forecasts indicated a hurricane was approaching the northeast. AT&T's command-and-control center, GNOC, began preplanning as the storm approached the South and North Carolina coasts. Preparation began well in advance of the storm's arrival in Connecticut, with AT&T verifying supplies, including replacement poles and developing work force plans, among other activities. AT&T Response to Interrogatory TE-1. For the October Storm, AT&T began its pre-storm activities when weather forecasts indicated a potentially heavy snow storm was approaching. The GNOC again initiated preplanning activities, including distributing reports communicating the status of AT&T's network to those needing those needing the information, including the Authority and other stakeholders. AT&T Response to Interrogatory TE-13.

All Certificate Holders stated that they imposed no limit on overtime for their staff during Tropical Storm Irene and the October Storm. Certificate Holders Responses to Interrogatories CA-6 and CA-16.

The Authority finds that Certificate Holders implemented their emergency plans or applicable parts thereof in a timely and effective manner in preparing for the 2011 Storms.

I. VIDEO CERTIFICATE HOLDERS' RESTORATION EFFORTS

Neither Connecticut law nor regulation include specific performance standards or prescribed timelines with which video Certificate Holders must comply in restoring or attempting to restore service in the event of video service interruptions caused by severe weather events or other disasters. All Certificate Holders are subject to the customer service requirements of 47 CFR 76.309(c).³⁹ Among the standards with which cable operators must comply is 47 CFR 76.309(c)(2)(ii), which states, "Excluding conditions beyond the control of the operator, the cable operator will begin working on "service interruptions" promptly and in no event later than 24 hours after the interruption becomes known. The cable operator must begin actions to correct other service problems the next business day after notification of the service problem." Pursuant to 47 CFR 76.309(c)(4)(iii), "service interruption" means "the loss of picture or sound on one or more cable channels." The federal customer service standards do not define the phrase "begin working on." The Authority finds that, within the context of 47 CFR 76.309(c)(2)(ii) and considering the severity of the 2011 Storms, "begin working on" means activating emergency plans, as applicable, or commencing communications with the electric power companies (or keeping informed of the restoration activities of the electric power companies) to determine the safest and most efficient schedule for video service restoration which, under most circumstances, must follow the restoration of electric power. The Authority finds that, to ensure the safety of the public and Certificate Holders' employees and to restore service in the most efficient and logical manner, "begin[ning] working on service interruptions" means initiating activities that

³⁹ For CVFA holders, the requirement is at Conn. Gen. Stat. §16-331j(d), and for CCFA holders, the requirement is at Conn. Gen. Stat. §16-331u(d).

must be performed well before sending technical staff into the field to take the corrective actions required to restore interrupted video service.⁴⁰

Some Certificate Holders specified that they embedded employees at CL&P and/or UI's Command Centers. Comcast Responses to Interrogatories CA-1 and CA-11; Charter Responses to Interrogatories CA-1 and CA-11; Tr. 3/19/12, pp. 55 and 56; Tr. 3/19/12, p. 96. Comcast stated that embedding employees at CL&P and UI allowed it to focus on areas which had been made safe by the electric power companies for restoration of video services. Comcast Responses to Interrogatories CA-1 and CA-11. TVC, a subsidiary of Groton Utilities, the municipal electric company service providing service in Groton, coordinated its restoration efforts for Tropical Storm Irene at the City of Groton Municipal Building with Groton Utilities' electric power component. TVC Response to Interrogatory CA-1. During and after the 2011 Storms, Certificate Holders performed numerous restoration-related activities, including the following.

For the 2011 Storms, Comcast conducted internal storm calls from its Regional Emergency Center in Berlin, Connecticut each day. Comcast monitored its network from its Network Operations Center in addition to performing "ride outs" to determine damage and downed drops. Fiber was shipped to key locations to ensure that it could be on-site quickly. Comcast Responses to Interrogatories CA-1 and CA-11. Cox monitored the effect of the 2011 Storms from its situation room, following CL&P's restoration of electric power. Cox noted that much of its restoration efforts, as was the case with all Certificate Holders, were dependent upon the pace of restoration of CL&P and safety issues. When the weather and safety conditions allowed, Cox deployed generators throughout its service areas to enable the network to continue to operate for a time while commercial power was still out. After each storm, Cox personnel followed CL&P as it made areas safe for Cox personnel and contractors to begin the work of restoring video service to affected subscribers. Cox Responses to CA-1 and CA-11.

MetroCast scheduled two conference calls per day during the pendency of the Tropical Storm Irene to evaluate issues such as system damage and resource assignment, including contractors. MetroCast conducted ride-outs of its system continuously to assess plant damage. A MetroCast supervisor and construction coordinator communicated daily with CL&P to obtain their outage updates and to report damage. Resource and staff allocation was performed as needed throughout the storm. MetroCast Response to Interrogatory CA-1. Because the October Storm had considerably less impact on MetroCast's operations in southeastern Connecticut than elsewhere in the state, its Emergency Plan was deactivated on October 29, 2011. MetroCast Response to Interrogatory CA-11.

AT&T managed its responses to the 2011 Storms on an "enterprise wide basis" for all of its affiliates. For Tropical Storm Irene, AT&T activated two response centers to support Connecticut restoration of video, telecommunications and Internet services. In addition to embedding staff with CL&P and UI, AT&T participated in conference calls with Governor Malloy to discuss federal disaster assistance and participating on the

⁴⁰ The Authority notes that reports produced by consultants hired on behalf of the PURA, the OCC and CL&P did not directly address the Certificate Holders' performance in restoring video service to affected subscribers.

TTF at the State Armory. Areas that AT&T prioritized for restoration were determined, in part, by working with CL&P and UI. AT&T Response to Interrogatory TE-1. AT&T's response during and after the October Storm essentially mirrored its responses for Tropical Storm Irene. AT&T Response to Interrogatory TE-13.

For both storms, Charter operated from its disaster Recovery Plan checklist developed over the last five years. Reports regarding system status, personnel and resources were received through calls held four times a day to coordinate restoration efforts. Status reports were also made to the Authority on a daily or twice daily basis. Charter participated on the TTF during both storms. Charter Responses to Interrogatories CA-1 and CA-11.

Certificate Holders stated that no employees suffered significant injuries as a result of their field employees' storm restoration efforts. The few injuries that did occur as a result of restoring video service after the 2011 Storms were characterized as minor. Certificate Holders Responses to Interrogatory CA-10 and CA-20.

Certificate Holders mentioned factors which hindered their efforts to restore video services. The most common reasons cited were that restoration efforts were delayed because hazardous or unsafe conditions (downed electrical wires, trees, branches and debris on roads, etc.) prevented their employees and contractors from beginning video restoration activities. Because clearing roads and deactivating, repairing and/or replacing downed electrical power lines and damaged or felled utility poles were the highest priority, Certificate Holders' restoration activities, by necessity, generally could not start in earnest until the former activities had been completed, primarily by CL&P and UI. Certificate Holders Responses to CA-1 and CA-11.

Verizon stated that because the effects the 2011 Storms had on its Greenwich service area were relatively minor, no post-event review was conducted for either weather event. Verizon Responses to Interrogatories CA-9 and CA-19. TVC indicated that it does not have a policy on post-event reviews and that a review subsequent to the October Storm was unnecessary because it resulted in minimal damage in TVC's service area in southeastern Connecticut. TVC Responses to Interrogatories CA-9 and CA-19. MetroCast performed a review after Tropical Storm Irene, but not after the October Storm, because there was little damage as a result of that storm. MetroCast Responses to Interrogatories CA-9 and CA-19. All other Certificate Holders stated that post-event reviews were conducted after both storms. Cox, Comcast, AT&T, Cablevision and Charter Responses to Interrogatories CA-9 and CA-19.

The Authority finds that Certificate Holders' performance in restoring video service in the wake of the damage caused by the 2011 Storms was reasonable and in the public interest and in the best interests of their employees who were responsible for going into the field to restore video service to subscribers. The Authority finds that Certificate Holders responded in as timely a manner as was reasonably possible, given the need to coordinate complex and dangerous post-storm activities with other stakeholders and utility providers whose services also needed to be restored. The Authority also finds that Certificate Holders deployment of back-up generators was a satisfactory temporary solution to the widespread loss of commercial electric power and was in the public interest.

Finally, the record in this proceeding did not uncover any noteworthy shortcomings or deficiencies in the Certificate Holders' individual and collective responses to the 2011 Storms that require corrective action at this time. The Authority is pleased that the clear majority of the Certificate Holders recognized the value of conducting formal or informal post-event reviews of their performance before, during and after the severe weather events to modify their emergency plans based on their real world experiences, as needed. The Authority expects the Certificate Holders to continue this practice in the future.

J. VIDEO CERTIFICATE HOLDERS' COMMUNICATION WITH CUSTOMERS, MUNICIPALITIES AND THE PUBLIC

As discussed in greater detail below, for the 2011 Storms, the Certificate Holders indicated that they maintained communications with municipal officials in their respective video service areas. No Certificate Holder stated that it had received any complaints regarding their communication efforts during the Storms. Certificate Holders Responses to Interrogatories CA-8 and CA-18.

1. Cablevision

a. Customer Communications

Cablevision maintains a total of six call centers that can respond to incoming customer calls. Calls from Connecticut customers are primarily handled by two in-state call centers. However additional call centers permit Cablevision to form a single "virtual call center" allowing the Connecticut calls to be answered at any call center. All of Cablevision's call centers were fully staffed during both outage events. Cablevision Response to Interrogatory CSU-48. In the event of storms or other anticipated incidents, Cablevision makes preparations so as to deal with increased call volume. Cablevision offers overtime and allows shift adjustments at its call centers so staff may work 10-12 hour shifts. Cablevision also stated that its preparations insure that call centers are adequately equipped and that emergency generators are adequately fueled in case they are needed. Tr. 3/19/12, pp. 27 and 28. Cablevision's call centers are staffed to operate on a 24 hours a day, 365 days per year basis. Cablevision Responses to Interrogatories CSU-52 and CSU-63. A sample of Cablevision's call center performance metrics follows:

| Date | ASA⁴¹ | ACR%⁴² | Total Calls⁴³ | Date | ASA | ACR% | Total Calls |
|----------------|-------------------------|--------------------------|---------------------------------|-----------------|------------|-------------|--------------------|
| 8/27/11 | 51 | 6.5% | 7,025 | 10/27/11 | 10 | 0.8% | 9,434 |
| 8/28/11 | 151 | 23.9% | 13,337 | 10/28/11 | 8 | 0.7% | 9,149 |
| 8/29/11 | 77 | 20.4% | 28,666 | 10/29/11 | 187 | 23.0% | 12,042 |
| 8/30/11 | 138 | 13.2% | 19,214 | 10/30/11 | 323 | 29.6% | 15,078 |
| 8/31/11 | 111 | 7.9% | 18,596 | 10/31/11 | 149 | 14.4% | 16,124 |
| 9/01/11 | 125 | 9.4% | 17,715 | 11/01/11 | 112 | 11.3% | 16,226 |

⁴¹ Average Speed of Answer, in seconds. Also includes calls answered by the automated IVR.

⁴² Abandoned Call Rate, equals abandoned calls divided by total calls (live and IVR).

⁴³ Also includes automated IVR calls.

| | | | | | | | |
|----------------|----|------|--------|-----------------|----|------|--------|
| 9/02/11 | 41 | 2.7% | 16,199 | 11/02/11 | 53 | 4.8% | 14,353 |
| 9/03/11 | 14 | 0.6% | 10,586 | 11/03/11 | 55 | 5.2% | 13,287 |
| 9/04/11 | 4 | 0.3% | 6,968 | 11/04/11 | 28 | 2.9% | 13,720 |
| 9/05/11 | 3 | 0.1% | 7,881 | 11/05/11 | 39 | 3.6% | 9,949 |
| 9/06/11 | 96 | 7.9% | 14,928 | 11/06/11 | 35 | 3.4% | 7,707 |

Cablevision Response to Interrogatory CSU-49.

From August 27, 2011 through September 6, 2011, total peak staff at Cablevision's call centers averaged approximately 850 employees. For the time period of October 27, 2011 through November 13, 2011, total peak staff at Cablevision's call centers averaged approximately 738 employees. Id. Cablevision stated that given the extent of the disruption caused by the outage events, its customer call centers performed well and it was content with its contingency planning. Cablevision Response to Interrogatory CSU-62; Tr. 3/19/12, pp. 28 and 29.

Cablevision provided its customers via its web site important information during Tropical Storm Irene, but not during the October Storm. Cablevision Responses to Interrogatories CSU-54 and CSU-65. It is the Authority's position that during events such as Tropical Storm Irene or the October Storm, the dissemination of accurate information to utility customers is as equally important to the answering of customer calls and the acquisition of information from customers. Accordingly, Cablevision will be ordered to create a webpage that contains storm and other emergency information for its customers in Connecticut.

b. Municipal & Other Utility Company Communications

According to Cablevision, it has a well-established working relationship with the chief elected officials in all 24 municipalities of its service area. Cablevision provides all of the chief local officials with contact information that enables them to reach its Connecticut-based Government Affairs staff on a 24 hours a day, 7 days a week basis for any storm-related or other matter. Cablevision Responses to Interrogatories CATV-8 and CATV-18. Cablevision stated that on a regular basis it maintains its contact and relationships with local municipal officials. Tr. 3/19/12, pp. 29 and 30. During and after Tropical Storm Irene, Cablevision did not receive any complaints from municipal officials in its service territory. During and after the October Storm, Cablevision received only one inquiry regarding service-credit policies from the municipal officials in its service territory. Cablevision Responses to Interrogatories CATV-8 and CATV-18.

During incidents such as the two outage events, Cablevision maintains direct communications with CL&P and UI at almost every level. This communication allows for Cablevision to monitor its restoration process from the executive level down to the street level where individual trucks are assigned. Further, Cablevision was able to maintain a presence at the emergency operations centers of both CL&P and UI during both storms and found this measure to be very beneficial. Tr. 3/19/12, pp. 30-32.

2. Charter Communications

a. Customer Communications

Charter operates virtual call centers nationally that are established to respond to customer service calls. The virtual call centers are capable of handling fluctuating call volume at any time such as what was encountered during the two outage events. When the call centers become aware of widespread power outages resulting from storms, Charter staff is provided with continuous updates regarding the status of the network and the affect to service. Charter's automated IVR system can announce a message regarding outage situations as well as having this information available on its web site. Charter Response to Interrogatory CSU-48. Charter's call centers are staffed to be available on 24 hours per day, 7 days per week basis. Charter Responses to Interrogatories CSU-52 and CSU-63. Charter stated that its virtual call center approach was well situated to deal with the increase in call volume resulting from service outages due to the two storms. Charter contends that because incoming customer calls can be distributed to the next available agent at the any one of its call centers, incoming call volume was successfully responded to as its agents. Charter Response to Interrogatories CSU-51 and 62. The following are performance metrics reported by Charter to the FCC for its virtual call centers:

| Month | ASA⁴⁴ | ACR%⁴⁵ | Total Calls |
|------------------|-------------------------|--------------------------|--------------------|
| August | 3 | 0.44% | 10,222,514 |
| September | 3 | 0.51% | 9,862,965 |
| October | 4 | 0.41% | 9,528,633 |
| November | 4 | 0.44% | 9,083,695 |

Charter Response to Interrogatories CSU-49 and CSU-60.

Charter provided copies of information and instructions that were distributed to call center staff to assist them with answering customer questions and complaints regarding service outages. Based on the documentation provided, Charter call center staff was given sufficient information in order to assist its customers. Charter Responses to Interrogatories CSU-58 and CSU-69. However, Charter indicated that it does not have a web page dedicated to storm information for its customers. During and after both outage events, Charter placed a banner on its website that contained information specific to the storm. Charter stated that it is exploring different methods of communicating more effectively to its customers that are affected by storms or other disasters that affect service. Charter Responses to Interrogatories CSU-54 and CSU-65. As stated previously, it is the Authority's position that during events such as Tropical Storm Irene or the October Storm, the dissemination of accurate information to utility customers is as equally important to the answering of customer calls and the acquisition of information from customers. Accordingly, Charter will be ordered to create a webpage that contains storm and other emergency information for its customers in Connecticut.

b. Municipal & Other Utility Company Communications

⁴⁴ Average Speed of Answer, in seconds.

⁴⁵ Abandoned Call Rate.

Charter's Government Relations and Public Relations staff was responsible for establishing and maintaining communications with municipal officials during the two outage events. In this capacity, Charter staff contacted municipal officials and members of its cable advisory councils to provide status reports on its restoration efforts. Charter staff also worked with its municipal contacts so as to obtain information on local conditions such as road closings and downed drop lines. Charter Responses to Interrogatories CATV-8 and CATV-18. It has been Charter's past practice to speak with the municipal officials in its service territory on an annual basis regarding emergency plans and protocols. However, Charter has stated that given the experiences learned from the two outage events, it is looking to make improvements to the communications with municipal officials. Tr. 3/19/12, pp. 40 and 41. Subsequent to the October Storm, Charter provided updated emergency contact information to its municipal officials. This information was also to be shared with all of the towns' public safety and emergency operations officials. Charter states that this information will now be sent to the municipal officials in their service territory on an annual basis. Charter Response to Interrogatory CSU-50. According to Charter, the municipal officials were very appreciative of the updated emergency information provided in the wake of the October Storm. Tr. 3/19/12, pp. 41 and 42.

On or around the fourth day following Tropical Storm Irene, Charter was permitted to have a staff person at the CL&P emergency operations center. Once this was in place, Charter was able to receive quicker updates on CL&P's cut-clear, make-safe efforts. Charter Response to Interrogatory CATV-8. Prior to this, Charter stated that there was some frustration in getting its staff embedded at CL&P, but since then relations with CL&P have improved. Tr. 3/19/12, pp. 42 and 43. For the October Storm, Charter staff was embedded at the CL&P emergency operations center immediately. Tr. 3/19/12, p. 42. Consequently, the coordination with CL&P improved over what was experienced during Tropical Storm Irene. Charter Response to Interrogatory CATV-18.

3. Cox Communications

a. Customer Communications

Cox maintains a New England call center that serves Connecticut customers. During both outage events, this call center was fully staffed and opened on 24 hours a day, 7 days per week basis. Along with its New England call center, Cox was also able to utilize its other national call centers, outsource partners, and alternative media to ensure communications for its customers. Cox Responses to Interrogatories CSU-48, CSU-52 and CSU-63. Utilizing this approach, during and after each of the two storms, Cox could rely on approximately 230 full-time equivalent (FTE) employees at the New England call center, an additional 200 FTE employees at its outsource partners, and an unquantifiable number of FTE employees nationally. Cox Response to Interrogatory CSU-49. Some of the national call center were located in Kansas, Oklahoma, San Diego and Virginia. Further, having calls answered in San Diego allowed Cox customer calls to be answered later in the evening. Tr. 3/19/12, p. 61. In anticipation of both storms, Cox implemented a number of emergency measures. These included offering unlimited overtime to its employees, securing accommodations for employees at local hotels, initiating its Business Continuity Plan that allowed Connecticut calls to be

answered throughout the country, reallocated call support from its Retention and Sales queues so those representatives could address storm-related calls and updated messaging on its IVR and social media sites to help keep customers informed. Cox Responses to Interrogatories CSU-48 and CSU-62. Along with these measures, during and after the 2011 Storms, Cox would hold three-time daily operational calls with its New England and national call centers. These operations calls were to proactively address call center responsiveness, ensuring that agents were providing the latest and most accurate information to customers, and reviewing call center performance metrics. Cox Responses to Interrogatories CSU-51 and CSU-62. According to Cox, given the extraordinary weather events and resulting disruption to commercial electrical power and broadband services, its customer-care personnel performed in an extremely capable and customer-focused manner. Cox Response to Interrogatory CSU-59. Cox stated that in response to the 2011 Storms, it assumed an all-hands mentality and brought to bear all of the resources that it could in order to respond to customer calls. Tr. 3/19/12, p. 62. The following is a sample of Cox's call center performance metrics during both outage events:

| Date | ASA⁴⁶ | ACR%⁴⁷ | Total Calls⁴⁸ | Date | ASA | ACR% | Total Calls |
|----------------|-------------------------|--------------------------|---------------------------------|-----------------|------------|-------------|--------------------|
| 8/27/11 | 54 | 4.5% | 6,301 | 10/30/11 | 66 | 9.3% | 14,280 |
| 8/28/11 | 162 | 19.7% | 13,953 | 10/31/11 | 21 | 2.7% | 15,086 |
| 8/29/11 | 42 | 5.8% | 24,380 | 11/01/11 | 74 | 6.8% | 16,082 |
| 8/30/11 | 31 | 3.6% | 16,488 | 11/02/11 | 141 | 13.7% | 20,920 |
| 8/31/11 | 50 | 4.1% | 14,789 | 11/03/11 | 85 | 8.7% | 20,735 |
| 9/01/11 | 118 | 9.1% | 14,116 | 11/04/11 | 65 | 4.7% | 18,892 |
| 9/02/11 | 152 | 13.4% | 13,283 | 11/05/11 | 124 | 13.6% | 16,966 |
| 9/03/11 | 127 | 12.1% | 8,551 | 11/06/11 | 416 | 27.2% | 17,714 |
| 9/04/11 | 54 | 5.3% | 4,247 | 11/07/11 | 154 | 11.8% | 23,443 |
| 9/05/11 | 140 | 19.0% | 5,537 | 11/08/11 | 100 | 9.2% | 19,197 |
| 9/06/11 | 142 | 13.5% | 12,085 | 11/09/11 | 98 | 7.3% | 17,787 |

Cox Responses to Interrogatories CSU-49 and CSU-60.

Cox provided copies of information and instructions that were distributed to call center staff to assist them with answering customer questions and complaints regarding service outages. Based on the documentation provided, Cox call center staff was given very meaningful information in order to assist its customers. Cox Responses to Interrogatories CSU-58 and CSU-69. However, Cox also indicated that it does not maintain a web page dedicated to storm or other emergency information. Cox states that in lieu of a web page, it encourages its customers to utilize email or social media such as Facebook. During and after both storms, Cox responded to over 12,000 emails from its New England customers. Cox Responses to Interrogatories CSU-54 and CSU-65. Cox utilized this approach with its customers knowing that call volume would be heavy. According to Cox, it has approximately 13,000 followers on Facebook and found that this type of alternative communication channel was very helpful as a means to

⁴⁶ Average Speed of Answer, in seconds.

⁴⁷ Abandoned Call Rate.

⁴⁸ Equals total calls offered to live agents plus total calls handled by IVR.

identify specific issues and provide information to customers during the storms. Tr. 3/19/12, p. 63. While the Authority encourages the uses of alternative modes of customer communications, maintaining storm or other emergency information on a web page is also vital to customers. Accordingly, Cox will be ordered to create a webpage that contains storm and other emergency information for its customers in Connecticut.

b. Municipal & Other Utility Communications

Cox participates quarterly with the Office of Statewide Emergency Telecommunications (OSET) calls as well as during major storm periods. Cox Responses to Interrogatories CATV-8 and CATV-18, Tr. 3/19/12, p. 54. Cox stated that the OSET calls were the primary method of updating municipalities about its emergency communications plan. Tr. 3/19/12, pp. 54 and 55. For Tropical Storm Irene, Cox provided to OSET leadership advance notification (orally and in writing) of on-going communications for municipal public safety officials. Cox Response to Interrogatory CATV-8. During the October Storm, Cox participated in every telephone conference call with the Governor's Unified Command system as well as provided updates to the Authority each day. Cox Response to Interrogatory CATV-18. During and after both outage events, Cox provided municipal officials with a separate escalation line directly into its Systems Operation Center to address any significant issue that requires immediate attention. Tr. 3/19/12, pp. 57 and 58. Noting Cox's quarterly participation in the OSET calls, Cox should also consider providing to municipal contacts a direct written notification of its emergency communications plans and associated information on an annual basis.

Cox claimed that coordination of its restoration efforts with CL&P were much better during the October Storm as compared to Tropical Storm Irene. Cox Response to Interrogatory CATV-18. According to Cox, it had personnel embedded at the CL&P emergency operations center at the beginning of the October Storm, but not during Tropical Storm Irene. The reason for this was that Tropical Storm Irene's effects were more significant in Rhode Island, while the October Storm was exactly the opposite. Tr. 3/19/12, pp. 55 and 56. Prior to these two outage events, Cox had never encountered a weather related outage or circumstance that would require personnel embedded at either of the two electric distribution companies but did recognize the value to its restoration process of having this option available. Tr. 3/19/12, pp. 56 and 57.

4. Comcast

a. Customer Communications

In anticipation of both storms, Comcast initiated its Emergency Response Plan to handle increased telephone volume. These contingencies included increased call center staffing, increased overtime availability and the procurement of hotel rooms and meals. Comcast Response to Interrogatory CSU-51; Tr. 3/19/12, p. 73. This plan also ensures that stand-by emergency generator power is ready and available should it be necessary. Comcast stated that its call center in Enfield remained operational even though the City of Enfield was without commercial power. Comcast Response to Interrogatory CSU-51. Along with its local call centers, Comcast also alerted other national and third-party call centers in the event additional resources were necessary.

