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The Northeast Utilities System

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September 16, 2011

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Dear Honorable Legislative Leaders:

Please find attached responses from the Connecticut Light and Power Company ("CL&P") to the questions you sent to us regarding the response to Tropical Storm Irene.

Please recognize that these answers are based on preliminary data and are subject to change. I look forward to a discussion of opportunities for improvement during Monday's session.

Sincerely,

Jeffrey D. Butler

Tropical Storm Irene Hearing Questions

Utility Companies

A. Preparation

1. What are the best practices for readiness? Response?

Following are the best practices utilities consider appropriate for weather event related emergency planning and preparedness. These practices are explained in more detail in the Jacobs Consultancy report prepared for the Public Utilities Regulatory Authority on October 26, 2010, page 62, section 8.6.1.

- "Emergency operations should be based on the concept of the Incident Command System"
- "A dedicated emergency operations organization and facilities should exist."
- "At the first indication of a storm, the restoration workforce should be geographically positioned. The restoration workforce should include damage assessors as well as crews, so initial damage assessment can begin as soon as possible after the storm has passed and restoration time estimates can be developed."
- "Never underestimate the potential damage of a forecasted storm."
- "A communication plan should be in place to interact with public officials and emergency response agencies. Communications should be initiated early and should be consistently continued throughout the event."
- "Extensive use of nontraditional employees."
- "Materials should be prestaged and could include items such as storm trucks or storm boxes."
- "Determine the global estimated restoration times and publish the information within 24 to 48 hours."
- "Employ a restoration strategy that targets the restoration of power to the greatest number of customers within the shortest amount of time."
- "The need for supplemental crews should not be limited to local mutual aid groups and other utilities."
- "Communications should be correct and consistent."
- "Following a major storm lessons-learned should be gathered and implemented in a timely manner. Implementation plans should include specific tasks and tracked completion dates."

2. How did you fare for readiness? Response?

Overall, we did well with our readiness actions and response. From five days before landfall, we used the NU Incident Response Plan's Hurricane Preparedness Checklist (attached) and the CL&P Emergency Response Plan (filed with PURA in June, 2011). Efforts included securing additional line and tree crews, placing critical CL&P resources on-call, canceling vacations, activating our storm duty team and pre-positioning employees throughout the