At the highest point, Comcast directed calls to four additional call centers in Massachusetts and New Hampshire to address additional Connecticut call volume. Tr. 3/19/12, pp. 73 and 74. During and after the 2011 Storms Comcast call center staff was available on a 24 hours per day basis. Comcast Responses to Interrogatories CSU-52 and CSU-63. Comcast contends that given the nature of the storms and the number of customers that lost commercial power, its call centers performed well. Comcast Response to Interrogatory CSU-51. In addition, Comcast was very satisfied by the results of its pre-storm contingency plans and sees no reason to make any changes. Tr. 3/19/12, p. 75.

Comcast maintains a web page that includes information on general storm preparedness. During and after both storms, this web page received almost 75,000 hits from customers. Comcast customers also had the ability to login to their online account to view outage information. This process was also made available to mobile devices. Comcast Responses to Interrogatories CSU-54 and CSU-65.

b. Municipal & Other Utility Company Communications

According to Comcast, it has cultivated local relationships with all of the communities in its service territory. Each municipality is assigned a Comcast Government Relations manager who acts as a liaison and communications channel between Comcast and the towns it serves. A copy of Comcast's Emergency Response Plan was provided to all of its municipalities in June, 2011. This plan outlines Comcast's emergency response procedures and provided direct contact information to its Network Operations Center and specific Comcast representatives. During and after the storms, Comcast worked with its municipal officials to prioritize service restoration to key municipal buildings, emergency operations shelters, and shelters. If necessary, Comcast deployed generators to power its services at critical locations. Comcast stated that during the restoration process for both storms, it did not receive any complaints from municipal officials regarding its communications. Comcast Responses to Interrogatories CATV-8 and CATV-18. Along with its communications to municipal officials, Comcast also provided regular outreach to the 14 Advisory Councils in its service territory, participated in the Governor's daily conference calls, and maintained daily contact with the Authority regarding storm restoration efforts. Tr. 3/19/12, pp. 75 and 76. Starting in January 2012 and annually thereafter, Comcast has begun sending notices to its municipalities reminding them of the emergency contact information and procedures. Comcast Responses to Interrogatories CATV-8 and CATV-18.

Comcast, like other video service providers, was able to embed staff at the emergency operations centers of CL&P and UI. Comcast found that this cooperation between it and the electric distribution companies to be very beneficial to the restoration process. Similar to other video service providers, Comcast had never encountered a storm or emergency situation that required staff to be embedded at either CL&P's or UI's emergency operations centers. According to Comcast, once it was requested from CL&P or UI, the request to embed staff was quickly granted. Tr. 3/19/12, pp. 79 and 80.

5. AT&T U-Verse

a. Customer Communications

In order to respond to increased call volume that would be generated by the two outage events, AT&T U-Verse utilized its national network of repair service call centers. According to AT&T U-Verse, call center data is tracked aggregately from the 22 states in which it operates. As a result of this, Connecticut-specific call center performance metrics were not available for review. AT&T U-Verse Responses to Interrogatories CSU-49 and CSU-60. During and after each of the two storms, AT&T U-Verse's repair service call centers were open 24 hours a day, 7 days per week basis. AT&T U-Verse Response to Interrogatories CSU-52 and CSU-63. AT&T U-Verse utilizes the same web page as AT&T Connecticut which includes a significant amount of information regarding storm and emergency preparedness for its customers. AT&T U-Verse Responses to Interrogatories CSU-54 and CSU-65. During and after the storms, AT&T U-Verse utilized its IVR system to advise customers of possible weather related problems, and to assure customers that its network teams were working to restore service. In addition, AT&T U-Verse placed a message on its IVR to advise customers that the repair service call centers were experiencing high call volumes. AT&T U-Verse Responses to Interrogatories CSU-48 and CSU-59.

b. Municipal & Other Utility Company Communications

AT&T U-Verse's communications with municipal officials, governmental officials and other utility companies was similar to the processes and procedures followed by AT&T Connecticut. AT&T U-Verse Responses to Interrogatories CATV-8 and CATV-18, Tr. 3/19/12, pp. 93-96. As discussed previously, the Authority ordered AT&T Connecticut to provide, on an annual basis, to the municipal officials in its service territory, correspondence that updates and describes all of the important information and telephone numbers regarding its External Affairs manager and all other storm or emergency related communications. To the extent that AT&T U-Verse utilizes the same policies and procedures as AT&T Connecticut for its communications with municipal officials, this order shall also extend to AT&T U-Verse as well.

6. Verizon FiOS (Video Product)

a. Customer Communications

Verizon's Fiber Solutions Call Center in Syracuse, New York is primarily responsible for customer calls from Connecticut. Tr. 3/19/12, p. 106. However, to address any increase in call volume and meet call center responsiveness goals, Verizon utilized call centers across the Verizon footprint to balance incoming calls. Verizon Responses to Interrogatories CSU-51 and CSU-62. During and after both storms, the Fiber Solutions Call Center normal business hours were Monday through Saturday, 7:00 a.m. to midnight. In case of after-hours or Sunday calls, Verizon's other call centers in its operating footprint were available to respond to the customer. Verizon Responses to Interrogatories CSU-52 and CSU-63. Verizon is unable to segregate Connecticut-specific data to determine the average speed of answer, but was able to provide the total number of calls received from Connecticut customers during and after both storms. Tr. 3/19/12, pp. 107 and 108. The following is a breakdown of calls received from Connecticut Verizon FiOS customers during and after the two storms:

| Date | Total Calls | Date | Total Calls |
|---------|-------------|----------|-------------|
| 8/27/11 | 5 | 10/27/11 | 8 |
| 8/28/11 | 37 | 10/28/11 | 4 |
| 8/29/11 | 19 | 10/29/11 | 11 |
| 8/30/11 | 15 | 10/30/11 | 6 |
| 8/31/11 | 16 | 10/31/11 | 10 |
| 9/01/11 | 8 | 11/01/11 | 9 |
| 9/02/11 | 10 | 11/02/11 | 7 |
| 9/03/11 | 3 | 11/03/11 | 8 |
| 9/04/11 | 5 | 11/04/11 | 8 |
| 9/05/11 | 7 | 11/05/11 | 11 |
| 9/06/11 | 9 | 11/06/11 | 2 |

Verizon Responses to Interrogatories CSU-49 and CSU-60.

Similar to Verizon telephony customers, there is no web page with Connecticut specific service information available to FiOS customers. Verizon Responses to Interrogatories CSU-54 and CSU-65. Also similar to Verizon telephony customers, its FiOS network was minimally impacted. According to Verizon, its network did not experience many outages and remained in a business as usual operational mode. Verizon Response to Interrogatory CSU-59. However, as previously discussed, while Verizon's Greenwich service territory might have been minimally impacted during both storms, this might not be the case in the next storm or emergency event. During events such as Tropical Storm Irene or the October Storm, the dissemination of accurate information to utility customers is as equally important to the answering of customer calls and the acquisition of information from customers. Accordingly, Verizon will be ordered create a webpage that contains storm and other emergency information for its customers in the Greenwich service territory

b. Municipal & Other Utility Company Communications

Verizon explained that it shared its emergency plans with its municipal contacts prior to events such as the two storms as well as periodically through the year. For Greenwich, these plans were discussed on a quarterly basis with municipal officials. Tr. 3/19/12, p. 104. Throughout Tropical Storm Irene, a Verizon Government Affairs manager was in daily contact with the Greenwich Town Administrator. During these calls, the Verizon staff member would provide a status report on restoration efforts. Verizon Response to Interrogatory CATV-8. For the October Storm, Verizon also established communications with Greenwich municipal officials to discuss any major issues. Verizon states that it received no complaints during or after the October Storm regarding its communications with municipal officials. Verizon Response to Interrogatory CATV-18. Verizon stated that it also participated daily in the State Telecom Task Force calls to provide restoration updates to state officials. Verizon Responses to Interrogatories CATV-8 and CATV-18. *Id.* Verizon also had a liaison process in place with its counterparts at CL&P to coordinate restoration activities and priorities. The liaison process did not involve a Verizon employee at CL&P's emergency operations center, but consisted of one-on-one communications between the Verizon

and CL&P operations staff. Verizon states that through this process, it is capable of coordinating its restoration work as efficiently as possible. Tr. 3/19/12, pp. 104 and 105.

7. Authority Analysis

The Authority finds that the Certificate Holders did a satisfactory job in maintaining communications with its various constituencies, devoting personnel and resources to attempt to ensure that municipal officials and customers were informed of their restoration efforts. The Certificate Holders also devoted adequate time and resources to notifying municipal officials regarding the problems associated with restoring video service in a safe and timely manner, given the severity of the 2011 Storms and the general requirement that electric power be restored first. The Authority did not detect any noteworthy shortcomings in the Certificate Holders' performance in communicating with its audiences during and after the 2011 Storms.

K. CABLE CERTIFICATE HOLDERS' COMPLIANCE WITH CREDIT AND REFUND OBLIGATION

Connecticut law requires that all video Certificate Holders in Connecticut provide credits or refunds to subscriber whose video service is interrupted for 24 or more consecutive hours (qualifying outage).⁴⁹ The Authority separately reviewed Connecticut Video Certificates Holders' compliance with the credit and refund obligation incurred as a result of damage to their video service-related facilities caused by the 2011 Storms.

The number of subscribers who experienced qualifying outages as a result of the August Storm varied widely by Certificate Holder, from 18 Verizon subscribers to 131,000 Cablevision subscribers. Only Cox was unable to provide an estimate of the number of subscribers who experienced a qualifying outage, indicating that loss of service was the result of commercial power and that an unknown number of Cox subscribers were able to use a generator or other device to power a television receiver, converter or DVR. Verizon, Cablevision and Cox Responses to Question No 1, September 21, 2011 Tropical Storm Irene Letter (Tropical Storm Irene Letter). The average duration of qualifying outages also varied considerably, from 40.5 hours for AT&T customers, to 6.5 days for MetroCast subscribers. Cox stated that it was unable to calculate the average duration of qualifying outages experienced by its subscribers because the cause of the outages was primarily the function of the loss of commercial power. AT&T, MetroCast and Cox Responses to Question No. 2, Tropical Storm Irene Letter.

Comcast stated that it had provided approximately \$259,000 in credits and refunds to subscribers, with the other Certificate Holders providing refunds ranging from \$104 to Verizon customers, to \$150,000 to Charter subscribers. Certificate Holders Responses to Question No. 3, Tropical Storm Irene Letter. Generally, credits and refunds were provided to subscribers in the billing cycle after a customer reported having had experienced a qualifying outage. Certificate Holders Responses to Question 4, Tropical Storm Irene Letter.

⁴⁹ For CVFA holders, the statutory obligation to provide credits and refunds for such video service interruptions is at Conn. Gen. Stat. Section 16-331I, and for CCFA holders, the obligation is at Conn. Gen. Stat. Section 16-331w.

Video service was restored to the Certificate Holders' separate service areas between September 2, 2011 for AT&T, to September 8, 2011, for all Comcast service areas. AT&T and Comcast Responses to Question No. 5, Tropical Storm Irene Letter. MetroCast stated that the video service in the vast majority of its service area had been restored by September 5, 2011, while Charter indicated that service had been restored by September 6, 2011, but much of its two areas had video service restored well before that date. MetroCast and Charter Responses to Question No. 5, Tropical Storm Irene Letter. The Certificate Holders stated that credits or refunds would be provided if subscribers notified them that they had experienced qualifying outages. Certificate Holders Responses to Question No. 6, Tropical Storm Irene Letter.

As was the case with Tropical Storm Irene, the number of subscribers who experienced qualifying outages as a result of the October Storm varied significantly by Certificate Holder, with Verizon indicating that only three subscribers experienced qualifying outages, and for Comcast 156,140. Verizon and Comcast Responses to Question No. 1, November 17, 2012 Authority Letter (October Storm Letter). Cox again indicated that it could not estimate the number of subscribers that experienced such service interruptions. The average duration of the length of qualifying outages also varied widely. For example, Charter stated that the average duration of qualifying outages in its two service areas ranged from "very limited" to "almost a week," and Verizon indicated that the average duration was 69 hours. Charter and Verizon Responses to Question No. 2, October Storm Letter. Cox stated that it was unable to calculate the average duration, but that most downed drops were repaired within 24 hours and all were repaired within 36 hours of being notified by a subscriber of a video service problem. Cox Response to Question No. 2, October Storm Letter.

The number of subscribers who experienced lengthy video outages determined, in part, the amount refunded by each Certificate Holder. Because the damage from the October Storm was least severe in the eastern part of the State, MetroCast provided \$137.10 in credits and refunds, while Cox and Comcast provided \$1,127,000 and \$1,300,000 in credits and refunds, respectively, with Cox stating the amount refunded included credits and refunds for services other than video, such as its phone and Internet products. Cox and Comcast Responses to Question No. 3, October Storm Letter. As was the case with Irene-related credits and refunds, October Storm-related credits and refunds were normally issued in the billing cycle following a report by a subscriber that a qualifying outage had been experienced. Certificate Holders' Responses to Question No. 4, October Storm Letter.

MetroCast and TVC stated that they did not lose power for an extended period of time as a result of damage caused by the October Storm. MetroCast Response to Question 5, October Storm Letter; TVC Response to Interrogatory CA-14. The latest that video service in a separate service area was completely restored was November 15, 2011. Comcast and Charter Responses to Question No. 5, October Storm Letter. As was the case with Irene-related credits and refunds, the Certificate Holders stated that, for subscribers to be provided refunds and credits for having experienced qualifying outages, they had to notify their certificated video provider. Certificate Holders' Responses to Question No. 6, October Storm Letter.

The Authority notes that making direct comparisons among the Certificate Holders to their responses to the Tropical Storm Irene Letter and October Storm Letter is difficult for the following reasons. First, the number of subscribers served by different Certificate Holders varies widely. For example, Verizon provides video service to Greenwich only, while AT&T's service area is statewide and Comcast provides video service in 84 municipalities. Second, individual service areas vary with respect to topography and the amount of video-related plant and facilities affected by the two storms. Third, although both storms caused some damage throughout the entire state, the damage was not distributed evenly. Finally, electric power to the state was restored over extended periods of time after the 2011 Storms. Therefore, some video service areas, or parts thereof, were restored more quickly than others, which affected the duration of the extended service interruptions and the amounts of the required credits and refunds.

The Authority finds that the Certificate Holders were in substantial compliance with the credit and refund obligations of state law for qualifying outages that subscribers experienced as a result of both storms.⁵⁰ The Department reminds all Certificate Holders that the only exception to the requirement that they provide credits or refunds to subscribers who experience qualifying outages is if the video service interruption was caused by the subscriber. The loss of commercial power is not justification for the Certificate Holders to decline or refuse to provide the required credits and refunds to subscribers experiencing qualifying video service outages.

An impediment to ensuring that all subscribers who are entitled to credits or refunds is that subscribers must first notify their certificated video provider that they have experienced a qualifying outage. After the notification, Certificate Holders provide the credit or refund, normally applying it to the billing cycle after the subscriber provided the notification, with Comcast and MetroCast first verifying that the outage had occurred. Certificate Holders do not always automatically know which of their subscribers experience qualifying outages and do not generally provide credits or refunds unless subscribers take the first step and notify them.

Because subscribers must take the first step to receive a credit or refund to which they are entitled, it is incumbent upon all Certificate Holders to be in compliance with the statutory requirement that at the time of initial subscription and annually thereafter, they provide subscribers with, among other information, a description of their credit policies.⁵¹ The description must include a prominent statement saying that, in the event of a video service outage lasting 24 or more consecutive hours, the affected subscriber must notify the company to receive a credit or refund. The notice must also include a statement regarding how many days after a qualifying outage a subscriber has to notify his or her video provider that such an interruption has been experienced.

⁵⁰ The Authority notes that TVC initially indicated that it would not issue credits and refunds to subscribers whose video service was interrupted for 24 or more consecutive hours as a result of damage caused by Tropical Storm Irene. TVC Response to Question No. 3, Tropical Storm Irene Letter. By its December 11, 2011 response to the Authority's November 16, 2011 letter, TVC indicated that it would provide credits and refunds, as required by statute.

⁵¹ For CVFA holders, the requirement is at Conn. Gen. Stat. Section 16-331j, and for CCFA holders, the requirement is at Conn. Gen. Stat. Section 16-331u.

All Certificate Holders will be required to file with the Authority, a copy of the informational notices required by statute annually by July 1, beginning in 2013.

L. GAS COMPANIES

1. Description of the Storms, Outages and Damage to Natural Gas Company Infrastructure.

a. Tropical Storm Irene

In preparation for Tropical Storm Irene, Southern Connecticut Gas Company (SCG), Connecticut Natural Gas Company (CNG), and Yankee Gas Services Company (Yankee or YGS; collectively, Natural Gas Companies) began discussions and meetings days prior to the storm in order to initiate precautionary measures. The Natural Gas Companies were in communication with the Authority's Gas Pipeline Safety Unit (GPSU) as Tropical Storm Irene approached. The Natural Gas Companies kept the GPSU informed of their identified issues and their associated response throughout Storm Irene. Natural Gas Companies Responses to Interrogatory GPS-001.

YGS Tropical Storm Irene preparation consisted of the following steps:

- Initiated system-wide conference calls several days prior to the storm to initiate and track precautionary measures being taken;
- Yankee's director of field operations participated in CL&P's storm preparation conference calls;
- Filled vehicles and equipment with fuel prior to the storm;
- Moved vehicles and equipment out of areas prone to flooding;
- Stored or secured equipment stored outside;
- Placed additional employees on-call;
- In some instances, provided on-call employees with hotel accommodations within the service territory to facilitate timely response to emergencies;
- Rented satellite phones for Pressure Management employees;
- Had service mechanics bring home company vehicles to ensure timely response to emergencies; and
- Staffed an ad hoc emergency operations center in Dispatch with Operations, Safety, management and support staff throughout the duration of the storm.

YGS Response to Interrogatory GPS-001.

CNG and SCG Storm Irene preparation consisted of the following steps:

- Gassing up all vehicles – service vans, crew trucks, fitter wagons, poor pressure truck, and backhoes at the main operations facility and satellite stations;
- SCG established a satellite location at its Trumbull LP facility;
- Prepared all pumps – check oil, fill with gas, gaskets in place, suction and discharge hoses;
- Prepared all generators – check oil, fill with gas, ground fault interrupters (GFIs), extension cords;

- Load tested all gate station emergency generators;
- Put additional technicians on-call with take home vehicles;
- Staffed Backup Gas Control Center;
- Added additional staffing at liquefied natural gas (LNG) plants;
- Filled storage bins to capacity – sand, stone, Wespro;
- Sand bags – how many in stock;
- Batteries – flashlights;
- Identified regulators with water problems;
- Pumped regulator vaults as necessary;
- Prepared drip list – ensure pumps are tested and ready;
- Inventory Hazardous-waste drums;
- Back filled all jobs in progress if possible and remove plates from the roadway;
- Reviewed Greenwich needs – equipment, personnel;
- Secured facility – pipe storage, loose materials stored outdoors, equipment;
- Backup communications – portables radios, cell phones, landlines;
- Personnel requirements;
- Procurement card assignments; and
- Implemented calling tree (order of escalation of calls and validation of all storm personnel phone numbers).

CNG and SCG Responses to Interrogatory GPS-001.

The natural gas systems in Connecticut fared very well before, during and after Tropical Storm Irene. Significant pre-planning on the part of the Natural Gas Companies, coupled with the fact that the majority of the natural gas infrastructure is buried, attributed to minimizing potential issues such as outages.

Tropical Storm Irene resulted in a minimal number of gas outages. YGS had 428 customers whose natural gas service was interrupted. This is approximately 0.3% of YGS customers. Of those interruptions, 363 were due to a down electric line that damaged YGS gas distribution pipe (gas main) in Oxford, Connecticut. YGS customers were restored within four days. YGS Response to Interrogatory GPS-002. CNG had 252 customers whose service was turned off, mostly due to basement flooding in the Greenwich area. This is approximately 0.2% of CNG's customers. The Greenwich gas customers were restored within 24 hours. CNG did not experience any customer outages in the greater Hartford area. CNG Responses to Interrogatory GPS-001 and GPS-002. SCG experienced interruption of gas service to 11 customers, mostly due to basement flooding. This is approximately 0.008% of SCG's customers. SCG customers' service was restored within four days. SCG Responses to Interrogatory GPS-002 and GPS-003. Most customers were restored with gas service as soon as the water levels receded and the customer's gas systems were deemed safe for restoration.

b. October Storm

YGS is aware that snowstorms do not typically cause significant operational issues for natural gas companies. Accordingly, in preparation for the October Storm, YGS took normal precautionary measures for adverse weather conditions such as

fueling vehicles and sharing a winter storm safety message with all employees. YGS pre-staged portable generators at the gate stations that were not equipped with automatic emergency generators in preparation for possible power outages. YGS Response to Interrogatory GPS-013. CNG and SCG October Storm preparations consisted of the same steps as those listed above for Tropical Storm Irene. CNG and SCG Responses to Interrogatory GPS-013. The Natural Gas Companies were in communication with the Authority's GPSU as the October Storm approached and kept the GPSU informed of their identified issues and their associated responses throughout the storms.

The October Storm caused only one gas outage. YGS had one customer whose gas service was interrupted due to minor flooding in Suffield, Connecticut. The customer's gas service was restored in one day.

2. Emergency Response and Outage Restoration

The Natural Gas Companies follow their Emergency Plans during an emergency event. The Emergency Plans provide written procedures to be followed during an event that requires immediate attention. The Emergency Plans procedures reduce the hazards to the public and minimizes the interruption of gas service to customers.

The Natural Gas Companies have not experienced an outage of the magnitude that the electric utility companies experienced during the 2011 Storms. The Natural Gas Companies' Emergency Plans do not adequately address the time it would take to restore gas customers after a large scale natural gas outage. The process of isolating each gas customer, purging the gas lines back in service, and then relighting each individual customer is extremely time consuming and should be reflected in each of the Natural Gas Companies' Emergency Plans. Data examined from a 1989 outage of about 7,500 Torrington customers showed that one mechanic could isolate one customer per hour. The restoration process equated to about one customer restored per two hours per mechanic. YGS Late Filed Exhibit No. 036.

Pursuant to Public Act 12-148, the Natural Gas Companies are required to submit copies of their updated Emergency Plans by July 1, 2012, to the Authority. Among other things, these updated Emergency Plans must include provisions for the Natural Gas Companies to respond to service outages affecting more than 10%, 30%, 50% and 70% of their customers. The Authority will review the Natural Gas Companies' Emergency Plans and address any concerns in Docket 12-06-11.

Throughout the 2011 Storms, many fueling stations were without electrical power which prevented them from being able to dispense fuel to vehicles. The Natural Gas Companies were affected by lack of available fuel in certain areas of the state during the October Storm. YGS stated that it had some difficulties obtaining gasoline in its East Windsor work area. Tr. 3/26/12, p. 592. CNG stated that during the October Storm it had some challenges obtaining gasoline in the Hartford area. Tr. 3/26/12, p. 596. The Natural Gas Companies did not have issues with providing diesel fuel to their equipment. The dispensing of diesel fuel is allowed to be performed through a process called "wet hosing." Wet hosing is a process of fueling vehicles from tank trucks, where the tank trucks are driven to the yards or sites where the vehicles to be fueled are kept

when they are not in use. This allowed the Natural Gas Companies to have their diesel equipment refueled on-site at their work center locations. Natural Gas Companies Responses to Interrogatory GPS-028. The Natural Gas Companies are continuing to evaluate additional locations to utilize temporary above ground fuel tanks for gasoline and options for fueling vehicles at municipally owned fueling stations within their service territories that have back up power supply. Id. The Authority will continue to monitor the Natural Gas Companies' progress on this issue through an associated order.

3. Communication/Interfacing with Customers, Utilities, and Municipalities

The Natural Gas Companies maintain communication with the GPSU in the event of an emergency or a gas incident. If there were a major incident the Natural Gas Companies are required to notify the GPSU of the event. YGS Response to Interrogatory GPS-009. During the 2011 Storms, the Natural Gas Companies were in contact with the GPSU on a daily basis. The Natural Gas Companies updated the GPSU on the status of outages and their restoration process along with any other issues with regard to maintaining gas service to their customers.

The Natural Gas Companies did not receive any complaints from municipal officials regarding its communications during and after the 2011 Storms. Natural Gas Companies Responses to Interrogatory GPS-009.

4. External Assistance

The Natural Gas Companies maintain a mutual aid agreement with the Northeast Gas Association (NGA), the American Gas Association (AGA), and the Southern Gas Association (SGA). In the event of a gas outage requiring personnel from the Northeast region, the Natural Gas Companies would have the ability to request assistance through the NGA Mutual Assistance Plan. The NGA Mutual Assistance Plan provides details as to what equipment can be provided and the number of personnel that would be available to assist. The NGA would coordinate the personnel, supplies and/or equipment from the member companies. The responsiveness of mutual assistance in nearby regions is a great benefit of the NGA. If additional personnel are needed from beyond the geographical reach of the northeast, a request would go to the SGA and/or the AGA. Natural Gas Companies Responses to Interrogatory GPS-027.

5. Loss of Electrical Power

The Natural Gas Companies maintain communications with their gas distribution systems through a communication system called Supervisory Control and Data Acquisition (SCADA). SCADA is a computer-based system or systems that collects and displays information about a pipeline facility and may have the ability to send commands back to the pipeline facility. The Natural Gas Companies' SCADA systems require electrical power and telecommunications capability in order to maintain monitoring and control capability of the gas distribution systems. The Natural Gas Companies lost electrical service to some of their gate stations and therefore lost communications to those sites. Many of the gate stations have automatic generators. Those that do not have automatic generators were supplied with portable generators.

Many remotely monitored data points were without power, so the SCADA systems were not fully functional; however, in most areas the remaining functioning data points provided enough information for the Natural Gas Companies to adequately monitor their respective system's integrity. In areas with insufficient data point information, the Natural Gas Companies dispatched personnel to monitor the systems until communications were restored. Natural Gas Companies Responses to Interrogatories GPS-005 and GPS-017. The use of fixed backup generators and portable generators met the needs of the Natural Gas Companies in order to maintain gas service and adequate monitoring of the gas distribution systems. Tr. 3/26/12, pp. 586 and 587.

6. Company Proposed Preparation and Restoration Improvement Initiatives

The Natural Gas Companies' facilities performed extremely well during the 2011 Storms. There was a minimal number of gas outages experienced. Despite this, the Natural Gas Companies conducted preparedness meetings and post-2011 Storm meetings to assess lessons learned. Lessons learned for SCG and CNG were to have multiple sources of communication and to have committed fuel suppliers for backup generators. SCG and CNG Response to Interrogatory GPS-010. In addition, SCG and CNG will be performing emergency drills in 2012 with limited communication ability and limited vehicle fueling options incorporated into the drill. SCG and CNG Response to Interrogatory GPS-022. YGS created a list of action items stemming from the 2011 Storms debriefing and lessons learned. YGS Response to Interrogatory GPS-022. The Authority expects the Natural Gas Companies to thoroughly review each of their lessons learned and to enact changes as necessary. Through associated orders, the Authority will therefore require the submission of a report on the status of each of the lessons learned and action items discussed in the Natural Gas Companies Responses to Interrogatories GPS-010 and GPS-022. The report should be a brief discussion as to what was done to close the action item or what is being done to address the concern.

M. WATER COMPANIES

The Authority regulates nine Class A water companies (Companies)⁵² and they all participated in this case with the submission of interrogatory responses and providing testimony in the hearing held on March 26, 2012.

As a whole, the Companies performed very well in terms of their ability to limit service interruptions in number and duration. United and Heritage were the only two companies to experience outages. The outages represent six tenths of one percent of the total customer base of the nine companies. While there were some problems that could have been handled differently, their overall ability to provide service following the 2011 Storms can be attributed primarily to the effectiveness of the Standby Power Regulations for Water Companies (Regulations) Sections 16-11-99 through 16-11-99d of the Conn. Agencies Regs. The overwhelming cause of service interruptions was a

⁵² Aquarion Water Company of Connecticut (Aquarion), Avon Water Company (Avon), Connecticut Water Company (CWC), Hazardville Water Company (Hazardville), Heritage Village Water Company (Heritage), Jewett City Water Company (Jewett City), Torrington Water Company (Torrington), United Water Connecticut (United), Valley Water Systems Inc. (Valley)

direct or indirect result of the loss of commercial power from the EDCs. The Connecticut Water Company (CWC) summarized what worked for most of the companies with the statement, "the advance preparation, emergency response planning, availability of standby power, interconnections, operational flexibility, considerable internal coordination, and sharing of staff and resources within the company made this possible." CWC Response to Interrogatory WA-1.

1. Regulations of Connecticut State Agencies Section 16-11-99

a. Components of the Regulations

The following are excerpts from the Regulations that describe the key components that had a direct impact on the water companies' ability to provide continuous supplies of water during and immediately following the 2011 Storms.

- Each company shall provide permanently installed gasoline, propane-fueled, natural gas or oil-fired standby power equipment at such facility locations as are necessary to provide sufficient standby power capacity.
- "Sufficient Standby Power Capacity" shall mean the ability of a company to supply 100% of the average daily demand of its system, or of each division if the company's system is comprised of multiple divisions.
- "Average Daily Demand" (ADD) shall mean the normal water usage of the system as determined for the most representative twenty-four (24) hour period of record.
- Portable generators with sufficient standby power capacity may be considered acceptable as an alternative to an on-site generator. Such portable generators may be used only if there are suitable controls, connections and manual or automatic switches in the pumphouse.
- Portable generators shall be owned or leased at all times by the company, by a subsidiary of the company, by the parent of the company, or by a corporation with the same parent as the company.
- Portable generators must be ready to provide power within four hours of an electrical outage, unless the company has sufficient atmospheric storage, for up to twenty-four hours without electric power, but in no event shall standby power not be provided more than twenty-four hours after the occurrence of an electrical outage.
- Sufficient fuel storage capacity shall be provided for the generation of

standby power by permanently installed standby power equipment for at least twenty-four (24) hours, and by portable generators for at least eight (8) hours.

- Each company shall test standby power equipment.
- Each company shall perform maintenance of its standby power equipment

2. Storm Preparation

Aquarion, CWC, Torrington, and Jewett City conducted pre-storm inspections of key components of their systems such as river crossings, dams and valve locations. Tr. 3/26/12, pp. 678-681. While larger facilities can have sufficient fuel storage for five to seven days of continuous operation, the 2011 Storms' unprecedented impact on commercial power made refueling in nearly all instances a necessity. Accessibility was just as hard for the fuel companies and the water companies had to monitor their fuel resources to be sure deliveries were made. Id., p. 684. Some water company staff was responsible to deliver gasoline in cans and there were cases of company personnel needing to travel great distances to find gas. Id., pp. 713 and 714.

CWC testified that its ability to have qualified staff on hand to ensure that its facilities were monitored and to notify customers, was critical in its ability to deliver water. Id., p. 715. The CWC witness also suggested that operational flexibility was key to meeting supply requirements. Such flexibility was in the areas of customary and planned operational changes and staffing.

3. Communications

a. Inability to Communicate with the EDCs

Every company experienced difficulty communicating with its EDC. Id., pp. 714-719. There was only one instance, testified to by Aquarion, that had satisfactory results. Id., p. 660. In that instance, UI responded to a location in Stratford in a timely fashion to de-energize a line that allowed access for a generator to be refueled. There was no other favorable report made. Any level of a working relationship between the companies and the EDCs prior to the 2011 Storms was not apparent at the time of the 2011 Storms. Most of the Companies testified to having had some level of a historic working relationship with a representative of the EDC in any given region of its service territory. Id., pp. 714-719. The general consensus was that all the established working relationships developed over, in some instances, years, were for naught. Id., pp. 716-720. CWC reported a lessons learned exercise with CL&P, post Tropical Storm Irene, that was expected to provide for a free flow of information between companies. Following the October Storm, that free flow of information did not work, as the information was jumbled and not always accurate. Id., p. 716. The companies testified that they prefer timely and accurate information which they could then rely on and plan around rather than the misinformation and inconsistent reporting that occurred following the 2011 Storms. Id., p. 736.

The following excerpts from the transcript illustrate the problems the companies experienced in trying to communicate with CL&P:

(Heritage) “So we would just like to talk to someone so that they know that, number one, they know that we have a problem; number two, we would want them to know that we're one customer, but by not taking care of us, you've got 600 customers that are going to be without water very shortly if you don't something, that type of thing. And unfortunately, we don't get to talk to anyone about it. And the information when we did talk to someone, the information we got was totally bogus. Yeah, we'll be there by the end of the day, and the end of the day came and the next day came and the next day came. It's like, you know, let us know exactly what's going on so we can do what we have to do accordingly. Don't give us bogus information that doesn't help our situation. So it was very frustrating.” Tr. 3/26/12, pp. 717 and 718.

(Hazardville/Jewett City) “We usually have a liaison or a contact, but that seems to always change whenever you need it, that number doesn't work or the contact is not there or it's a different person.” Tr. 3/26/12, p. 718.

(United) “We contacted CL&P by phone numerous times. We went to their locations on numerous times to try to get answers, and we were unsuccessful. I felt that we were getting pushed aside. We just wanted to know what they were doing, because we could work together. We weren't even successful in that.” Tr. 3/26/12, p. 736.

Based on the evidence in the record, and the difficulty the water companies experienced in trying to obtain accurate and needed communication from CL&P during the outages, the Authority determines that CL&P's communication with these service providers was less than suitable and adequate.

b. Wireless Communications

It was nearly unanimous that cellular phones were the primary means of communication within the companies. *Id.*, pp. 97 and 98. Valley primarily used 2-way radio and others had pagers for back-up purposes. *Id.*, p. 95. There were no complaints with Verizon and few with Sprint. However, some of the companies complained about AT&T Mobility. *Id.*, pp. 696 and 697. The inability to communicate by cell phone while in remote locations made it necessary for company personnel to meet at strategic locations to discuss recovery operations. United Response to Interrogatory EN-11.

4. Company Deficiencies and areas of Concern for the Authority

a. Insufficient Generation and Appurtenances

Avon and United were in a situation where their usual number of portable generators was insufficient, even when rotation of the units between facilities was

effective in prior outage situations. *Id.*, p. 652. Access to the generators was hindered due to down lines and/or trees making relocation of them nearly impossible. The magnitude of the 2011 Storms also increased the demand for generation units where they would have normally been available through affiliated companies. Some companies learned a lesson from Tropical Storm Irene and by the time of the October Storm, they were prepared. United was generally harder hit by the October Storm, and coupled with not having made changes as a result of Tropical Storm Irene, had a very difficult time with their operations. Additionally, provisions of appurtenances, such as not having a receptacle and a run-through switch at a particular location made it difficult to use a generator. *Id.*, pp. 656, 658. The Authority finds this to be a result of lack of planning. The Regulations call for proper controls and connections to be in place prior to a power outage event.

United believes that it could have at its disposal sufficient portable generation to supply the needs of most but not all, of its satellite operations. *Id.*, p. 52. This would have worked historically, as the sharing of generation was for shorter durations overall and access was not nearly as difficult. The Regulations require companies to supply the Average Daily Demand to all facilities all of the time. Following the 2011 Storms, United purchased two new generators, conducted a lessons-learned exercise and planned a mock drill. *Id.*, p. 724.

b. Use of Outside Electrical Contractor

Hazardville/Jewett City hired an outside electrical company to identify downed energized lines in its service area. Those found to be de-energized (at that moment), were moved to allow access to its facilities. *Id.*, p. 14. The companies should be cautioned that although a line is de-energized at one moment, does not necessarily mean it will forever be de-energized, even as it is lying on the ground. There are many reasons why and how a line can be energized, even when it was found to be de-energized moments earlier.

c. Personnel Safety - Dams

CWC testified that staff was monitoring the dams throughout the 2011 Storm and it was a problem having staff on the dams during the storm.” *Id.*, p. 80. The Authority finds this practice to be dangerous. The Authority is aware that Dam Emergency Operations Plans identify the steps that must be taken to monitor these structures. The Companies should make safety of personnel a priority and should consider alternatives to on-site staffing that streaming video and wireless technologies can bring.

5. Planning for the future

a. Permanent Versus Portable Generation

With some of the difficulties encountered by the companies with portable generation equipment availability and transport, permanent generation should be considered for more facilities. Each company should make an assessment of the possibility that the company, and its customers, would benefit from permanent versus portable generation at any given site. There were instances where a portable generator

was needed, while a permanent unit was down for maintenance or repair. Id., p. 666. This is a rare occurrence; however, Companies should be thinking in terms of redundancy for the future.

b. SCADA and Remote Operations

The continuous communication with remote facilities through SCADA was critical to effective operations. Id., pp. 665-667. The system provides, for example, signals from pump stations and wells for startup, shut down, low and high level alarms. The loss of land-line connections to those facilities emphasizes the importance of continuous communication and many companies are now considering radio controlled communications for the future. The loss of remote communications required the scheduled visits by onsite personnel in some instances around the clock. This also required companies to revert back to automatic controls. Id., p. 70.

Typically SCADA uses telephone lines for communication. With the significant numbers of down lines, communications to facilities via SCADA was lost that subsequently required manned operations, which further tasked the busy manpower. Id., pp. 672 and 673. Those companies with radio controlled SCADA retained their effectiveness and all companies using SCADA should consider radio control communication for the future. Id., p. 24.

c. Fuel Availability and Proposed Law

There is great interest in a fuel availability law. It was strongly recommended by the Companies that legislation be established to prioritize local supplies of gasoline to public utility companies, among other similarly impacted entities. Id., pp. 713 and 714. The companies are encouraged to propose legislation addressing fuel availability during the next legislative session. The Companies should also evaluate additional options such as utilizing temporary above ground fuel tanks for gasoline and fueling their vehicles at municipally owned fueling stations within their service territories that have back up power supply.

IV. CONCLUSION AND ORDERS

A. CONCLUSION

The Authority concludes that CL&P's performance in the aftermath of the 2011 Storms was deficient and inadequate in the areas of outage and service restoration preparation of personnel, support of its municipal liaison program, development and communication of restoration times to customers, and overall communication to customers, other service providers and municipalities, as to warrant regulatory sanction. The Authority also concludes that because of CL&P's failure to obtain adequate assistance in advance of the October Storm, its response to that storm was deficient. The Authority establishes a rebuttable presumption that CL&P should be imposed an appropriate reduction to its allowed return on equity in its next ratemaking proceeding as a penalty for poor management performance and to provide incentives for improvement. In addition, in conformance with the Settlement Agreement between NU and NSTAR, the Authority retains further jurisdictional approval for recovery of an

appropriate level of 2011 storm costs at the time CL&P seeks recovery of any such costs. Similarly, the Authority will exercise its regulatory oversight for the recovery of 2011 storm-related costs at the time UI seeks the recovery of those costs in rates.

In considering appropriate reduction to allowed returns on equity in forthcoming ratemaking proceedings and in exercising its jurisdictional approval for recovery of appropriate 2011 storm costs, the Authority will consider and weigh the extent to which CL&P has recognized its shortcomings and taken concrete and measurable steps to embrace the need for aggressive, extensive restructuring of both its attitude toward storm management and establishment of new practices for execution of future storm response.

Through the Orders in this Decision, the Authority requires various enhancements to the restorative capabilities of the utility companies in order that they can better face major outage events. The Authority requires CL&P to develop a heightened state of readiness, and document that such a state exists, including assessment of its own line workers, line workers from sister companies, contractors, a statement of the mutual aid assistance organizations to which it belongs, and the resources likely available from these organizations. The Authority also adopts many of Liberty's findings and recommendations regarding preparation, restoration, and communication.

While the Authority determined that telecommunications services, cable, television, gas companies, and water companies of Connecticut were less affected by the 2011 Storms than the electric industry, the PURA makes recommendations in this Decision and creates Orders to improve service reliability in these industries for future events.

B. ORDERS

For the following Orders, submit an original and two copies of the required documentation to the Executive Secretary, Public Utilities Regulatory Authority, Ten Franklin Square, New Britain, CT 06051, and file an electronic version through the Authority's website at www.ct.gov/pura. Submissions filed in compliance with Authority Orders must be identified by all three of the following: Docket Number, Title and Order Number.

1. CL&P shall track recommendations resulting from all reviews of the 2011 storms, including this proceeding, the Witt Associates reports, the Davies Consulting report and the Liberty Report. CL&P shall either implement each recommendation or shall provide clear justification for not implementing a recommendation, explaining why it is not being implemented. CL&P shall provide an interim report on the status of its implementation of these recommendations to the Authority by September 30, 2012, and a final report to the Authority by December 28, 2012.
2. Not later than September 30, 2012, CL&P shall submit a report on the effectiveness of enhanced tree trimming on circuit reliability performance. The report shall be submitted in Docket No. 12-06-09.

3. CL&P shall formulate a plan to assure that real-time damage assessment and outage restoration data are available from field crews, including crews from mutual assistance and line crews, and shall take action to ensure that field crews utilize such technologies. CL&P shall submit its report on the actions it has taken and plans to take in its submittals in Order No. 1.
4. CL&P shall formulate a plan to establish a heightened state of readiness in anticipation of a major storm. Not later than July 1 of each year, CL&P shall report on its plan to establish the lineworker resources that would be available to it in anticipation of a major storm during the upcoming July 1 through March 31 time period, including its own lineworkers, lineworkers from sister companies and contractors. In this report, CL&P shall both state the lineworker resources likely available during a storm primarily affecting only Connecticut and a regionwide storm. CL&P shall also state the mutual assistance organizations to which it belongs, and state the likely resources those organizations are capable to deliver to CL&P to assist in storm recovery. CL&P shall place primary emphasis on demonstrating a lineworker workforce that would likely be available to CL&P during the first 48 hours of a regional event, so that it is able to establish a heightened state of readiness. Due to the timing of this Decision, the first report is due no later than October 1, 2012.
5. Not later than August 8, 2012, CL&P shall implement a maintenance tree trimming program based on a four-year trim cycle, and shall present the Authority for its plans to do so in Docket No. 12-06-09.
6. CL&P shall participate in discussions with mutual assistance groups and the Edison Electric Institute on ways to improve the mutual assistance process. CL&P shall provide reports on the status of these initiatives in its reporting to the Authority pursuant to Order No. 1 above.
7. No later than October 31, 2012, AT&T shall investigate and develop a method of estimating outage information other than the reliance on customer out-of-service calls. AT&T shall also develop a method to make the outage and restoration information available to its customers.
8. No later than September 28, 2012, AT&T shall confirm in writing to the Authority that it will provide to all of the municipalities it serves, annual correspondence regarding its External Affairs manager, all emergency contact information, and any other storm or emergency communication information.
9. No later than October 31, 2012, Verizon shall develop a webpage that can be accessed by its Connecticut customers that contain storm and other emergency information.
10. No later than October 31, 2012, Cablevision shall develop a webpage that can be accessed by its Connecticut customers that contain storm and other emergency information.

11. No later than October 31, 2012, Charter shall develop a webpage that can be accessed by its Connecticut customers that contain storm and other emergency information.
12. No later than October 31, 2012, Cox shall develop a webpage that can be accessed by its Connecticut customers that contain storm and other emergency information.
13. No later than September 28, 2012, and annually thereafter, AT&T U-Verse shall provide notification to all of the municipalities it serves, of its External Affairs manager, all company emergency contact information, and any other storm or emergency communication information as necessary.
14. No later than October 31, 2012, Verizon FiOS shall develop a webpage that can be accessed by its Connecticut customers that contain storm and other emergency information.
15. UI shall track all recommendations from all reviews of the 2011 storms, including from this proceeding and the Liberty Report. UI shall either implement each recommendation or shall provide clear justification for not implementing a recommendation, explaining why it is not being implemented. UI shall provide an interim report on the status of its implementation of these recommendations to the Authority by September 30, 2012, and a final report to the Authority by December 28, 2012.
16. UI shall participate in discussions with mutual assistance groups and the Edison Electric Institute on ways to improve the mutual assistance process. UI shall provide reports on the status of these initiatives in its reporting to the Authority pursuant to Order No. 15 above.
17. No later than October 31, 2012, UI shall report of the feasibility of establishing a method to provide customer's name and telephone numbers to emergency personnel if that customer believes he or she requires assistance during emergency situations.
18. No later than October 31, 2012, CL&P shall investigate the feasibility of including to its on-line medical certification form of current health status additional contact information such as a secondary telephone number and e-mail address, if available.
19. No later than October 31, 2012, SCG and CNG shall submit to the Authority a revised medical certification form of current health status that includes a primary and secondary telephone number, as well as an e-mail address, if available.
20. No later than July 1, 2013, and annually thereafter by July 1, each Video Certificate Holder shall file a copy of the notices required pursuant to Conn. Gen. Stat. §§ 16-331j and 16-331u.

21. The Natural Gas Companies shall formulate a plan to obtain and dispense gasoline and diesel fuel for vehicles and equipment when events occur like the 2011 storms that limit the ability to maintain vehicles and equipment fueled. This fueling plan shall be incorporated into the Natural Gas Companies' Emergency Plans. The fueling plan shall be submitted to the Authority by October 1, 2012.
22. YGS shall submit a report discussing the status of each of the action items listed in YGS' response to Interrogatory GPS-022. The report shall discuss what was done to close the action item or what is being done to address the concern. YGS shall include any additional lessons learned and its associated action items that were considered after review of the reports associated with this Docket, including but not limited to the Witt Report, Davies Report and Liberty Report. The report shall be submitted to the Authority by October 1, 2012.
23. CNG and SCG shall submit a report discussing the status of the lessons learned items from the CNG and SCG response to Interrogatory GPS-022. CNG and SCG shall include any additional lessons learned and their associated action items that were considered after review of the reports associated with this Docket, including but not limited to the Witt Report, Davies Report and Liberty Report. The report shall be submitted to the Authority by October 1, 2012.
24. No later than January 1 of each year beginning January 1, 2013, AT&T and Verizon shall conduct annual live emergency drills for their respective Connecticut operations and report the outcome of the exercises to the Authority.
25. No later than January 1 of each year beginning January 1, 2013, AT&T and Verizon shall file their annual utility pole maintenance practices similar to the EDCs. The utility pole inspection plans should include, but not be limited to, the inspection interval, number of poles inspected, replaced and associated trained personnel involved in the inspection and a detailed description of the inspection techniques that will be applied.
26. No later than November 15, 2012, the Working Group shall submit a status report to the Authority on resolved and outstanding utility pole administration issues. No later than January 31, 2013, the Working Group shall develop and recommend to the Authority a consensus pole administration structure to facilitate utility pole attachments. The above reports should also be submitted in Docket No. 11-03-07.

Attachment A

Ctrl + Click to access Attachment A, Liberty Report

<http://www.dpuc.state.ct.us/Electric.nsf/22d33958d7bd318385256b72006c27ec/b7d58f42220d29c85257a4c00553d1e?OpenDocument>

The Connecticut Department of Energy and Environmental Protection is an Affirmative Action/Equal Opportunity Employer that is committed to requirements of the Americans with Disabilities Act. Any person with a disability who may need information in an alternative format may contact the agency's ADA Coordinator at 860-424-3194, or at deep.hrmed@ct.gov. Any person with limited proficiency in English, who may need information in another language, may contact the agency's Title VI Coordinator at 860-424-3035, or at deep.aaoffice@ct.gov. Any person with a hearing impairment may call the State of Connecticut relay number – 711. Discrimination complaints may be filed with DEEP's Title VI Coordinator. Requests for accommodations must be made at least two weeks prior to any agency hearing, program or event.

**DOCKET NO. 11-09-09 PURA INVESTIGATION OF PUBLIC SERVICE
COMPANIES' RESPONSE TO 2011 STORMS**

This Decision is adopted by the following Directors:

John W. Betkoski, III

Arthur H. House

CERTIFICATE OF SERVICE

The foregoing is a true and correct copy of the Decision issued by the Public Utilities Regulatory Authority, State of Connecticut, and was forwarded by Certified Mail to all parties of record in this proceeding on the date indicated.



Kimberley J. Santopietro
Executive Secretary
Department of Energy and Environmental Protection
Public Utilities Regulatory Authority

August 1, 2012

Date

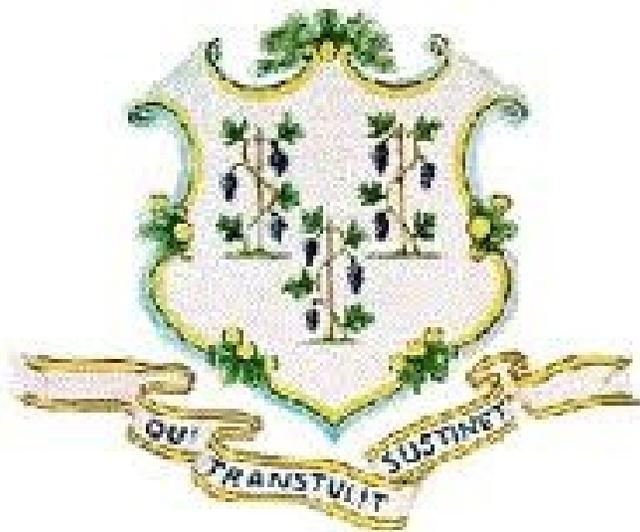
APPENDIX S

TWO STORM PANEL, *REPORT OF TWO STORM PANEL*

REPORT OF THE TWO STORM PANEL

PRESENTED TO:

GOVERNOR DANIEL P. MALLOY



Joe McGee (Co-Chair): Vice President, Business Council of Fairfield County
Major General James Skiff (Co-Chair): U.S. Air Force, Retired
Peter Carozza: President, Uniformed Professional Fire Fighters
Terry Edelstein: President, Connecticut Community Providers Association
Lee Hoffman: Attorney, Pullman & Comley, LLC
Scott Jackson: Mayor, Hamden
Robert McGrath: Former Fire Chief, Stamford
Catherine Osten: First Selectman, Sprague

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EXECUTIVE SUMMARY

Tropical Storm Irene and the October Nor'easter tested Connecticut's emergency resources in ways that they had not been tested in more than 25 years. In that intervening 25 years, Connecticut's infrastructure had increased significantly, while the manpower associated with the maintenance and repair of that infrastructure had decreased significantly. The result was that although Connecticut has faced far more significant storms, such as Category 3 hurricanes, both Tropical Storm Irene and the October Nor'easter left record numbers of residents without electricity, communications, heat or reliable supplies of water.

The significant impact of these storms has served as a wake-up call to Connecticut. Our state must do more to prevent, plan for, and respond to emergencies and natural disasters.

To that end, this Report serves as the beginning of what this Panel hopes will be a robust review and evaluation of Connecticut's approach to the prevention, planning and mitigation of impacts associated with emergencies and natural disasters that can reasonably be anticipated to impact our State. The Report contains 82 recommendations on a wide variety of topics, with subjects ranging from utility issues ("utility," for the purposes of this Report, shall include all infrastructure components, including electric, gas, water, sewer, telephone, cable, television, data and piping infrastructure) to municipal assistance to changes that can be implemented at the State level to improve the State's readiness for the next emergency. The recommendations in this Report include:

- The need to develop reasonable performance standards for utility recovery and restoration after storms, and link recoverable costs to these standards;
- Revisions to State engineering standards to accommodate predicted increases in storm surge along coastal areas;
- The need for improved worst-case planning and staffing by the State's utilities;
- Connecticut's infrastructure needs to be better hardened to withstand natural disasters, and such work should begin as quickly as possible;
- The use of microgrids and other emerging technologies should be considered as potential methods for mitigation of impacts to infrastructure;
- Increased collaboration between municipalities, State resources, electric utilities and telecommunications service providers with respect to tree trimming;

- Increased communication and planning between municipalities and utilities *before* a storm or disaster is imminent;
- Increased communication between labor and management in all utilities is strongly recommended;
- Additional emergency response training and exercises for municipalities, utilities and the State;
- A review of sheltering needs to ensure that at-risk populations can be served if sheltering is required for a significant length of time;
- The use of geographical information systems (GIS) should be better leveraged for both emergency planning and response purposes;
- The Public Utilities Regulatory Authority and the Connecticut Siting Council should be provided with additional enforcement resources;
- A Center for Research should be developed to study and make recommendations on storm hazard mitigation and power system resiliency;
- Standards should be more clearly developed for backup power requirements and communication infrastructure hardening for wireless telecommunications; and
- The vacancies of the Deputy Commissioner with the responsibility for DEMHS within the DESPP should be filled as expeditiously as possible, as should other vacant positions within DEMHS.
- The twelve (12) existing vacancies in the Office of Emergency Management (OEM) under DEMHS should be assigned at the regional level in order to facilitate planning, exercise, training, and evaluation at the community level.

INTRODUCTION

FORMATION AND TASKS OF THE TWO STORM PANEL

Connecticut's risk from extreme weather was on full display in August with Tropical Storm Irene and then again in October with the Halloween Nor'easter snow storm. Irene, a tropical storm with average maximum wind gusts of 52 mph, knocked out power to 800,000 customers. By way of comparison, although it was only a tropical storm, Irene exceeded the 506,150 outages wrought by Hurricane Gloria in 1985. Six weeks later, a freak October snow storm dumped up to 18 inches of snow on trees still full with autumn leaves. This resulted in a record-setting 880,000 customer outages, eclipsing the record set by Tropical Storm Irene only a few weeks earlier.

The final amounts of the costs associated with the storms are still being tallied, and true total costs will not be known for some time. That having been said, the Department of Emergency Management/Homeland Security (DEMHS) estimated that the cost of these two storms will exceed \$750 million dollars. That figure does not include uninsured losses which could push the losses over \$1 billion dollars.

In addition to the sheer number of customers that suffered outages, the length of the outages presented problems as well. Restoration of service took up to nine days in the case of Tropical Storm Irene and the restoration for the snow storm was not completed until twelve days after the first outages. Flawed restoration schedules and poor communication between utilities and municipalities exacerbated the situation and fueled public frustration and outrage.

Governor Dannel P. Malloy announced the formation of The State Team Organized for the Review of Management (STORM) of Tropical Storm Irene on September 13, 2011. The eight member Panel was charged with the following mission, "a broad, objective evaluation reviewing how Irene was handled in the state both in preparation and recovery, identify areas that can be improved upon and, most importantly, make recommendations for future disaster preparedness and response." Following the October snow storm, the Governor expanded the work of the Panel, renamed it The Two Storm Panel, and directed it to report its findings to him by the first week of January, 2012.

The Two Storm Panel first reviewed the State Emergency Framework as well as several representative municipal emergency plans in order to benchmark state and local emergency planning. In addition, the Panel conducted eight days of hearings with over

100 witnesses providing written and/or oral testimony to the Panel. Panel hearings were also carried on CT-N so that they could be viewed by the public. In addition to the public hearings, many members of the public provided written comments to the Panel that were also considered in the preparation of this Report.

This Report will be organized along various subject-matter headings, each with a series of findings and recommendations related to such findings. Every effort has been made to keep the Report as brief as possible, so that it will be as useful as possible to those charged with implementing the recommendations made in this Report. This need for brevity has been balanced with the need to provide sufficient detail to allow the reader to understand the conclusions of the Panel as well as the reasons for the recommendations being made by the Panel. Additional information, including meeting agendas, minutes, voting records, copies of written materials, and video footage of various Panel meetings can be obtained at:

<http://www.governor.ct.gov/malloy/cwp/view.asp?a=3997&q=489750>.

Each member of the Panel appreciates the chance to serve the people of Connecticut in this important endeavor, and stand ready to assist the Governor and the State in any way that they can.

CHAPTER ONE – STATE RESPONSE TO THE TWO STORMS

Findings:

- State response to two storms each began with state declaration of emergency which set in motion the State Response Framework. These actions were timely and put in motion the standing up of the State Emergency Operation Center (SEOC), Regional Control Centers (RCC), and Municipal Emergency Operation Centers (EOCs) while allowing the activation of Community Emergency Response Teams (CERT), Medical Reserve Corps (MRC) and Urban Search and Rescue (USAR). All state agencies as well as other nonprofit community providers such as the Red Cross, the United Way, Civil Air Patrol, Amateur Radio and others were notified to increase level of readiness. The state requested and received Presidential Emergency Declaration before the landfall of Tropical Storm Irene which allowed for the alerting of federal Disaster Medical Assistance Team (DMAT). For the Nor'easter, Governor Malloy requested and received Presidential Emergency Declaration, Amended Emergency Declaration and Major Emergency Declaration bringing to bear expanded federal assistance as required. An alert of DMAT may have been more appropriate for the October Nor'easter considering hospital emergency room activity.
- The SEOC stood up a 24/7 operations for the duration of the response to the storms. Regional Control Centers experienced staffing issues in both storms but especially during the longer duration Nor'easter. The municipalities' EOCs varied from very robust 24/7 operations in the larger communities to minimal volunteer staffing in smaller communities. Limited staffing in some communities had the potential to create burnout during longer duration events.
- Radio communications for emergency responders has been well-developed and deployed by DEMHS with varied and redundant systems. These systems allow emergency responders with multiple radio frequency bands to talk on a common channel utilizing State Tactical On-Scene Channel System (STOCS). The National Guard Joint Incident Site Communications Capability along with their Civil Support Team's Advanced Liaison and Unified Command Suite also give responders common channel capability as well as secure and non secure satellite internet and telecommunications reach back. DEMHS regional Tactical Interoperable Communications Plans(TIC-P) also includes ICALL/ITAC 800 MHz portable radio and DEMHS High Band Radio Systems provided to all communities in the state.
- It should be noted that the State Response Framework supports 169 Municipalities and 2 Tribal Nations through 5 designated regions. Since there is

no county system, the regional concept is designed to aid in span of control issues stemming from 171 entities reporting to 1 control center. Each municipality is required to designate an Emergency Management Director (EMD) and have an emergency response plan on file at DEMHS regional offices to be reviewed annually.

- In all likelihood, at least some portion of the two storms tested the response system in the majority of the communities beyond that experienced in past training and exercises. It cannot be overlooked that the response to the emergency situations as a result of the storms brought on by primarily extended utility (electrical and telecommunications) outages resulted in minimal loss of life, medical emergencies, and loss of property. Precautionary evacuations of areas prone to coastal flooding precluded rescue operations for the most part. The majority of the thirteen fatalities and medical problems were related to carbon monoxide poisoning or other issues related to the misuse of backup power generation and or alternative heat sources. Considering the heavy utilization of power equipment for clearing roads, downed utility wires and high voltage electrical repair, the emergency response overall was good for the magnitude of the storms. Nonetheless, there were many lessons to be learned from these events, as well as many best practices to be replicated as permitted by available resources. Looking to a situation brought on by a disaster of greater magnitude these after action reviews will serve the state and its communities well going forward.
- The success of the response efforts varied amongst the communities and state agencies. These two storm events have served to place a spotlight on proper disaster preparation and response, and it can be reported that many initiatives have already been put in place to take advantage of the lessons learned.
- The Commodities Task Force made up of primarily the Department of Correction, Army Corps of Engineers and National Guard demonstrated continuous improvement from events leading up to Tropical Storm Irene through the October Nor'easter. During the July annual training period, the 143 Combat Service Support Battalion exercised functional areas for civil support in a hurricane scenario. During Tropical Storm Irene this unit set up the point of distribution (POD) at Rentschler Field and passed out 237,000 Meals Ready to Eat (MRE), 907,000 bottles of water, 17 pallets of ice, generators and numerous infant food cases to 87 towns. Due to confusion amongst communities in ordering and capability to pick up commodities a working group was established to deal with these issues and other problems. As a result of lessons learned processing was streamlined and the National Guard delivered commodities to the municipalities during response to the October storm. There were more than 34,000 cases of MRE's and 34,000 cases of water delivered to 86 towns.

Recommendations:

- 1) The Department of Correction and Military Department, along with other state agencies, are potential manpower sources available to alleviate staffing challenges in the future.
- 2) Expanding the CERT capability for a variety of staffing functions will assist where communities themselves have limited staffing.
- 3) Since radio communications equipment and other emergency response equipment is costly to maintain, a review of equipment absolutely required for effective emergency response is in order as not to dilute discretionary grant funding for training.
- 4) The municipalities' emergency response plans vary greatly in specificity of responsibility and would be enhanced by training and exercise to increase all participants' understanding of their role relative to other responders. Put simply, one of the goals of emergency planning is to ensure that meetings between those responsible for emergency response occur in the exercise environment rather than a first meeting of participants at the actual emergency.
- 5) Lessons learned from these two storms should be utilized to improve the state and various communities' emergency response capabilities. This will create a framework to deal with disasters of greater magnitude. To that end, a strong DEMHS Division within DESPP is essential to a robust response to an all hazards disaster in the future.
- 6) An aggressive training exercise program should be undertaken. As DEMHS has indicated, an appropriate training goal would be one training per region per year. The goal is to have municipalities, especially the smaller communities whose resources can be stretched beyond the resources of larger communities, look to regional support and multi-municipality planning. This will require a well-resourced and integrated DEMHS Division to provide the support necessary for success in this area.
- 7) The solid relationship that has been formed with municipalities and their plans needs to be enhanced through training, exercise, and lessons learned. With strong DEMHS regional support these plans can be adjusted as necessary.

CHAPTER TWO – ASSESSING RISK: THE IMPACT OF CLIMATE CHANGE, THE RISE OF SEA LEVELS

Findings:

- The State of Connecticut has been subject to several hurricanes in the recent past, including the hurricane of 1938 (a Category 3 hurricane), Hurricane Bob (a Category 2 hurricane) and Hurricane Gloria (a Category 1 hurricane).
- As a result, in the State's Natural Disaster Plan, "The State Department of Emergency Management and Homeland Security (DEMHS) considers a strong Category 3 hurricane as the most probable, worst-case disaster scenario facing the state." Accordingly, the Panel focused on a Category 3 hurricane as the disaster for which the State should be prepared.
- Tropical Storm Irene and the October snow storm were powerful storms each knocking out power to more than 800,000 customers, far exceeding any storm in recent history. However, they pale in comparison to the damage that will be inflicted on Connecticut by a Category 3 hurricane with sustained winds between 100 to 120 mph.
- Irene downed approximately 1-2% of the State's trees. A major hurricane may down up to 70-80% of Connecticut's trees.
- Irene and the October storm resulted in over 800,000 outages each and took between 9-12 days to restore power. A Category 3 hurricane may black out the entire State, some areas for over a month.
- Total damages from both storms estimated at \$750 million - \$1 billion dollars. The damage from a Category 3 hurricane similar to the 1938 hurricane is estimated (HAZUS MH) in today's dollars at \$54.2 billion.
- Testimony given to the Two Storm Panel by meteorologists from the National Weather Service stated that Connecticut is overdue for a major hurricane.
- Connecticut engineering drainage standards currently use rainfall data based on National Weather Service from the 1960's.
- Data from the Northeast Regional Climate Center indicates a major increase in precipitation over the last 40 years.

- The impact of climate change on the rise of sea levels and its effect on more damaging storm surges presented to the Two Storm Panel raises serious concerns about the need to protect critical infrastructure along the coast and adjacent to rivers.
- Indeed, meteorological information presented to the Panel indicated that sea levels are anticipated to rise approximately 1.5 feet by mid-century, and from three to five feet by century's end.
- During Storm Irene, storm water surge came perilously close to flooding water and sewage treatment facilities. For example, during Tropical Storm Irene, storm surge came within a foot of flooding Norwalk's wastewater treatment plant. In addition, according to incident reports received from the Department of Energy and Environmental Protection, flood waters in combined sewer overflow systems, or in sewer systems where pump failure is present, may have lead to the discharge of raw sewage into receiving bodies of water.

Recommendations:

- 8)** The Department of Construction Services (DCS) should compare results between the 1960's rainfall data and the extreme precipitation data obtained from the Northeast Regional Climate Center in drainage facility design. The results should also compare the construction costs between the two datasets and any other relevant impacts.
- 9)** DCS in collaboration with the Departments of Transportation (DOT) and Energy and Environmental Protection (DEEP) should develop new engineering standards that will better protect the built environment from the effects of extreme weather. These standards should then be incorporated into the State's Building Code within six months of development to reflect such new standards.
- 10)** The DCS should lead a Working Group of state departments in assessing, through Geographic Information Systems (GIS), state-owned critical infrastructure within FEMA designated flood zones and hurricane surge zones and assess the long-term risks or impacts to such facilities due to potential increases in extreme weather patterns and the impact of sea level rise on Connecticut's state as well as municipal infrastructure.
- 11)** The DEEP should also investigate and develop a plan for addressing combined sewer overflows and dam safety issues, particularly in light of anticipated rising sea levels over the next 50-100 years.

CHAPTER THREE – UTILITY ISSUES

PREPARATION

Findings:

- For purposes of this Report, the term “utility” is defined more broadly than the traditional definition of “utility” or “public service company” as might be found in Conn. Gen. Stat. § 16-1. Rather, the term “utility” shall include all infrastructure components, including electric, gas, water, sewer, telephone, cable, television, data and piping infrastructure.
- The Two Storm Panel reviewed multiple after storm reports, including: the Department of Utility Control reports issued after Hurricane Gloria in 1985, the Jacobs Consultancy report issued after the nor’easter of 2010 and Witt Associates report on Storm Irene and the October snow storm. The repetition of essentially the same problems identified after each storm over a 25 year period and similar recommendations is striking:
 - utility communications were reactive relative to contact with municipalities;
 - expand the after action/lessons-learned reviews to include direct input from field workers;
 - improve labor management relations (CL&P);
 - provide mobile data terminals to line trucks; and
 - improve supervisory training to handle large increase in workforce crews.
- In fairness, the utilities did improve in some areas, however their preparation was still materially deficient. In the case of the electric utilities, for example, a difficulty arises in that their Emergency Response Plans, although based on national best practice, proved during the two storms to have failed primarily in two key areas:
 - A) They were not based on a worst case scenario, a cardinal tenet of disaster preparedness. In fact, the Witt Report noted that CL&P’S Emergency Response Plan’s working standard for a worst-case scenario was an outage of 100,000 customers. This is far less than the number of outages experienced during the two storms, and clearly less than the outages that would be anticipated should a Category 3 hurricane strike Connecticut.

B) As both storms so vividly demonstrated, the utilities' incident command systems were not scalable, another major tenet of disaster preparedness. The size of the two storms revealed serious structural flaws in their actual on the ground response to their customers.

- The work of the utilities' line crews, i.e., the personnel in the field, is not what is in question. They worked hard and did admirable work. However, it is apparent that a toxic relationship exists between labor and management, and this relationship was on full display before the Panel. This issue has the potential to adversely affect public safety, and it is the obligation of management to improve this situation.
- In addition, the commitment of senior management in the electric, telecom and wireless communications sectors to implement recommendations that have been repeatedly proposed after major storms in the past is in question. This a particular concern regarding the Board of Northeast Utilities, its subsidiaries (including CL&P) and its executive suite management.
- Based on the responses that they provided to PURA and/or the Siting Council, certain utilities' senior management also appear to give short shrift to the concept of emergency planning and related issues associated with potential public safety impacts.
- The Panel acknowledges that there are no national standards for utility responses to emergencies and national disasters, either in terms of planning, staffing and equipment, response activities or recovery operations. Several jurisdictions are investigating this issue and appear to be planning to develop such standards.
- Wireless telecommunications service providers were not prepared to serve residential and business customers during a power outage. Certain companies had limited backup generator capacity.
- Wireless telecommunications service delivery maps indicate coverage quality that does not match experience. Services identified as "good" were minimally functional during power outages.

Recommendations:

- 12)** PURA and/or the DEEP should work to ensure that previous findings related to utilities' handling of crises are enacted upon, including:
 - utility communications were reactive relative to contact with municipalities;

- expand the after action/lessons-learned reviews to include direct input from field workers;
 - improve labor management relations (this could be accomplished by creating a labor/management committee within each company whose members shall include elected labor leaders and whose findings shall be reported to the appropriate regulatory authority on an annual basis);
 - provide mobile data terminals to line trucks; and
 - improve supervisory training to handle large increases in workforce crews.
- 13)**With respect to improvement of handling large increases in workforce crews, under the auspices of PURA, Connecticut's electric utilities should review and revise (as necessary) mutual aid compacts and major contractor contracts. Utilities should demonstrate to PURA managerial capacity to increase their field workforce by at least 500% in time of emergency as well as increasing corresponding customer service functions proportionally.
- 14)**The utilities' emergency plans should be based on a true worst case scenario. In the case of Connecticut, this would mean planning for the effects of a Category 3 hurricane.
- 15)**The Legislature should authorize PURA to develop performance standards for utilities' response to emergencies, storms and natural disasters. These standards should include standards for: planning, hazard mitigation, staffing and equipment, response times and recovery efforts in response to emergencies. The Legislature should also establish penalties for failure to meet such standards.
- 16)**Utilities should be required to maintain a portion of their service fleets for use by outside contractors in case of emergency.
- 17)**The utilities' incident command systems also need to be made scalable. In short, the utilities should be able to seamlessly adjust the ground response to their customers, whether the outage is 5,000, 50,000 or 500,000 customers.
- 18)**State regulatory bodies should review telecommunications services currently in place to verify that the vendors have sufficient generator and backhaul capacity to meet the emergency needs of consumers and businesses.
- 19)**All communications systems should supply an accurate accounting of the effectiveness and "lasting use" of their systems in the event of a loss of power.

TREE TRIMMING

Findings:

- Trees have great value, both aesthetic and economic, and Connecticut residents not only take great pride in their beauty, but benefit significantly from them. Testimony presented by the Urban Forestry unit of DEEP showed the heating and cooling costs of a home were lowered with the presence of appropriate trees.
- Trees knocked down 90% of the utility wires that fell in Tropical Storm Irene.
- Data presented to the Two Storm Panel indicated that Connecticut has one of the most dense tree canopies in the United States (# 1 in the U.S. for our Wildland/Urban Interface tree density). Connecticut’s tree profile, also, revealed trees with larger circumferences than average. UIL Holdings estimated that over 300,000 trees are planted in the utility pole rights of way (ROW) in its 17 town territory.
- Tree trimming and removal budgets consist of four sources:

| Source of Tree Trimming Budget | Amount of Budget |
|--|---|
| Municipal (Used primarily for maintaining health of town trees, not for utility rights-of-way) | Approximately \$10 million a year |
| Connecticut Dept. of Transportation (Used primarily for roadway clearance and safety) | \$550,000 per year |
| Telecommunications companies | Failed to provide a tree trimming budget to Two Storm Panel |
| CL&P (For 143 towns) | \$24,625,000 |
| UI (For 17 towns) | \$3,418,883 |

- In its proposal to harden or strengthen its pole and wire infrastructure that CL&P submitted to the Two Storm Panel, the company recommended that they be approved to spend \$366 million over the next ten years, essentially a 50% increase over what CL&P spent in the previous ten years, on tree trimming and vegetation management.
- There does not exist in Connecticut specific industry standards for tree trimming aside from the safety standards in ANSI Z 133.1 and OSHA 1910.269 and the operation standards in the ANSI A 300 series to direct the actions of tree wardens or of those performing utility pruning.

- There are also no criteria by which a person may be appointed a tree warden.

Recommendations:

- 20)** Conduct a state -wide tree risk assessment and prioritization schedule particularly targeting hazardous trees.
- 21)** Establish a state-wide Hazardous Tree Removal Fund that will provide matching grants to homeowners for the removal of trees on private property that endanger utility wires.
- 22)** 1.5 % of all funds approved for utility vegetation management by PURA should be used to fund the private property Hazardous Tree program for 5 years.
- 23)** Establish a State Vegetation Management Task Force (SVMTF) that will develop standards for road side tree care in Connecticut, vegetation management practices and schedules for utility rights of way, right tree/right place standards, licensing standards for tree wardens, municipal tree inventories and pruning schedules. This Task Force should consist of State, municipal, utility and nonprofit environmental organizations. The Commissioner of the DEEP or his/her designee should be its Chairperson.
- 24)** DEEP should convene appropriate State agencies, municipalities and utilities for the purpose of creating a 5 year collaborative effort for an enhanced tree maintenance program and the development of an educational effort regarding the use of appropriate and diverse tree species in both public and private spaces.
- 25)** At least four entities—electric utilities, municipalities, telecom utilities, and the State of Connecticut—engage in tree trimming/removal activities that may protect the necessary infrastructure. On a semiannual basis, these activities should be coordinated amongst them to maximize the effectiveness of each entity and goals/targets should be established. This activity would be monitored through the SVMTF.
- 26)** Increase DOT Tree Maintenance budget by \$1 million a year for three years for road/ tree safety program.
- 27)** Legislation should be adopted providing for the removal of “hazard trees” from private property by utilities or municipalities, which should include reasonable protections for property owners.

INFRASTRUCTURE HARDENING

Findings:

- Electric and telecom utility general maintenance was insufficient to effectively protect the existing “pole and wire” infrastructure from natural disaster, specifically the impact of falling trees/limbs on this infrastructure.
- The panel reviewed several analyses of underground cable costs and feasibility in Connecticut, using data from other states to make estimates on cost and feasibility/effectiveness.
- The utilities have maintained that undergrounding is not feasible in many areas due to cost factors and damage caused by traffic, weather, and condensation. The majority of studies that were reviewed, however, indicated that the appropriate installation of underground cables protected the cables from traffic and frost, and a common system of condensation elimination, used in many states in extensive underground systems, prevented damage caused in this way.
- In addition, the cost of underground cables in many areas, especially city and town centers, is not drastically different from that of above-ground utilities, due to the absence of impediments below the surface (i.e, ledge).

Recommendations:

- 28)**The Panel recommends that undergrounding be immediately studied by DEEP in the areas discussed by the Panel and the utilities. Such study should encompass feasibility of such undergrounding, the costs associated with the undergrounding, as well as potential reliability issues associated with undergrounded assets.
- 29)**Selective undergrounding of utilities and strengthening assets beyond the requirements of the National Electric Safety Code (e.g., use of composite poles and spacer cable) should be recommended to PURA, with the cost shared between ratepayers and shareholders. All work should be permitted by municipalities, and the utilities should be required to pre-plan with other utilities with above-ground or below ground assets to reduce all costs for upgrades, bringing evidence of such cooperation as a requirement for local permitting.
- 30)**Pole custodians should develop an audited list of assets, including age of assets and wind load, to better assist in managing a work plan for asset strengthening. This list should be provided to the newly-created pole

administrator position (discussed in Chapter 8, Recommendation 74 of this document) on an annual basis.

- 31)**As one utility needs to expand or build new infrastructure, it should consult with other utilities, and where possible, co-locate such expansion with other utilities to minimize the cost of burying them underground. Such an effort would need to be coordinated through a combination of PURA and the Siting Council so that utilities could be co-located.

CHAPTER FOUR – GENERAL COMMUNICATIONS AND THE SHARING INFORMATION BETWEEN UTILITIES AND MUNICIPALITIES

ESTABLISHING MUTUAL PRIORITIES/ SHARING INFORMATION BETWEEN UTILITIES AND THE COMMUNITIES THEY SERVE

Findings:

- Testimony before the Two Storm Panel, particularly by municipal officials and first responders repeatedly stressed the confusion or conflict over municipal priorities during storms and the utilities' desire to restore service.
- There was a lack of accurate information about the resumption of power that affected all individual consumers and all businesses in the state.
- Hospitals, community providers and other healthcare and human service providers were limited in their ability to provide continuous services for their service populations without accurate information.
- This resulted in service inefficiencies, for example, individuals spending additional days in hospital settings although they did not require hospital level of care, community providers paying for relocation costs in hotels and other settings for indefinite periods of time and consumers unable to access basic healthcare because care settings could not open.
- Accurate information about resumption of power is necessary in order to safely discharge patients to homes, serve individuals in their own homes and allocate staff resources so that essential healthcare services can be provided
- Some text services offered by utilities directed individuals to shelters that had been closed or moved. The text information was not updated in a timely fashion.
- Outage maps did not provide local detail.

Recommendations:

32)A Municipal/Utility Collaborative Working Group should be created. This group would be chaired and convened by the Deputy Commissioner of the Department of Emergency Management/ Homeland Security and should develop:

- A) A statewide protocol that will establish key municipal priorities for safe and timely power restoration;

- B) A compatible storm damage assessment program that gathers and shares information between utility personnel and municipalities;
 - C) A protocol for the development of Municipal/Utility Storm Teams in which utility line crews and municipal public works road clearing crews partner in a more efficient team effort to restore power;
 - D) Each municipality should have the flexibility to have their local plan reflect local conditions as long as those local conditions are compatible with the State's overall goal of safe and timely safe power restoration;
 - E) Each municipality through its Mayor or First Selectman and the utility serving that community by its President or Chief Operating Officer should sign an agreement which will then be a basis for determining a benchmark for performance in future storms; and
 - F) DEMHS should monitor and audit the implementation of such individual municipal/utility collaborative agreements.
- 33)**The electric utilities must improve systems to provide timely, accurate information about power restoration projections, remedying problems that occurred during both of the two storms.
- 34)**Standards should be developed so that accurate information about resumption of telecommunication service to allow the safe discharge of patients to homes, allow individuals with medical needs to safely remain in their own homes and allocate staff resources so that essential healthcare services can be provided.

REGULAR MEETINGS OF ALL STAKEHOLDERS

Findings:

- Municipal responses to disasters such as storms often involve people who, in the course of their normal duties, may never come in contact with each other. A declaration of emergency should not be the first time that key actors meet each other or plan their strategy.
- Currently large (100,000+) towns are assigned a CL&P accounts manager and smaller towns share a manager between up to 20 towns.
- CL&P began a liaison mechanism in 2010 after the flooding caused by March nor'easter of that year. After the storm began, the utility selected existing

employees from its workforce, which included administrators, legal professionals and other office workers to act as liaisons with respective towns.

- When these individuals did arrive, they had no prior knowledge of the municipalities to which they were assigned, nor did they have access to any useful information regarding timetables for re-establishment of power to homes, schools, businesses, or health care facilities. They did not know how to request information regarding when trucks would arrive, when crews would clear lines from roads, as well as when lines would be re-established and repowered.
- During the recent testimony, CL&P made a commitment that it would provide appropriate representatives to each municipality. Some municipalities have asked that a representative be sent to work with a group of towns that are geographically and demographically similar, and that have gridlines that impact each other.
- It is important when considering the role that utilities play in disaster response and public safety to acknowledge (and hold accountable) all types of power and communications networks, including cell towers, cable companies, telecommunications providers and others. For example, CL&P has committed to fixing all utility poles, including those owned by AT&T, however AT&T is unable to repair poles where electrical cables are present. AT&T has an obligation, then, to participate fully in these key stakeholder meetings in order to provide exact information on how they will assist in the restoration of service as quickly as possible.

Recommendations:

- 35)** Each town should hold annual emergency preparedness meetings/tabletop exercises with the chief elected official, emergency management director, fire chief, resident state trooper or police chief, emergency medical services, public works supervisor, water/wastewater authority representative, representative from the Board of Finance, the Superintendent of Schools, the area Senior and Shelter coordinator, the accounts manager/liaison from the utility company, and other appropriate personnel.
- 36)** In addition, an annual meeting should be held for members of each DEMHS region with all of the above-named individuals present.
- 37)** A DEMHS/DESPP-sponsored real time regional training exercise should be held, incorporating utilities, municipalities, the State of Connecticut, and other critical stakeholders (including American Red Cross and CT ARES), in which all parties identify the assets available and the condition of those assets. Communities not participating can observe and provide input as well.

38) Each utility representative must understand the municipality's position and activity with respect to the overall grid, and be able to give accurate, non-inflated, and up-to-date information to each community regarding timelines for power restoration. To this end, these representatives must be identified and assigned to each municipality or municipal cluster, and trained to perform these functions at any given moment.

STATEWIDE COMMUNICATIONS

Findings:

- The Governor and the EOC team did an exceptional job of briefing the public during the two storms. Information was available on TV, the internet, radio and via print media and could be accessed by the public even those with no power and limited communication tools.
- Community providers provided 24 hour supports for a vulnerable population for the duration of both storms. Earlier access to power and telecommunications would have better assured the health and safety of the individuals served.
- WebEOC is a web based communication and information sharing tool for planning. According to the municipalities, there is need to add to the local component to improve the coordination between local, regional and state resources. DEMHS would be the appropriate agency to assess any shortfalls that may exist in the system.
- United Way of Connecticut 2-1-1, working under contract with the State of Connecticut, provided significant communication services to residents during Tropical Storm Irene and the Nor'easter, far surpassing previous demand for information and referral service. In providing these contractual services to the state, it is reliant on government funding to support service expansion.

Recommendations:

- 39)** During a state-declared State of Emergency, the Governor (or his/her designee) should continue the practice of daily teleconference briefings with municipal CEOs (or their designees).
- 40)** In addition, the Governor (or his/her designee) should launch a public service communications campaign advising individuals about the potential dangers of using generators improperly or undertaking activities that may result in carbon monoxide poisoning or other health hazards.

- 41)** Utilize additional communication mechanisms to convey emergency information to the broader public including utilization of social media, American Sign Language and closed captioning in EOC and other briefings.
- 42)** Coordinate with municipalities and utility providers to give priority restoration to community provider organizations so that the individuals served can continue to receive services in their own homes and in provider service delivery locations rather than in municipal shelters, nursing homes, hospitals or other more costly levels of care.
- 43)** United Way of Connecticut 2-1-1 needs to expand its communication capacity through its contract with the State in order to meet a high level of service and in order to be prepared for the next emergency situation. This can be accomplished by providing access to a “remote configurable IVR system” to allow for internet access for call routing and installing a back-up generator with transfer switch and wiring to power back up cooling and heating systems and lighting. In addition, the purchase of laptops and docking stations and increased Virtual Private Network (VPN) capacity to allow for remote operation in emergency situations should be considered.

CHAPTER FIVE – MUNICIPAL ISSUES

PREPAREDNESS AND TRAINING

Findings:

- The assessment of Connecticut municipalities' experience with the two storms indicates that, although towns differ greatly with respect to population demographics, existing /problematic infrastructure, and regional weather patterns, there were similar municipal responses throughout the state.
- The largest resulting difference was found in the shelter needs of citizens during the second storm due to the freezing temperatures. Many municipalities reported little or no difference, however, in pre-event preparation, coordinated command responses, communication with utilities, and ability to adhere to uniform standards regarding training, resources, and information dissemination in other areas of the needed storm response.
- Connecticut municipalities and their respective partners at the Department of Emergency Management and Homeland Security (DEMHS), OPM, the Department of Public Safety, and other state agencies have created their disaster response systems based on the NIMS model of preparation, recovery and restoration. The model suggests that when a disaster preparedness system is working well, emergency management is a 365 day per year endeavor. Municipalities play an integral role in any recovery event because “all emergencies are local.”
- While this model is academically in place in Connecticut, combined municipality experience during the past two storms suggests that there need to be several systems and procedures in place, which are common to all public and private stakeholders, for the model to be effective in a real emergency.
- As an overall strategy, municipalities must be prepared at all times to protect the most vulnerable of their citizens for up to 5 days at a time with no real assistance from any entity outside their community, and citizens must be prepared for outages of, in some instances, up to two weeks.
- Within these parameters, municipalities identified 4 main areas in which specific coordination activities, applied resources, and/or mandated trainings and responses would mitigate the majority of storm-related safety and reconstruction issues. These areas are:
 - A) identified and enforced responsibility of elected officials,

- B) year-round coordination between key town actors, emergency preparedness representatives, and utility companies,
 - C) statewide consistency in storm-related regulations and their enforcement, and
 - D) the re-vesting of authority and resources to appropriate state agencies and divisions, as well as key utility personnel.
- Municipalities have specific obligations to ensure that their citizenry, comprised as it is of individuals who serve their towns mostly voluntarily and with little technical knowledge, is continually prepared for the eventuality of a natural disaster. As the NIMS guidelines state, “Elected and appointed officials should have a clear understanding of their roles and responsibilities for successful emergency management and incident response.”
 - These activities can all be discussed in the context of the NIMS framework components of preparedness, communications/information management, resource management, command management, and ongoing management/maintenance.
 - Just as Florida learned after the devastating 2004/2005 hurricane season, pre-storm training is critically important and there is no substitute for an annual real exercise that brings all parties together with an agreed upon plan of action and clear roles and responsibilities that are tested in a real time experience.

Recommendations:

- 44)**The Department of Emergency Management /Homeland Security should develop an emergency response plan as part of its training program, and train municipal officials with respect to their respective roles within that plan. Its training budget will need to be increased to reflect the additional training responsibilities that are proposed. Regional Emergency Planning Team training funds can be used for this purpose.
- 45)**All Mayors, First Selectmen, Town Managers and Commissioners of State Agencies together with their EMDs, and Emergency Operation Chiefs should receive emergency preparedness training within 45 days of assuming office. These officials may also request similar training for their EMD subordinates, so that all town responders who normally do not work together can coordinate seamlessly in the event of a disaster. An advisory curriculum committee should be established whose membership should reflect the real world needs of municipal CEOs and commissioners.

46) A primer for municipal officials of “what to do in an emergency” that delineates roles and responsibilities between state, local and national governments and private and nonprofit sectors should be developed as part of this curriculum.

47) Municipalities should be provided the opportunity to delineate a “town center”, and in doing so, may mandate the inclusion of alternate power sources (including distributed generation) for private facilities including filling stations and grocery stores.

ROAD SAFETY AND DOWNED TREE REMOVAL

Findings:

- The relationship between each municipality and the utility companies needs to be negotiated and consistently maintained, in order to provide a continuum of storm assessment and recovery.
- Municipalities statewide agreed that in a storm the first priority is to make roads safe. There were many delays in clearing routes during the first 72 hours emergency push after the storms passed. Without this component of storm management in place, public safety interventions and health/damage assessments cannot occur. When wires are down the resources of municipalities, in the form of public works and emergency apparatus, are at a standstill.
- During both storms, the understanding between CL&P and the municipalities was that public works crews would be relied upon to clear roadway debris, which for the most part worked well. The issues arose when downed wires were not identified and/or attended to by appropriate utility officials.
- No individual or municipal representative can move wires unless he/she is trained and approved by the electric utility company in the operation of the power distribution system. It is therefore incumbent upon the utilities to have a plan in place, and to work with the relevant municipalities affected, in order to get roads cleared as quickly as possible so that public safety can be assured.
- Much of the testimony received regarding this topic had at base a frustration with the ability of the utility company (CL&P) to respond with appropriate personnel in a timely manner.
- The Interagency Debris Management Task Force which includes DESPP-DEMHS, DEEP, DOT, DAS, OPM, NG, DOL and electric utilities manage state debris management contractors (activated in both storms by Governor Malloy) and other parties for debris removal. Task force could have deployed state agencies particularly contractor, DOT, and National Guard in critical areas more

efficiently. When deployed, the National Guard completed route clearance in 34 towns and contractors cleared 44 towns with DOT maintained routes.

Recommendations:

- 48)** Utilities and municipalities should work together and expend appropriate resources to ensure that sufficient technicians and resources are available to each municipality to ensure proper and prompt roadway clearance.
- 49)** Municipalities should consider regional methods to purchase equipment for debris removal and clearance, which may not be available to them otherwise.
- 50)** To eliminate jurisdictional concerns, Connecticut DOT should establish agreements with each municipality that critical local roads should be cleared by combination municipal/utility crews if they can respond more efficiently than CTDOT crews in a state of emergency.
- 51)** There should be a consideration of enhanced communication interoperability of public works departments, in particular between smaller municipalities. Communications between municipalities and their public works crews should be possible at the lowest level (i.e., truck-to-truck). This would allow for multi-municipality responses with public works crews, both during the emergency and during the cleanup/recover effort, which is borne almost entirely by this group of workers.

SHELTER OPERATIONS¹

Findings:

- Most small towns (under 6,000) have individualized plans that include the provision of some amenities (cots, water, bathing/toilet facilities) to a small number of citizens, but lack the resources to adequately construct and maintain facilities that would be adequate for all citizens in the wake of a large disaster.
- During Tropical Storm Irene, 30 towns experienced some level of evacuation. For example, approximately 13,000 households were evacuated in Bridgeport.
- During the October Nor'easter sheltering became a significant issue because of the colder weather and longer period of electrical outage. The primary problem was sheltering at risk populations particularly functional needs populations requiring electricity and life sustaining equipment/supplies. Of the 58 shelters and 118 warming centers opened, there were shelters that provided for the at-

¹ For purposes of this Report, shelter is defined as an area that provided any one of the following conditions: 1) sleeping; 2) showering; 3) warming centers; 4) charging stations; and/or 5) food preparation areas.

risk sector of our population. Community shelters that did not provide for the functional needs of at-risk individuals compelled many to find it necessary to go to a hospital emergency room. This situation along with patient discharge difficulties due to electrical utility issues created a capacity problem for many hospitals.

- The State Mass Care Working Group has expanded its membership to include representatives of nonprofit associations. This will assist in assuring that nonprofit community-based providers are included in the preparedness planning and preparation for emergency situations including exercises.
- Individuals with medical, mental health and other healthcare needs are best served in their own homes; however, if conditions are dangerous in home settings, *shelters need to be able to accommodate individuals with varying needs.*
- The following statement is from the Executive Director of the Office of Protection and Advocacy for Persons with Disabilities which summarizes the sheltering of functional needs population during an extreme event in a very comprehensive manner:

We now know we have to allow families and support circles to shelter together; that we have to assure people that a public shelter can accommodate “people like them”; that their functional support needs – including their need to bring mobility devices, respiratory and feeding equipment and to recharge their batteries - will be met; and, perhaps most importantly, we must be able to assure them that they will not find themselves being sent to a medical or long term care facility simply because they have disabilities. Many seniors and younger people with disabilities dedicate their lives to staying out of nursing homes, and any suggestion that that is where they will end up if they present themselves at a local shelter, or heed an evacuation order, will result in non-compliance and decisions to “tough it out”, with possibly tragic results.

- Community providers were asked by families of those they serve and residents of their local communities if they could make their provider agency locations available as warming centers or shelters. Limitations of their state-issued licenses and liability concerns created obstacles.

Recommendations:

52) Utilizing the services of the Mass Care Working Group of the Advisory Council to DEMHS, municipalities should:

- A) Work with the Department of Public Health to develop plans to serve individuals with functional and access needs, medical dependencies and other “at-risk” groups to assure that individuals can be served at local or regional shelters;
- B) Assure that all shelters are accessible to people with disabilities;
- C) Utilize resources to assure that shelters are set up to meet the access and functional support needs of local residents;
- D) Link nonprofit organizations with municipalities for better integration and coordination at the local level;
- E) Link nonprofit organizations with municipalities to determine “pre-identified priority lists” in each community along with hospitals, nursing homes, shelters, fire stations and other essential services. In addition, municipalities and nonprofit organizations should be linked with power providers and telecom providers for better integration and coordination at the local level;
- F) Determine the best ways to address the needs of residents who need electricity for medical needs but require little or no medical care;
- G) Develop a plan for shelters that includes all individuals in the community including those who are “medically compromised” but provide self-care and others who are “medically compromised” but do not meet hospital criteria for admission;
- H) Plan for assisting vulnerable residents who require home care supports, oxygen and other health-related services in shelters.
- I) Assure that individuals under the care of home care providers continue to be served by the home care providers;
- J) Coordinate distribution of oxygen to shelters;
- K) Plan for assisting individuals with disabilities and older adults with complex healthcare, physical and cognitive needs in shelters with the assistance of community provider staff;
- L) Allow for individuals under the care of a community provider (i.e. group home for individuals with disabilities) continue to be served by those providers in the shelter;
- M) Provide for behavioral health services in shelters with the assistance of community provider staff;

- N) Assure that all shelters have sufficient auxiliary power to support mobility devices, respiratory and feeding equipment and to recharge batteries;
- O) Assure that all shelters have pre-arranged plans with local home care, Medical Reserve Corps and Community Emergency Response Teams and vendors of oxygen and medical supplies; and
- P) Provide consolidated list of all shelters by location including any specialized services available at the sites.

53) Utilizing the services of the Mass Care Working Group:

- A) Develop protocols for “one-stop” “pre-registration” for individuals who are vulnerable and living in their own homes;
- B) allow individuals to opt-in to be included on this list;
- C) determine what services individuals can expect to receive from telecommunications and power suppliers;
- D) determine what services individuals can expect to receive from municipalities; and
- E) determine what services individuals can expect to receive from home care, community providers and other healthcare providers.

54) Amend the Good Samaritan legislation to allow community providers to provide sheltering services to the general public during a declared State of Emergency.

55) Consideration should be given to creating regional or specialized shelters for those individuals with special needs. For example, “medical shelters” could be developed for those who are “medically compromised” but do not meet hospital criteria for admission.

56) Develop protocols for mutual aid agreements between shelters, hospitals, home care organizations and community providers to address the needs of individuals with life-threatening healthcare needs.

57) Utilize regional, “medically oriented” shelters in conjunction with hospitals to provide medical monitoring and medical interventions.

UTILIZATION OF VOLUNTEERS

Findings:

- One of the largest issues affecting any town's preparedness strategy is the ability to attract volunteers and citizen response teams.
- As most of us are aware, the same small core group is relied on by municipalities to perform nearly every town service that is not compensated, from work on commissions and boards to special event planning, fundraising, senior services, animal protection, and emergency medical and fire service.

Recommendations:

58) Create within DEMHS a volunteer initiative/follow-up unit.

59) Mechanisms need to be developed to encourage citizens to become consistently engaged in disaster preparedness, both at home and in tandem with other community members.

CHAPTER SIX – USE OF GEOGRAPHICAL INFORMATION SYSTEMS

Findings:

- The need for a common platform to share information about storm assessments was a major concern that was brought to the Panel’s attention, and the sharing of GIS mapping data between towns, utilities and state agencies was a repeated suggestion that was made to the Panel.
- Questions as to what streets are blocked, what poles and wires are down, where the power is on and where it’s off were consistent complaints.
- Recent testimony from the utility companies reveals incomplete GIS data pertaining to its infrastructure, or the towns in which it operates. Though their grids provide information on line breaks, utilities are relying on consumers to identify exactly where resulting problems exist.
- Some Councils of Governments have recently completed GIS data profiles for Connecticut towns and their land parcels. Several utility companies have indicated that they are in the process of creating this information for their own grids using a “smart grid technology to target trouble areas,” but to date no such information or resource exists.
- Currently there is no individual or department in the state that is assigned to or has authority over the implementation of standards with respect to using existing GIS information to help address storms.

Recommendations:

- 60)** The Connecticut GIS Council should expand its membership to include the State’s utilities, both investor-owned as well as municipally-owned utilities. In addition, a division should be established in OPM that is charged with working with all planning departments and organizations—emergency management, water/wastewater, all utility companies, private and public and others—to synthesize all GIS information layers available and provide it to DEMHS for integrated and uniform planning purposes. In addition, all COGs, utilities and others should be mandated to regularly report their respective GIS updates to this division.
- 61)** The Connecticut GIS Council should elevate the Critical Infrastructure/Key Resources subcommittee of the Data Inventory and Assessment Working Group as a distinct Working Group. The CI/KR Working Group should be comprised of members of the GIS Council, municipalities, first

responders, utility companies, emergency operation center (EOC) managers, and federal GIS partners. The purpose of the Working Group should be, but not limited to, the promotion and sharing of GIS data across various entities, and provide a forum for utility companies and governments to discuss and promote mutual benefits through GIS.

- 62)**The GIS Council's Storm Response and Recovery Assessment Group should propose models or examples of legislation that promote GIS data sharing of critical infrastructure information between utility companies, state, and local governments during disaster events, but also addresses security risks.
- 63)**Within ninety (90) calendar days, the Department of Administrative Services, Bureau of Enterprise Systems and Technology (DAS-BEST), should make available to all state agencies the ArcGIS Server system currently managed by DAS-BEST and eliminate barriers and redundancies that prohibit the use and benefits of such a system. Members of the GIS Council should then work to streamline and develop means and methods that promote the use of the system for disaster response and recovery.
- 64)**Electric utilities should be required to develop extensible GIS applications--incorporating information from smart meters/smart grids and mobile data terminals as required by PURA--to facilitate the real-time sharing of data on service outages.
- 65)**Utilities should dispatch to local EOCs: circuit maps, piping maps organizational flow charts, escalation paths, and up-to-date information on service outages within 120 minutes of the opening of an EOC.

CHAPTER SEVEN – HEALTH CARE AND COMMUNITY PROVIDER ISSUES

Findings:

- People with disabilities, including individuals with intellectual, behavioral health and physical disabilities and individuals with acute and chronic medical conditions, may be at significant risk during emergency situations. Such situations could include extreme weather conditions, loss of power and/or loss of heat.
- Home health and other community providers provide critical healthcare services for individuals in every community of the state in their own homes and in home-based locations. They serve individuals who are best served in their own homes. They serve individuals who would be difficult and/or at risk to evacuate.
- During the recent storms providers had difficulty driving to their client homes and community-based locations in part due to gasoline shortages.
- Community providers – organizations that support individuals with disabilities and significant challenges in community-based settings - made exceptional efforts during the two storms to support those individuals and families that they serve in home, home-based or other community settings. Community providers evacuated and relocated individuals in those settings without power to other locations within their service area, to administrative or day program locations, to hotels and to other sheltering settings.
- They provided services 24 hours a day for the duration of Tropical Storm Irene and the October Nor'easter in temporary settings, maintaining critical and emergent services.
- Many individuals with disabilities are reliant on services that require electricity ranging from refrigeration to protect medicine and special diet foods, power to recharge wheelchair batteries and operate Hoya lifts, pumps for bathing and toilets and lighting to assure proper medication administration.
- Approximately 44% of provider organizations had some type of generator, but those with gasoline or diesel generators struggled to replace fuel and continue operating those generators. A more resilient solution is purchase of permanent standby generators.

- Community providers are funded largely with state General Fund and Medicaid dollars. Flat funding and capped rates preclude or greatly limit expenditures such as generator systems.
- Community providers do extensive planning for emergency situations, but the length of the power and communications outages put many plans to the test. Organizations faced shortages of food and healthcare supplies, having difficulty procuring bulk quantities of these supplies with transportation and storage limitations during the storms.
- Individuals with medical and other healthcare needs are best served in their own homes.
- Older individuals are “aging in place.” Younger people with significant disabilities are living independently in their own homes. Families are raising children with complex needs in their own homes. Individuals with intellectual disabilities, mental illness and other healthcare needs are living in their own homes or are receiving home-based supports from community provider agencies.
- Individuals with medical and other healthcare needs are best served in their own homes or community shelters if situations in homes are dangerous. However, some individuals may have greater needs that community shelters can provide.
- Federal Medicaid legislation and state licensing regulations limit flexibility to transfer patients/ clients, to provide alternative services, to address the needs of “social patients” and to address other healthcare issues during emergency situations.
- During the recent storms the Department of Social Services implemented several emergency provisions. DSS recognizes that the Department could have communicated these provisions in a more timely way, however, the following steps were undertaken:
 - A) waived “level of care” requirement for seven days for pre-admission screening to nursing homes (allowing hospitals to discharge patients to nursing homes);
 - B) allowed nursing homes to admit Medicaid patients without “medical necessity level of care determination” for the first seven days of stay;
 - C) waived pharmacy requests for early refills; and
 - D) allowed pharmacy “temporary supplies” to be dispensed.

Recommendations:

- 66)** Convene a small working group under the auspices of the Nonprofit Liaison to the Governor to develop recommendations for the funding of permanent standby generators and related installation and maintenance costs.
- 67)** Convene a small working group under the auspices of the Nonprofit Liaison to the Governor, in conjunction with the Fuel Task Force, the Commodities Task Force and the Department of Administrative Services, to develop recommendations for assuring access to essential supplies such as gasoline, propane, food and healthcare supplies in emergency situations.
- 68)** The Department of Social Services should communicate with hospitals, nursing homes, home care agencies and other community providers, including organizations that support individuals with disabilities, about implementation of emergency provisions in a more timely way. In addition to “fax blasts” other media should be considered including: email, text messaging, voice mail, radio announcements, social media and website postings.
- 69)** When the Governor declares a state of emergency, the accompanying Executive Order should temporarily waive regulations of state agencies that would impede the provision of health, safety and/or sheltering services.
- 70)** In addition, regulations should also be examined to see if changes are warranted during emergencies. For example, Department of Public Health regulations should be amended to allow for immediate implementation of emergency provisions when an emergency is declared by the Governor (Department of Social Services and Department of Public Health joint responsibility). In addition, a small working group should be convened under the auspices of the Nonprofit Liaison to the Governor and including the Department of Public Health to develop recommendations for protocols for waiving licensing standards during emergency situations.

CHAPTER EIGHT – GENERAL STATE ISSUES

REGULATION OF UTILITIES

Findings:

- The failure of a large portion of Connecticut's telecommunications system during the two storms is a life safety issue
- Back up generation and backhaul (the physical telephone line that connects cellular towers and transmits the calls) capabilities for cell towers is inconsistent. Different standards are used by different companies, and there is no state standard currently applicable to all cell towers.
- Utility poles are owned by electric utility companies, telecommunication companies, jointly owned by utilities and telecommunication companies and by other third party entities.
- Standards for maintenance, tree trimming, and replacement vary from town to town and utility to utility. The standards used by telecommunication companies are of particular concern.
- PURA has not uniformly enforced its own compliance orders involving utility storm preparation and power restoration efforts. For example, PURA reviews both CL&P's and UI's emergency response plans. As noted in the Witt Report, CL&P's plan was based on an outage of 100,000 customers, or 8.2% of the customer base, while UI's plan was based on an outage of 250,000 customers, or 71% of the customer base. This wide variation raises serious questions about the regulatory agency's oversight and enforcement functions.
- Neither the PURA nor the Connecticut Siting Council has an effective enforcement capability in the structure of either agency. Put another way, neither agency is designed with a separate division tasked with the enforcement of orders and decisions issued by those agencies.
- Currently, there is no entity within the state of Connecticut that is tasked with developing best practices for utility systems and infrastructure.

Recommendations:

- 71) An enforcement division should be created within PURA that will serve both PURA and the Connecticut Siting Council. This division will be tasked with reviewing open orders issued by both agencies; investigating potential

violations of such orders; negotiating administrative penalties with violators; and, if necessary, referring violations to the office of the Attorney General for enforcement proceedings. The creation of this division will require additional personnel and funding for PURA.

- 72)** Develop collaboration with the State, the utilities and a university, or other third party expert, that would create an interdisciplinary Center for Research on storm hazard mitigation and power system resiliency. The Center for Research would be responsible for the following:
- A) Develop a more robust hazard assessment capability that can identify “hot spots” for storm damage and integrate early warning with preparedness and emergency management;
 - B) Conduct research on hardening present utility pole and wire infrastructure;
 - C) Perform life cycle analysis of the cost of undergrounding utilities;
 - D) Evaluate the use of cogeneration and microgrids to improve the overall reliability and resiliency of the electrical distribution system;
 - E) Evaluate the use of alternative energy as part of a more resilient power system;
 - F) Perform research on regulatory reform and the financing of energy infrastructure for an economically competitive and environmental appropriate 21st century power system for Connecticut; and
 - G) Leverage funding available from FEMA by becoming a regional center of excellence for storm hazard mitigation.
- 73)** The Connecticut Siting Council should require continuity of service plans for any cellular tower to be erected. In addition, where possible, the Siting Council should issue clear and uniform standards for issues including, but not limited to, generators, battery backups, backhaul capacity, response times for existing cellular towers.
- 74)** PURA should develop a new position of pole administrator to manage utility pole rights-of-ways, aging of utility pole infrastructure as reported by pole custodians, and other issues associated with the reliability of utility pole infrastructure.
- 75)** DEEP should investigate the physical and fiscal issues associated with the development of distributed power generation systems in critical areas and delineated “town centers.” This would include investigation of energy

improvement districts, use of microgrids, and potential legislative fixes to address any issues associated with crossing rights-of-way.

REVIEW OF DESPP

Findings:

- A strong DEMHS Division within DESPP is essential to a robust response to an all hazards disaster in the future. In the National Incident Management System (NIMS), all initial response is local utilizing the Incident Command System.
- The goal is to have municipalities, especially the smaller communities whose resources would be stretched beyond the capabilities of a larger community, look to regional support and multi-municipality planning.
- The solid relationship that has been formed with municipalities and the planning in place needs to be enhanced through training exercises and lessons learned with plans adjusted accordingly.
- An aggressive exercise program was recommended by DEHMHS for one per region per year.
- There are currently eleven vacancies in the Office of Emergency Management (OEM) within DEMHS, the function most responsible for emergency training and planning.
- In addition the Deputy Commissioner position charged with oversight of DEMHS is currently filled by acting personnel, while waiting for a permanent designee to be appointed and confirmed.

Recommendations:

76) A number of inter-agency successes within the task force format were employed within the two storms. These task forces should become working groups for planning purposes and include both private and public entities, especially utilities.

77) The Deputy Commissioner position should be filled expeditiously. The Department of Emergency Service and Public Protection (DESPP) should assign this deputy the following divisions for primary oversight:

-Division of Emergency Management and Homeland Security (DEMHS)

- Division of Fire Investigation and State wide Emergency Telecommunications (FI-SET)

-Commission on Fire Prevention and Control (CFPC)

-Police Officers Standards Training Council (POST)

These divisions have close connectivity to the 169 communities and 2 Tribal nations in Connecticut. It would serve to allay the anxiety at the community level that their needs for a strong emergency response framework and the funding attendant to this capability would be met.

- 78)** In addition, during declared states of emergency, the Deputy Commissioner should have a direct reporting line to the Governor, which will terminate at the conclusion of the response period.
- 79)** The exercise and training and special projects (exercises) manager position should be filled at OEM. A planning manager position should be added at OEM. This gives OEM the ability to oversee and manage planning, training and exercise programs.
- 80)** The five vacant planning positions under strategic planning in OEM should be assigned to the regions, with one per region. In addition, the Panel recommends that three currently assigned trainers, along with two vacant training positions in OEM, be assigned to each DEMHS region (one per region). The two vacant positions in Region 2 should also be filled expeditiously. This gives the regional offices, which are key to municipal planning and training, the resources to exercise the state response framework and increase ability to execute their regional responsibility for deployment of state and federal support during actual disasters.
- 81)** The DEMHS recommendation for one exercise per region per year is acceptable as long as the exercise is robust enough to tax the functional responses properly. Any DEMHS exercise should involve all OEM and regional staff for planning and execution to include exercise input and evaluation of state and community response during the exercise. DEMHS, along with other appropriate division personnel within DESPP, could augment this effort. Fewer exercises per year rotated through the regions, for primary responsibility, may be preferable. This creates better documented lessons learned available to all communities. Communities not participating can observe and provide input as well.

STRENGTHENING THE INTERACTION BETWEEN THE STATE AND THE COMMUNITY

Findings:

- The need for the private sector (including food, fuel, hospitality, small business and retail) to be fully engaged with the State of Connecticut and its municipalities is reflected in the State's Emergency Planning Documents.
- Private sector involvement is key to recovery from storm damage. FEMA is strongly encouraging a more robust national effort to partner with the private sector. Connecticut can play a leading role in this effort.
- Like many businesses, community providers lost hundreds and thousands of dollars in anticipated revenue when clients couldn't receive services due to power failure, communications outages and transportation issues. Business interruption insurance does not cover this type of loss. Neither does FEMA.
- Community providers who had to relocate their services due to power failure and communications outages in order to provide the required 24 hour supports suffered increased deficits as neither business interruption insurance nor FEMA covers this type of loss.

Recommendation:

82) Create a Public/ Private Initiatives Unit within DEHMS that: 1) supports the resiliency of Connecticut's private sector through information sharing, partnership building, training and education on preparedness principles and the State's preparedness plans; and 2) coordinates with businesses of all types and sizes to create a culture of preparedness that extends beyond the workplace and that engages employees.

APPENDIX T

**CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS COUNCIL, *STORM
RESPONSE AND RECOVERY ASSESSMENT GROUP FINDINGS REPORT***



Connecticut Geospatial Information Systems Council Storm Response and Recovery Assessment Group

**Draft Findings Report
January 25, 2012**

*Jeff Bolton
Meg McGaffin
Aaron Nash
Eric Snowden*

Background

From the International Space Station, Astronaut Ron Garan tweeted on August 27, 2011 @ 3:32pm EST....

Hope everyone is OK

A photograph of Earth from space, showing a large, swirling white cloud formation over a blue ocean and brownish landmasses. The text "Hope everyone is OK" is overlaid in the center of the image.

Tropical Storm Irene



NOAA satellite image taken Friday, Aug. 26, 2011, at 1:45 a.m. EDT shows Category 3 Hurricane Irene, now located about 460 miles south-southwest of Cape Hatteras, N.C

Tropical Storm Irene

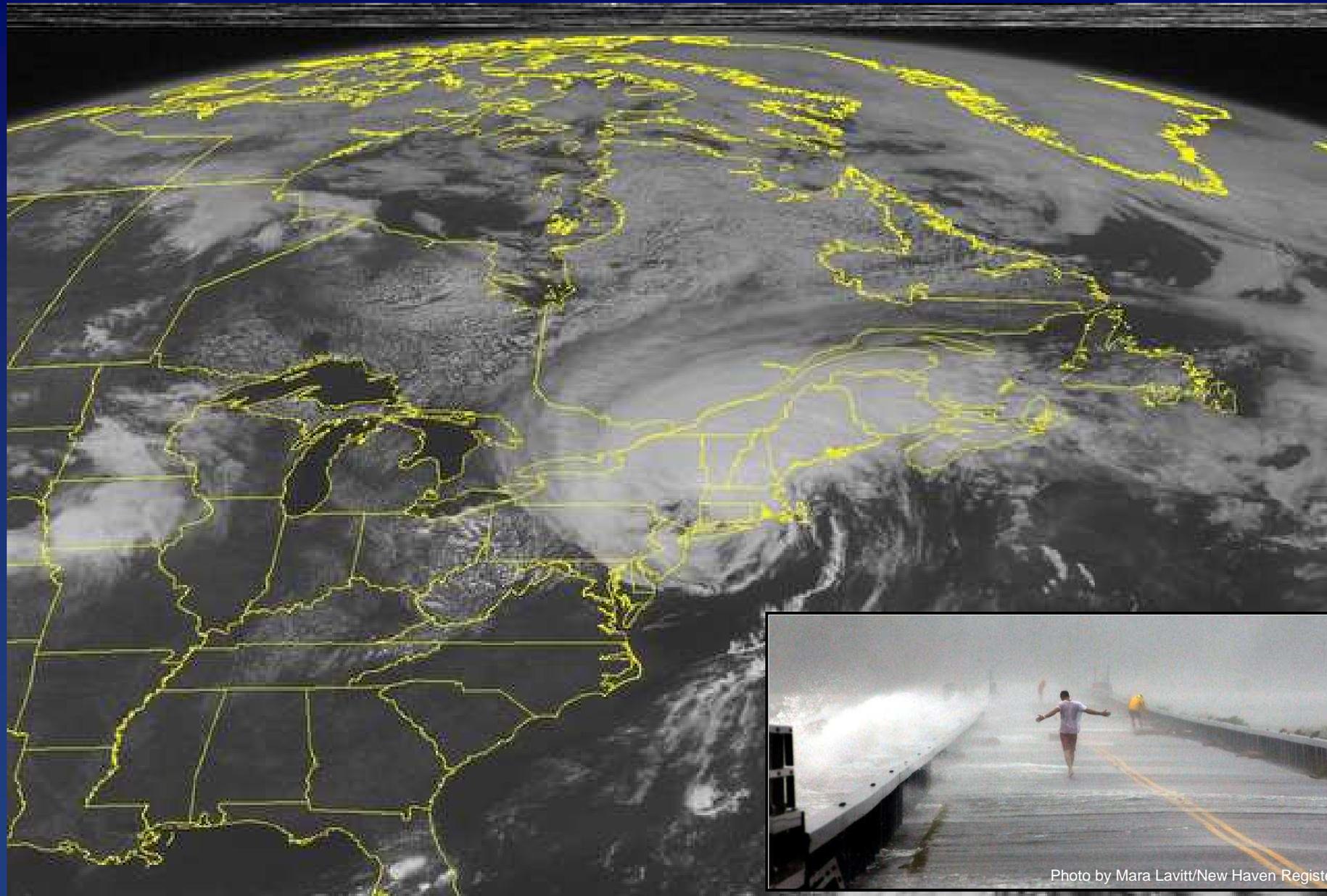
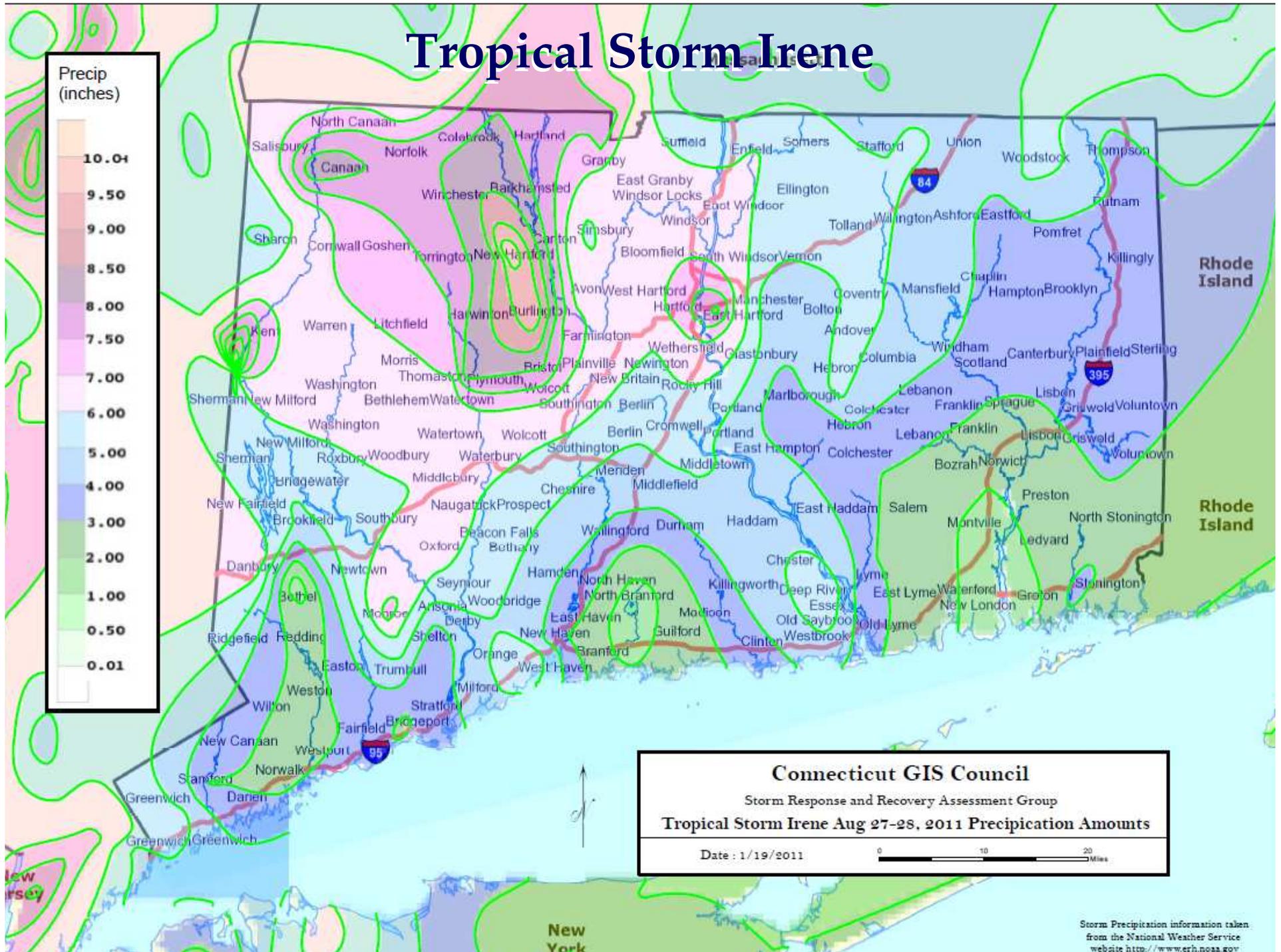


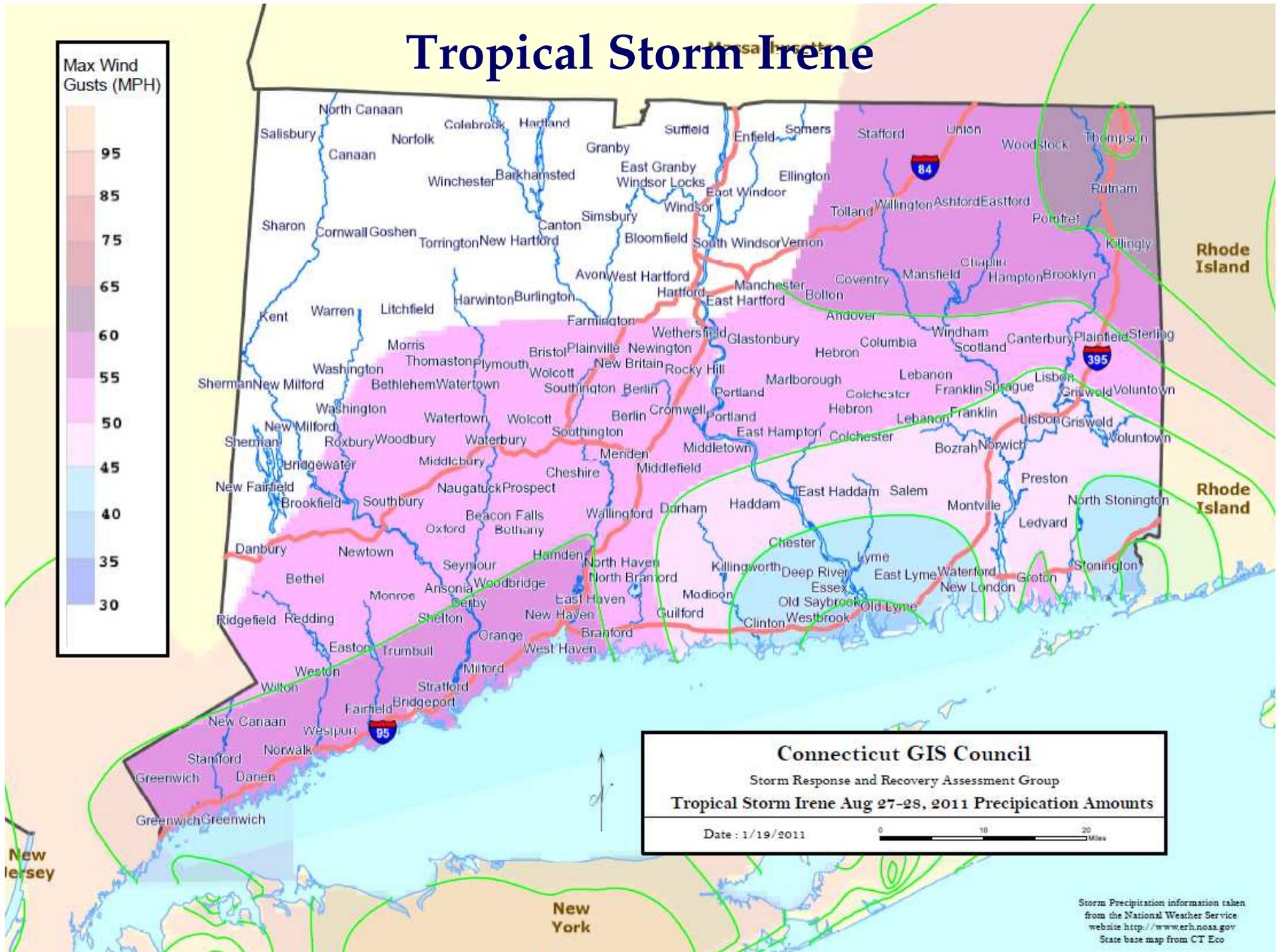
Photo by Mara Lavitt/New Haven Register

NOAA satellite image taken Sunday, August 28, 2011 at 1:45 PM EDT

Tropical Storm Irene



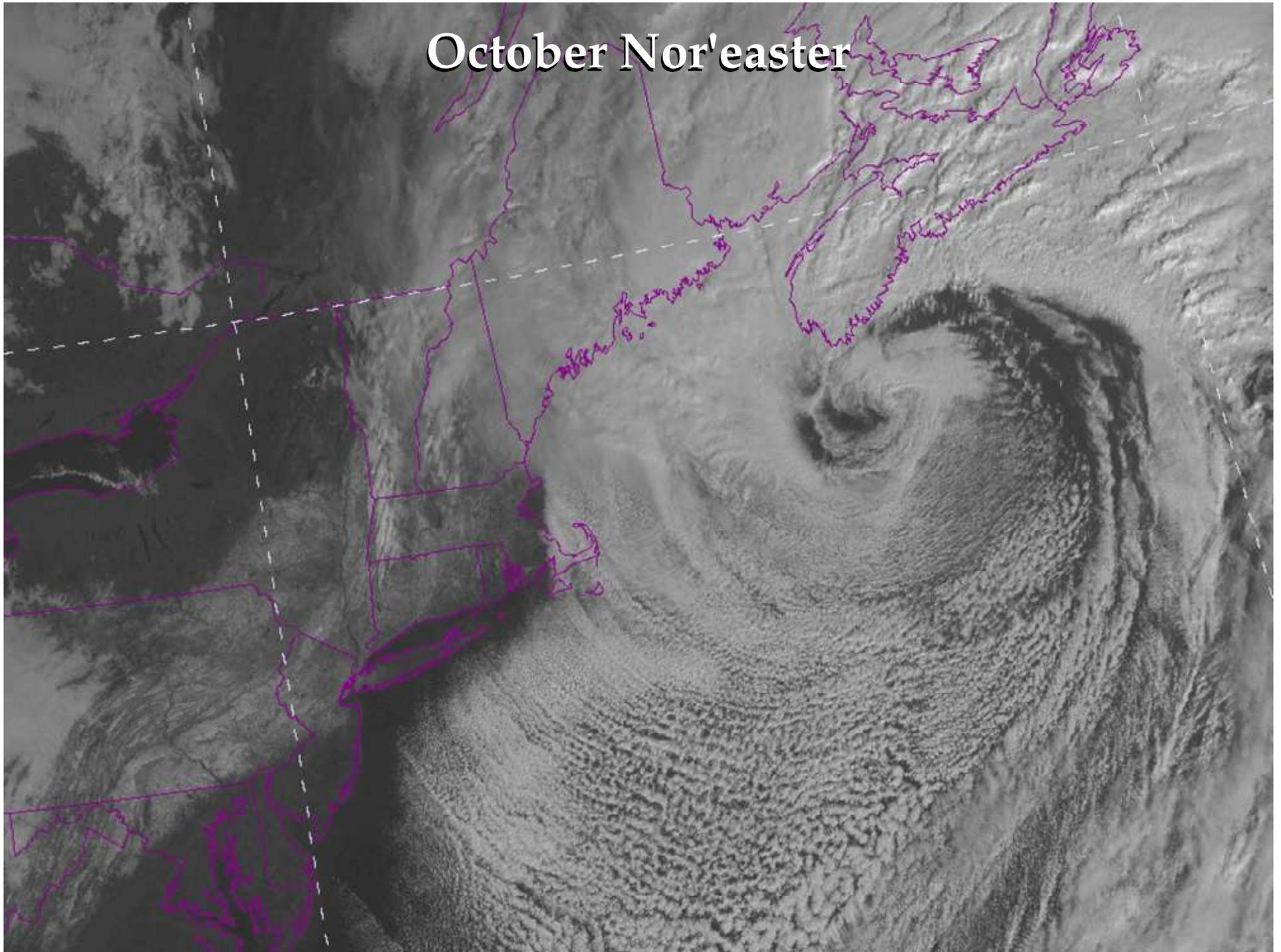
Tropical Storm Irene



Tropical Storm Irene



October Nor'easter

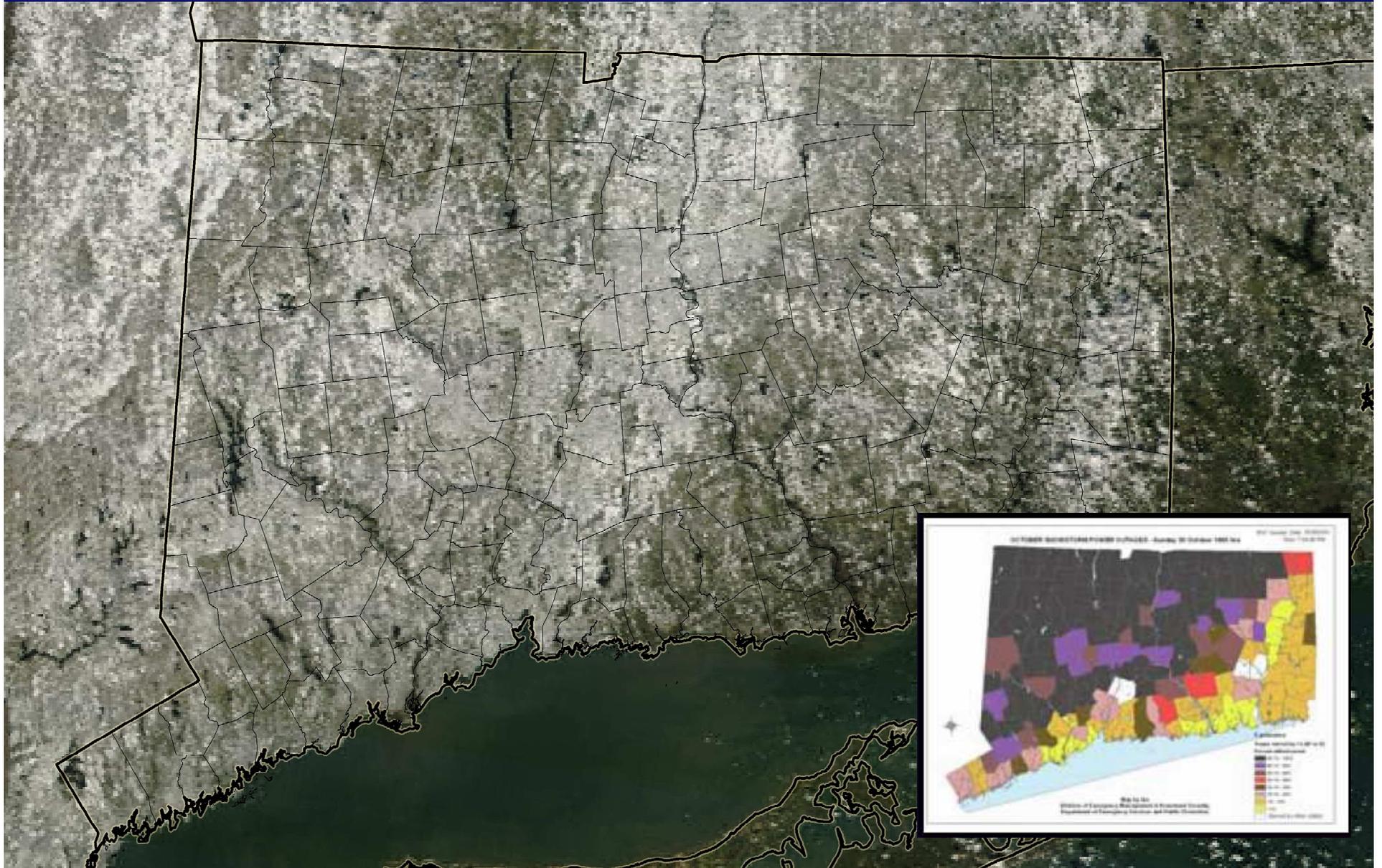


October Nor'easter



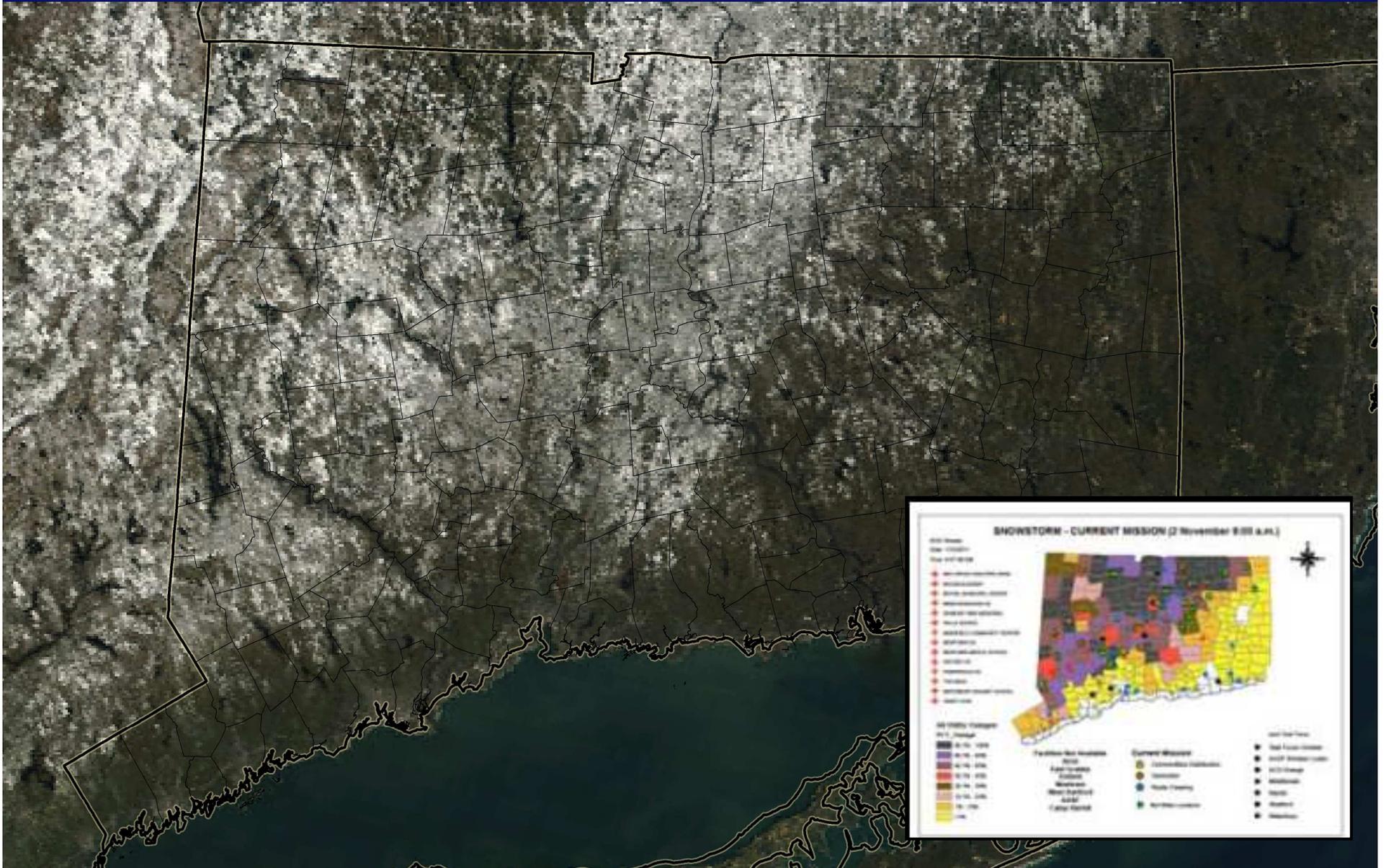
October Nor'easter

October 30, 2011 – Snow Cover

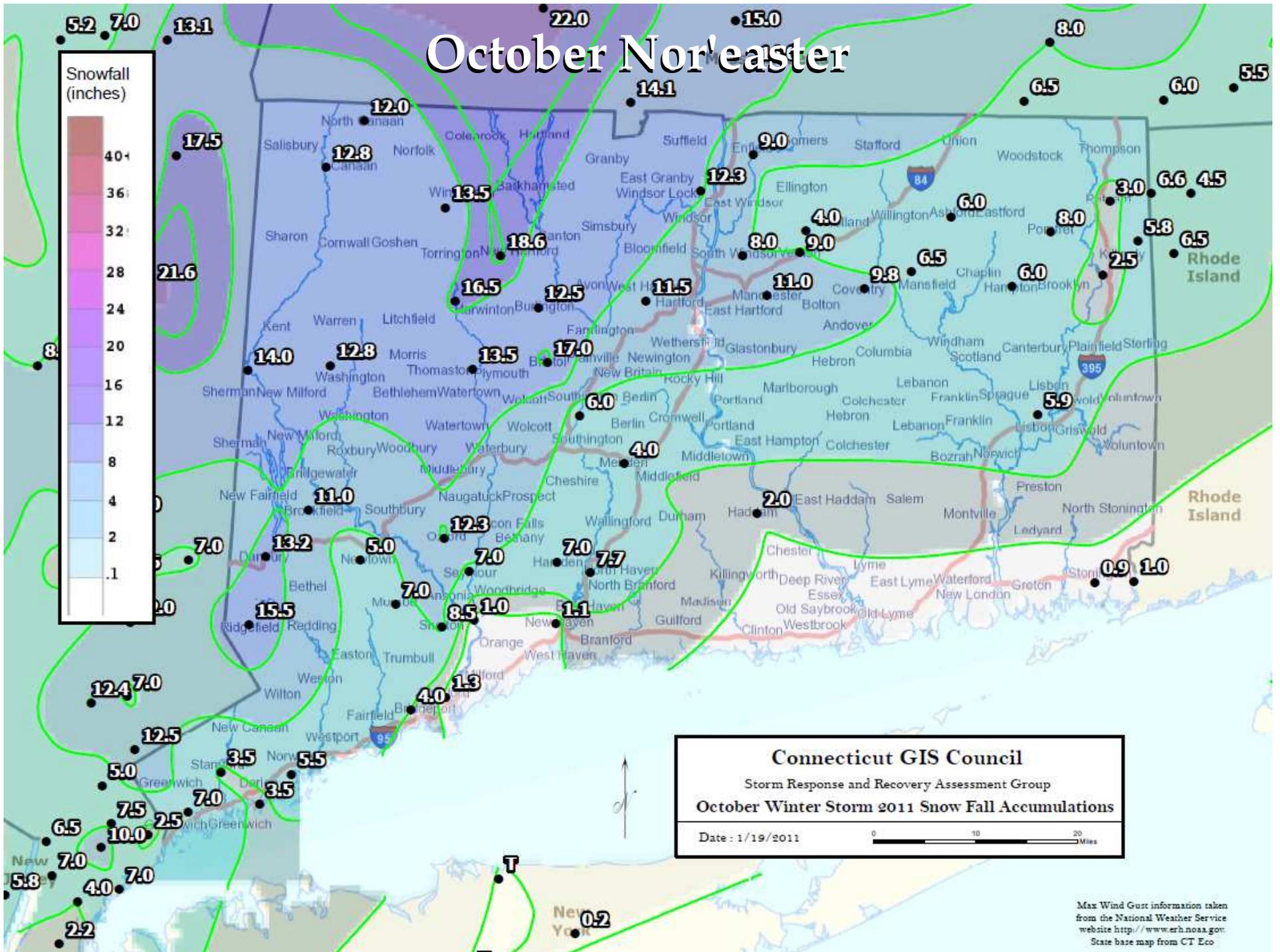


October Nor'easter

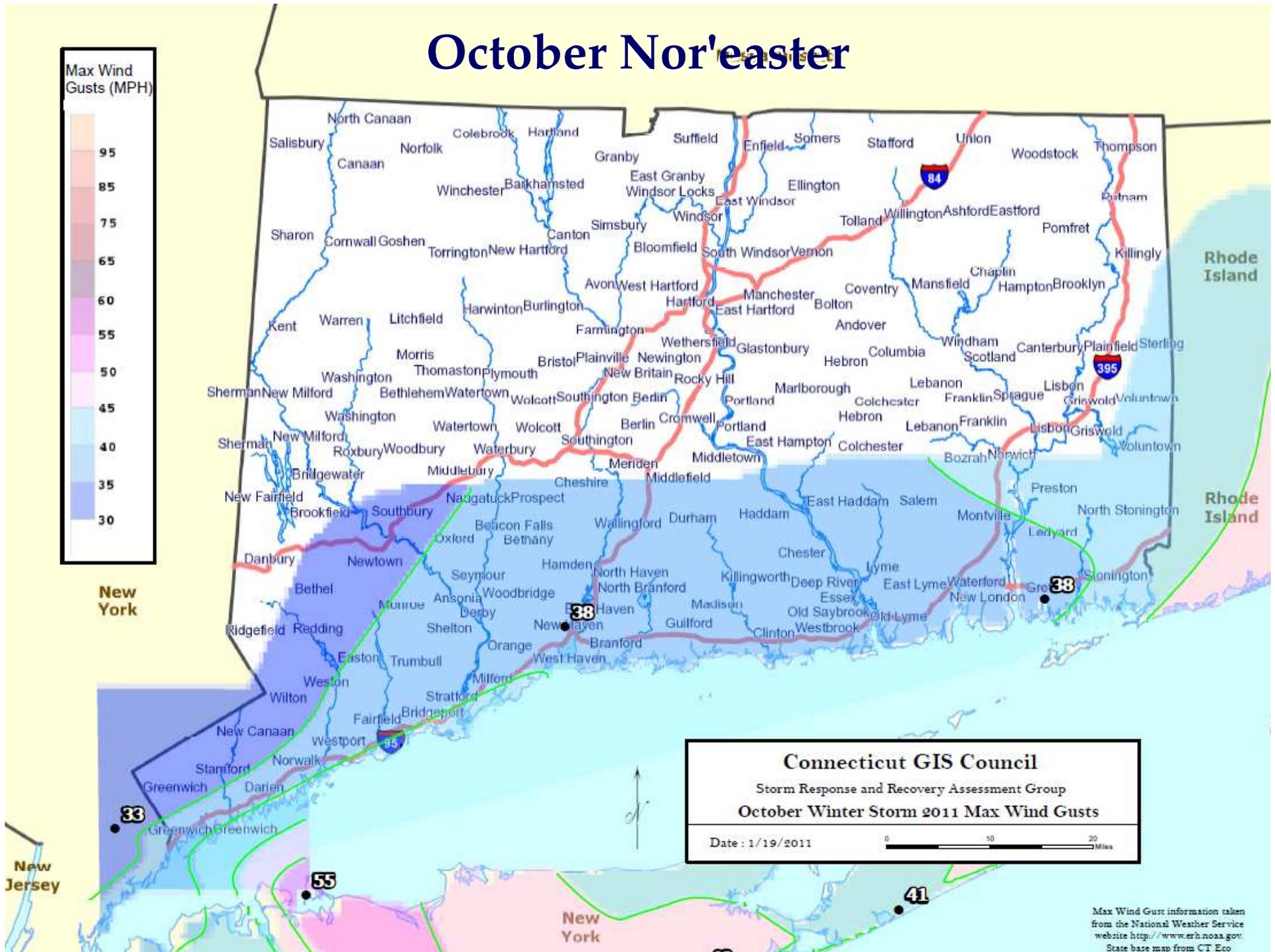
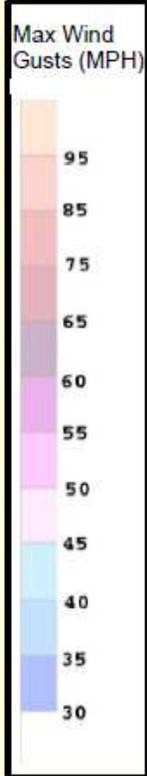
November 2, 2011 – Snow Cover



October Nor'easter



October Nor'easter



Connecticut GIS Council
 Storm Response and Recovery Assessment Group
October Winter Storm 2011 Max Wind Gusts

Date : 1/19/2011

0 10 20 Miles

Max Wind Gust information taken from the National Weather Service website <http://www.erh.noaa.gov>.
 State base map from CT.Eco

Background Information

On August 27, 2011, Connecticut was hit by Tropical Storm Irene, the most severe tropical storm to affect the State since Hurricane Gloria in 1985. Then, on October 29, 2011, an historic October Nor'Easter dumped snow on leaf-covered trees, bringing down limbs and power lines and causing even more severe power outages and damage.

Proposed Process for Enhancement of State Preparedness Planning
William J. Hackett, State Emergency Management Director



Credit: AP Photo



Credit: AP Photo/Jessica Hill



Photo: B.K. Angeletti / Connecticut Post

Background Information

- In response to the two major storms, members of the Connecticut GIS community voiced concerns and opportunities for greater use of GIS and data sharing in response to statewide storm events or other emergency management issues
- On November 17, 2011, the Connecticut GIS Council established a “**Storm Response and Recovery Assessment Group**” to review the use (or lack of use) of GIS Technology during Tropical Storm Irene and the October Nor'easter
- Assessment Group’s focus has been on various aspects of how GIS was used for pre-storm, storm, and post-storm response and recovery efforts at the local, regional, utility, state, and federal levels
- The goals of the assessment: identify what GIS strategies were used (or not), barriers encountered, best practices, and recommendations.

Background Information

- Divided workload; utilized the GIS listserv for contacts (Meg); created survey.
- Meg – coastal towns, data collector; Aaron – the rest of the state, map creator; Erik – regional agencies, reviewer; Jeff – state agencies, utilities, and other states

 CONNECTICUT GEOSPATIAL INFORMATION SYSTEMS
Storm Response and Recovery Assessment Group

GIS Staff Questionnaire

Instructions: Please fill out and answer the questions the best you can. Please be brief and to the point. Use details to describe your answers and use bullet points as necessary. Should your answer pertain to one particular storm event (e.g. Irene or Alfred) please indicate the storm in parenthesis in your response. Return all responses to Jeff Bolton at jeff.bolton@ict.gov.

Name:
Employer:
Department/Unit:
Position:
Phone:
Email:
Primary Role in Storm Event:
List which Storm Primarily Impacted Your Area (list both if applicable):

PART I

A) Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

PART II

Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc. Please attach any map products as applicable.

A) **PRE-STORM**

1. GIS actions or activities:
2. Barriers:
3. Other Comments:

B) **DURING THE STORM**

1. GIS actions or activities:

PART I

Did your Emergency Operations Center (EOC) engage GIS resources? Explain.

PART II

*Describe how GIS was used for each applicable phase of the storm(s). Include details on maps and technologies used (printed maps, software, applications, etc.), in addition to barriers to success. **Barriers can pertain to data, staffing issues, communication, software, technological limitation, etc.** Please attach any map products as applicable.*

PART III

A) List your “Best Practices” that helped in the storm response and/or recovery efforts:

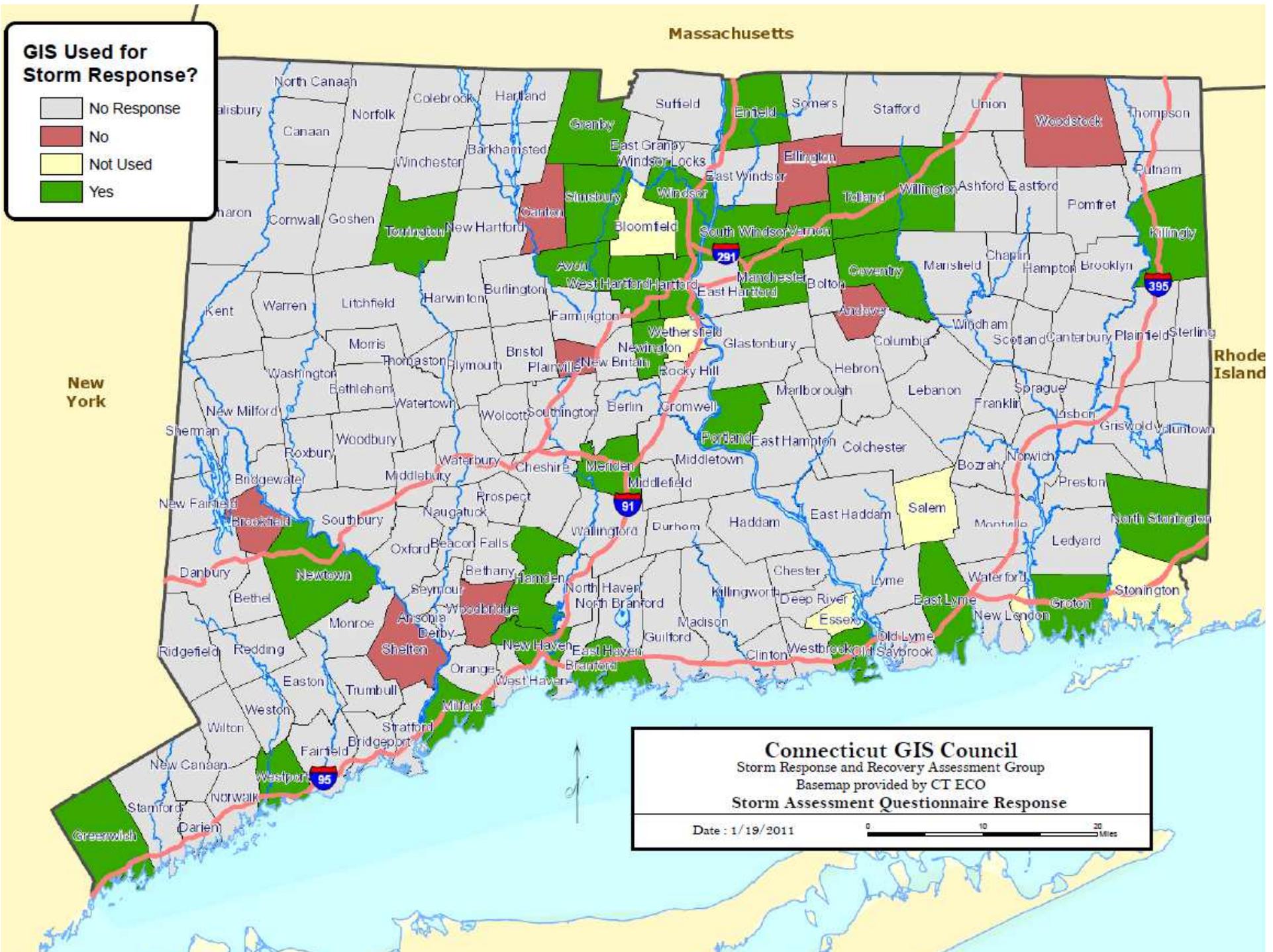
B) List any Recommendations on how GIS can/should be used during a local, regional, or statewide disaster:

C) Other comments:

Massachusetts

GIS Used for Storm Response?

-  No Response
-  No
-  Not Used
-  Yes



Municipal Responses Barriers



- Data exports and time-analysis not available.
- Lack of Utility GIS data – Local; CL&P
- Need to upgrade infrastructure to allow for public access to Town managed GIS resources.
- Software - Lack of licensing for ArcMap
- Hardware - old computers; no wide format printers
- Limited personnel trained
- GIS not used to its fullest potential
- Not being able to use GIS remotely
 - Generator failed or no generator
 - No remote access
- Not being allowed to create a GIS web service of closed roads and downed wires to serve data out immediately to private/internal site



Melanie Sttengel/Register

Municipal Responses Barriers



- A lack of resources hindered many small towns. Respondents noted a lack of data, software, staff and licensing. Even within towns that have GIS, responses came back from departments indicating no use of GIS.
- A lack of awareness seemed to be a significant barrier. As the Director of Planning in East Lyme stated “I suspect the limited understanding of the power, usefulness and capabilities GIS could bring to Emergency Operation Management coupled with a lack of resources...resulted in the non-utilization of GIS”.
- Internet access limitations during the storms prevented disseminating information to field crews.
- Not having staff trained in using GIS, it’s not practical to conduct training during an event.

Municipal Responses Barriers

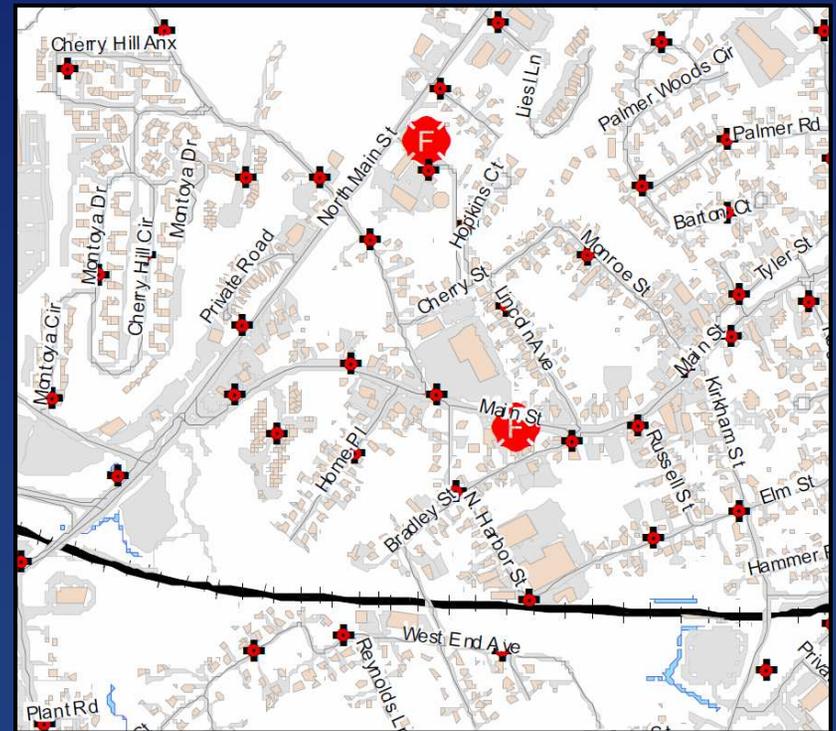


- Manpower shortages in the field and inconsistency in damage reporting damages prevented accurate data collection for use in GIS.
- Municipal liaison did not have the resources to identify which electric grid serviced streets.

Municipal Responses Best Practices



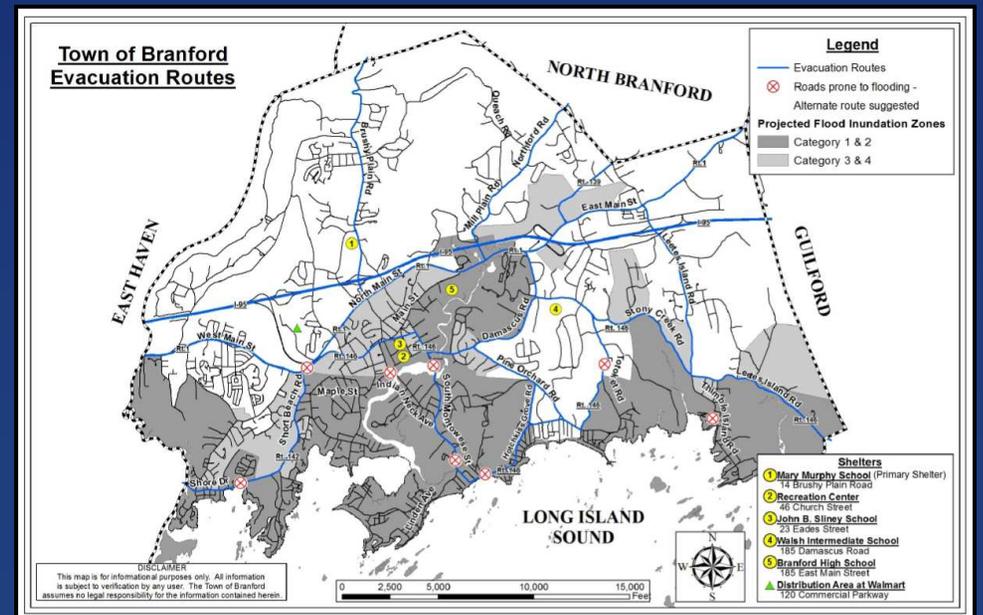
- Rapid delivery of information such as the locations of sheltering operations or travel hazards to emergency personnel for response and the citizens for safety – GIS aids this effort by providing the very user-friendly interface of a familiar map.
- Having up to date available data
- Having great MetaData
- Using GIS to organize and coordinate recovery efforts having a laptop available to remotely map incident locations



Municipal Responses Best Practices



- Mapping Road blockages and rerouting vehicles
- Having maps preprinted and ready
- Identifying homes on well water that would need power restored first
- Making map data available online through Google maps
- Having GIS be part of the core staff at the EOC (Greenwich)
- Having GIS accessible on local C drives in case of network loss
- Using SLOSH data for pre-planning



Municipal Responses Recommendations



- Tap into citizen contributed information for real-time situation updates.
- Insist on the cooperation of outside agencies (i.e. utilities) to provide GIS datasets when applicable.
- State exposed GIS services for inter-town communications and resource sharing. A data-sharing, state-wide technical working group may facilitate this effort
- Provide towns with no GIS a simplified ArcReader application that can be run on a low end PC with basic data that could help print maps free, easy and standardized flow of GIS data from Towns with GIS capabilities to a centralized location that posts all data for everyone to access over the internet
- Utilize ESRI's emergency response view for a state wide implementation
- One suggestion is to examine the overwhelming response of GIS practitioners to volunteering worldwide through GISCorps (www.giscorps.org).
- Have a state wide GIS Coordinator to organize state wide GIS data and create a disaster plan to work with municipal GIS staff

Municipal Responses Recommendations

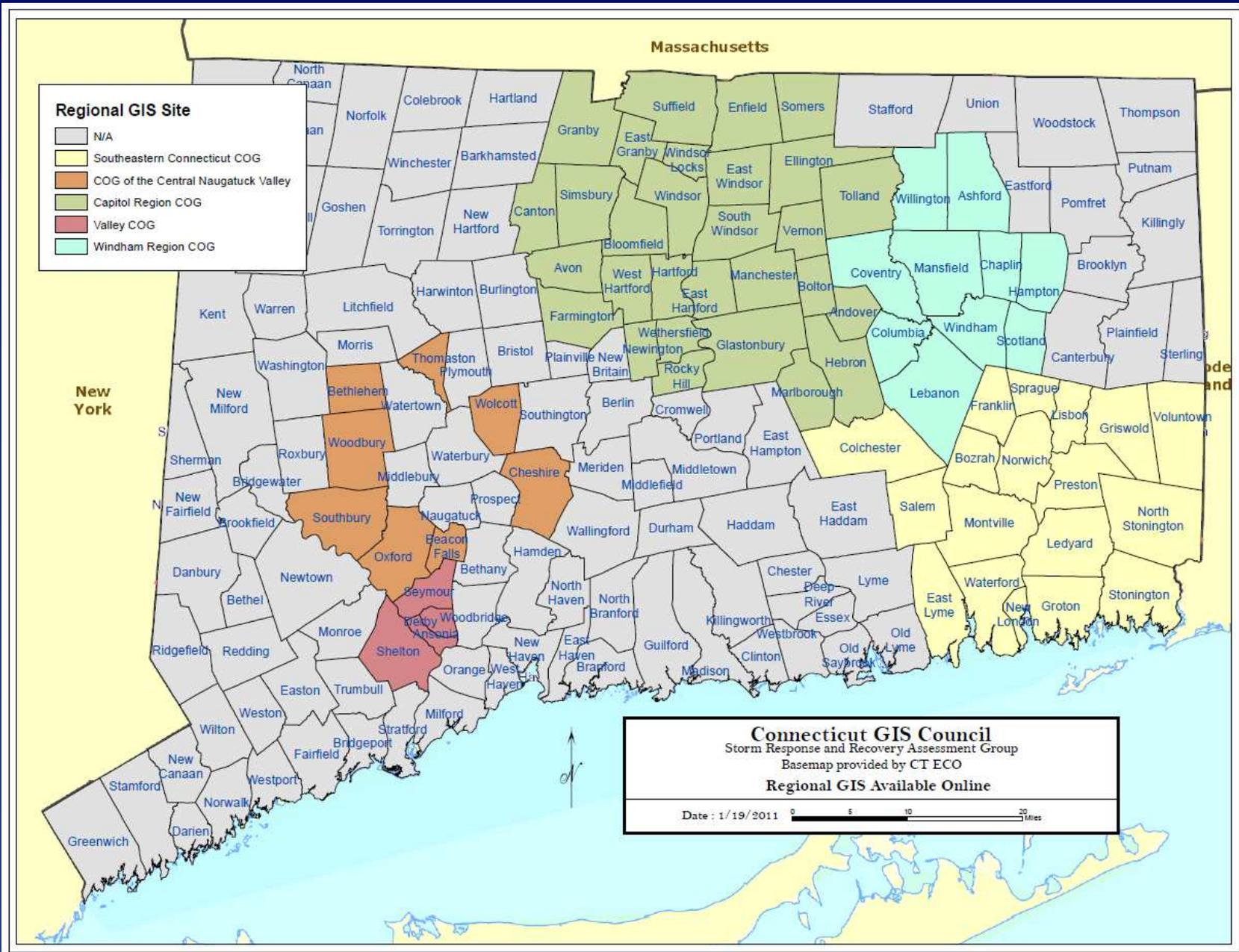


- Regional communication to share resources
- Educating decision makers on the importance of GIS, not just for emergency management
- Better mapping of critical infrastructure
- Communication improvements with utility companies
- Statewide GIS system

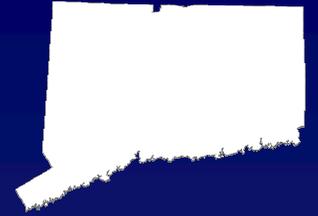


Photo by Peter Hvizdak / New Haven Register

Regional Responses



Regional Responses



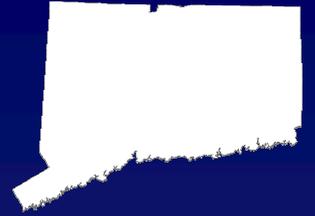
Barriers: n/a

Best Practices: n/a

Recommendations:

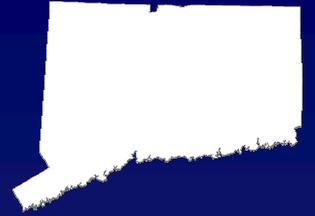
- A state level GIS Emergency Response team (volunteers and/or paid) could be called into action when an event occurs. The important data layers and web sites need to be in place BEFORE an event.

State Responses Barriers



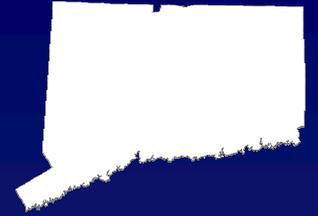
- New disaster planning personnel requesting GIS services without understanding how GIS can be applied as it relates to the department's response and recovery efforts.
- Within the department, uncertainty in knowing what data would be most useful during/after an event. Lack of communication and understanding of data needs between planners and GIS staff.
- Lack of inter-agency GIS coordination and lack of coordination/understanding between data custodians and State GeoLab and EOC.
- Key employees not being able to get to work due to power outages, road blockages and/or unable to access computers, internet, and phone, or state building closed. This limited the use of GIS/maps soon after the event.
- Agency GIS Manager was not aware of any other available GIS shapefiles or live GIS feeds for CT road closures or utility outages.

State Responses Barriers



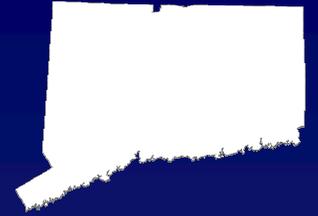
- Inability to gain feedback on the use of prepared maps and data; no feedback from EOC managers on the utility of the GIS resources and maps.
- Achieving complete 24-hour coverage of GIS staff in the state EOC over several days.
- Having to manually update outage information and shelter datasets for maps because GIS and tabular data are not integrated.
- More GIS workstations are needed in the State EOC.
- Software crashing and map export problems
- Technical GIS staff not included in EOC outbrief meetings and not part of the EOC storm response and recovery strategy meetings

State Responses Barriers



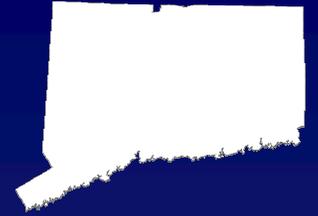
- Divide in coordination, communication, and understanding between EOC managers and planners and those with technical GIS abilities.
- Lack of training or understanding at the management/decision making level of available data and how GIS can be used to streamline traditional information gathering.
- Bureaucratic barriers that inhibit or discourage proactive communication/coordination between technical GIS staff and utility personnel/technical GIS staff.

State Responses Best Practices



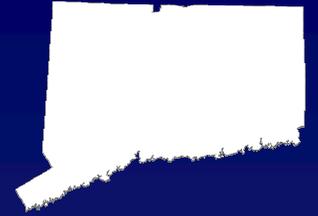
- Utilizing the most current data layers available.
- Distributing necessary information before the event occurs.
- Presenting necessary information in multiple formats to meet different needs.
- Distribute necessary information using multiple methods so it is available from multiple sources should some not be available during/after an event.
- Utilizing established facility emergency evacuation relocation plans.
- Having at least three technical GIS staff in the Geolab per shift, two plotters, and a laser printer for EOC briefings.
- Coordinating between National Guard and State EOC to prevent repetitious map making.

State Responses Recommendations



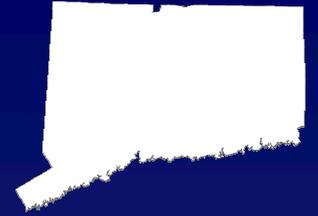
- There should be two statewide GIS web applications (using ArcGIS Server) (one public-facing and one secured with sensitive-critical data layers included) that allows the public to view changing natural disaster data, road obstructions/delays, more detailed power outages based on neighborhoods locations, and status/estimates for repairs in as close to real-time as possible.
- State agencies' GIS representatives should have access to the secured site, MapServices, and be able to develop custom views that show only the layers most relevant to their own business but have others available as needed.
- State agencies and utilities should make their GIS data available to other state agencies and municipalities for planning and disasters.

State Responses Recommendations



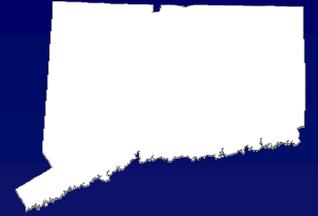
- Flex viewer to show open shelters by towns to make it easier to keep the general EOC staff up to date.
- Need utility companies to release data layers so the state can organize relief efforts more efficiently.
- A fully documented central repository for state-wide GIS data and related map services, available to all agencies, would be beneficial.
- The ability to identify through an automated or semi-automated process, which wireless telecommunications sites are out-of-service at a given time to help prioritize sites to be restored quickly.
- Have the Connecticut Siting Council collect or have the ability to gain access to information regarding wireless telecommunication sites and electric transmission lines that failed during or after each storm and the reason for that failure to map potential problem areas.

State Responses Recommendations



- Collection of the storm data may also help the Connecticut Siting Council in siting of these facilities in such a way as to avoid the occurrence of faults in the system in the future.
- Conduct training sessions for GIS staff (state, regional, local) and EOC managers to expand the understanding of available GIS data, discuss strategies, forecasting-predictability modeling, post-event assessments, and GIS analysis relating to potential natural and human disasters.
- Develop a GIS support network through the GIS Council, GIS User-to-User Group, and listserves prior to events. Designate a person or small group that processes multidiscipline skills and competent in GIS and data knowledge to coordinate GIS needs across the state.
- Fully integrate GIS into the EOC response and recovery efforts by embedding trained-technical GIS staff in all EOC briefings and strategy meetings.

State Responses Recommendations



- A permanent working group of the GIS Council should be created to provide a forum for utility companies and governments to discuss and promote mutual benefits through GIS and promote the sharing of GIS data across various entities.
- Utility companies with GIS should be encouraged to attend and participate in GIS Council meetings and work groups/subcommittees.
- Utility companies should be added to the GIS Council.

Utility Responses Barriers



- Road blocks to sharing digital data with municipalities [and state]: 1) what level of detail to share that would be useful without compromising location of critical facilities and protecting the privacy of customers; and 2) once in the procession of government entities, how would FOIA apply.
- Lack of information from CL&P about the status of the transmission lines feeding our system likely was troubling.

The screenshot displays a GIS application window. On the left, a map shows a network of utility lines (12A15 13.8KV) and various symbols representing poles, transformers, and other infrastructure. On the right, the 'Object Control Editor' panel is open, showing a table of attributes for a selected object: '[Electric] Primary OH Segment'.

| Field name | * | Δ | Value |
|------------------------|----|---|---------------------|
| Facility Status | * | | Existing |
| Installation Date | α | | |
| Date Installed | fx | • | |
| Date Type | | | GIS1 |
| Stacked Anno | | | Yes |
| Owner | | | CL&P |
| Circuit Name | fx | • | 12A5 |
| Substation Name | fx | • | FORESTVILLE |
| Circuit Suffix | | | |
| Phase | | * | ABC |
| Phase Order | | | ABC |
| Simultaneous 3:2 Ph... | | | No |
| Configuration | | | XArm (8' or 10' ... |
| Design Voltage | α | | |
| Operating Voltage | | | 13.8 |
| Calculated Length | fx | • | 364.9010929 |
| Actual Length | α | | |
| Primary OH Conductors | | | 3 |
| Primary OH Cond... | | | 1694427 |
| Primary OH Cond... | | | 16944279 |
| Primary OH Cond... | | | 16944280 |
| Backbone? | fx | • | True |
| Backbone Manual? | fx | • | Maybe |
| Remarks | α | | |
| Route | / | * | ✓ |
| Sizemat Lg Scale An... | Δ | | 0 |
| Circuit Lg Scale Annos | Δ | | 0 |

Utility Responses Best Practices

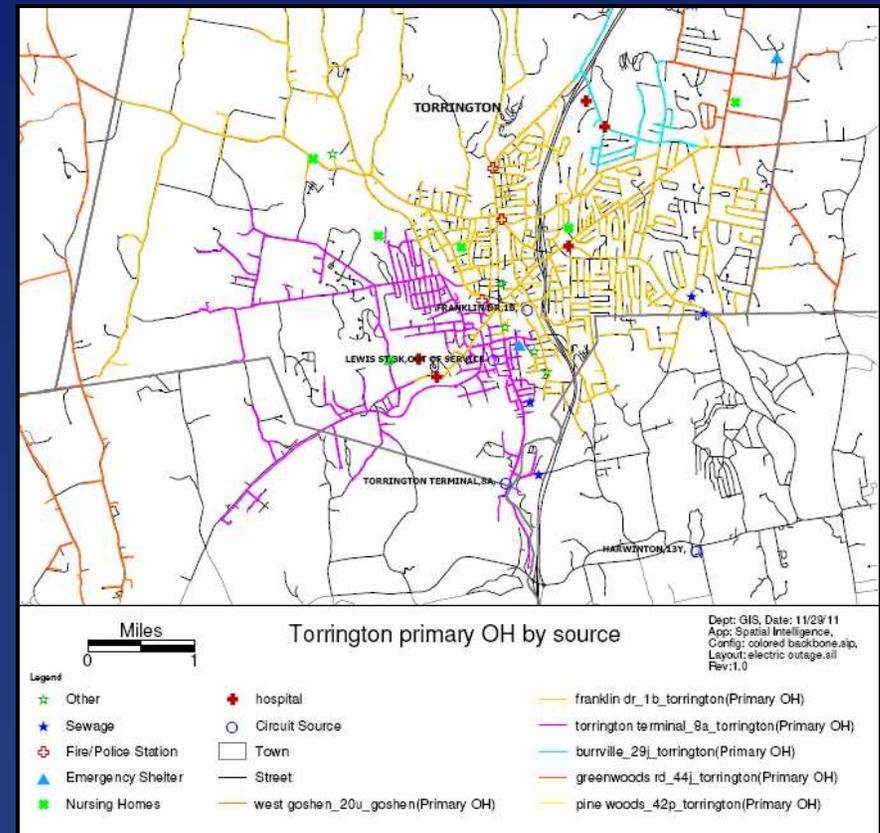


- Working on streamlining data sharing process, to give more employees access to GIS and up-to-date data without having to manually produce maps and prepare data on the fly in the future for more rapid preparation.
- Having an Outage Management System that reflects current conditions during the event, post storm audit, and corrective activities are tracked to completion using GIS.
- Knowing what facilities are located in flood plains help identify areas that need to be monitored for flooding and utility pressure loss.
- Following an Emergency Plan Document
- GIS is available throughout the company headquarters and on 48 field laptops. GIS is used by people across the organization on a daily basis as part of their duties, in-house and in the field. Everything they need is at their fingertips.

Utility Responses Recommendations



- Utility participation with the State of Connecticut and municipalities to develop protocols for sharing information, define GIS data requirements, and process to gather damage assessment information.
- Identification of critical customers for each town and the State of Connecticut (migrate from paper based systems in the field).
- Improved automation of data gathering and analysis (during storm).
- Matching of electronic data to manual paper process to make repairs and report corrective measures taken (post-storm).



Other States' Responses Barriers



- Some elements of the storm were difficult to prepare for using GIS - high winds were especially hard to narrow in on as far as knowing which areas would be impacted more heavily. (City of Boston)
- Lag time- if not allowed back end SQL access to the CRM feed, GIS is relying on others to provide report updates every so often which is fine as long as they can provide them with coordinates and addresses and incident description. In some cases, reports were just coming in as addresses. Different incident location reporting standards are in use by different agencies across the city which makes it difficult to work with the reports coming in from different sources. (City of Boston)
- MEMA doesn't employ any full-time GIS-dedicated staff, so must be pulled from other pre-land fall planning efforts to focus on mapping preparation.
- Experienced inaccuracy issues with ArcMap shp to kml conversion. Conversion wasn't clean, resulting in lost data during from SLOSH kml files. (MEMA)

Other States' Responses Barriers



- With very few staff to fill the GIS Unit position, staff burn out from multiple long shifts very quickly. MEMA called upon MA State Fusion Center to assist with staffing some shifts.
- GIS Staff were assigned to other post-event duties and were removed from the mapping function. (MEMA)
- Staffing shortage, only one GIS specialist working in the JFHQ. (Mass Military Division)
- Lack of communication with MEMA (Mass Military Division)
- The need for a higher speed plotter is essential. (Mass Military Division)
- We did not have shared information from FEMA that would have been useful for situation awareness (New Hampshire National Guard)
- Had difficulty downloading satellite imagery (bandwidth issue?). (MEMA)

Other States' Responses Barriers



- Rely on GIS volunteers for EOC during non work hours/weekends; otherwise rely on GIS analysts in the City Planning Department. (City of Providence)
- Lack of GIS staff for emergency management. Staffing the EOC is always difficult. Reductions in staff citywide have essentially cut our city GIS personnel down to 2. We are a city of 175,000 people. (City of Providence)
- Flood inundation information was not available. Could not obtain map services or raw GIS data from electric utility vendor (National Grid) to overlay on top of our other situational maps. FEMA GIS rep was not “in the loop” with all of the GIS emails and other communications during the storm. (State of Rhode Island)
- There is a huge lack of knowledge by decision makers of the capabilities of GIS to support decision making. We have an enormous wealth of data and expertise in how to analyze it, that is for the most part untapped. (State of Rhode Island)
- MEMA GIS personnel were pulled off GIS Unit for other agency assignments, compounding the GIS staff shortage.

Other States' Responses Best Practices



- Use Hurrevac, followed the news and NOAA's satellite imagery / radar / mapservices in order to monitor the storm's approach. Use of KMLs.
- The Mayor's 24 HR Hotline GIS data hub tracked and displayed citizen request calls by category type e.g. downed tree, power lines, traffic light outages, etc. This was plugged in to ArcMap as a dataservice. (City of Boston)
- Tracking storm, USACE SLOSH hurricane inundation model to identify facilities vulnerable to Cat 1- Cat 2 storm surge were we to be impacted by surge from Irene in the case surge were to occur and vulnerable populations would need to be evacuated from these areas. (City of Boston)
- Situational Awareness Reports, tracking citizen request, parks and recreation response to downed trees, public works response to downed trees. Tracking police, fire and EMS response to downed trees and downed wires, obstructed traffic in major arteries, NSTAR reports for power outages. (City of Boston)

Other States' Responses Best Practices



- Evaluating the number of incidents reported in all, how many were public property, private property involving structural or vehicular damage. GIS was used to help categorize these incident types further down to be used in recovery efforts and for the preliminary damage assessment. (City of Boston)
- Best practices are currently being developed based on the flow of processes during this event and in what areas work can be done to make the process more efficient. For example, seeing if the several reporting systems can be standardized in a way where they can be quickly mapped rather than having to map each with a separate process due to different reporting conventions. (City of Boston)
- Time was spent setting up map templates for use during the event. Utilizing ArcMap and Google Earth with HSIP Gold data, set up an Infrastructure Map template, Power Status Map template, and Sheltering Map template. Also created GoogleEarth versions of SLOSH maps for MEMA's Hurricane information page.

Other States' Responses Best Practices



- Publishing to PDF format and posting to WebEOC file library. Some printed maps were posted in the EOC. (MEMA)
- Time consuming data entry and formatting (utility outage information, roadway status). (MEMA)
- Automating data collection process. (MEMA)
- Formal agreements with other state agencies for operational GIS assistance. (MEMA)

Other States' Responses Best Practices



- Need approval of MEMA GIS data release policy.
- Planning, creating forecast maps from NOAA data, layered with MAARNG armories and unit stationing data along with other state specific data, roads, railways, public transit routes in order to have a knowledge base of which units are where for during and post storm clean up. In addition which armories might be in heavily impacted areas and thus require repositioning of assets so that equipment is not trapped in an armory that has been cut off by flooding or other road blockages. Maps were created as .pdf files for handouts to units, as well as for use in briefings as PowerPoint slides. (Mass Military Division)
- Having base maps (templates) with the common used layers (roads, armory locations, hospitals, etc.) already created then only having to create/edit new/existing data specific to the particular operation saves a lot of time. (Mass Military Division)
- Our GIS volunteer from RIC took addresses for trees and utility poles down (service calls) and created a map of point data for all calls of service. (City of Providence)

Other States' Responses Best Practices



- We created static maps that needed to be updated constantly. (City of Providence)
- Further resources were engaged from the University of Rhode Island – Environmental Data Center (URI-EDC). (State of Rhode Island)
- Coordinated personal schedules of GIS call-list. Set up a small local network in the RIEMA EOC with a data server (orthophotography, and complete RIGIS database), two laptops and a desktop PC in case the Internet went down during the storm. URI-EDC created map templates to be used during the storm. (Irene). (State of Rhode Island)
- Created (7) evacuation maps for pre-defined coastal municipal inundation zones based upon many live evacuation status updates. (State of Rhode Island)
- Pre-created map templates; Use of map request forms during the event; Single point of request during the incident; Fully-functional GIS network in case of loss of Internet; Pre-established GIS “call list” to staff the event. (State of Rhode Island)

Other States' Responses Recommendations



- Access to the live feeds of this information is the most efficient way to report on what is happening right then and there rather than on a situational update report received based on what was going on an hour ago. (City of Boston)
- Streamline data collection process to facilitate and expedite the ability to publish maps (e.g. utility data provided in multiple formats from different companies – needed one person to synthesize and format the data in order to use it for mapping, which is labor/time intensive). (MEMA)
- On a regional level good communications and ways for the various states in the region to share data would be very useful (a server), as sometimes sharing data via email is problematic as the MAARNG email system does strip off certain attachments crucial to GIS, .zip, .shp, etc. (Mass Military Division)
- We need to find a way to post photos for ingestion by SEOC and NG Operations centers. (New Hampshire National Guard)

Other States' Responses Recommendations



- We need to find a way to identify critical information and determine how it is going to be shared to level that need it. The Central US Earthquake Consortium (CUSEC) has found a way to do this; suggest that we utilize the Northeast States Emergency Consortium (NESEC) to explore how they might be able to enable similar services for the NESEC Region (FEMA Region I and NY and NJ). (New Hampshire National Guard)
- We are now looking at a way to track service calls by plotting point data using an interactive, real time mapping application via ESRI online. (City of Providence)
- Senior GIS staff need to be present in as many planning and decision making meetings as feasible to listen to requests and then volunteer information, mapping and/or analysis to help solve problems or make better decisions. (State of Rhode Island)

A satellite view of Earth from space, showing the curvature of the planet and the blue oceans. The text is overlaid on this image.

Feedback

Comments

Next Steps

Assessment Group Contacts:

Jeff Bolton - CT DCS (860) 713-5706 jeffrey.bolton@ct.gov

Meg McGaffin – City of Milford (203) 783-3393 mmcgaffin@ci.milford.ct.us

Aaron Nash – Town of Vernon (860) 870-3674 anash@vernon-ct.gov

Eric Snowden – CRCG (860) 522-2217 Esnowden@crcog.org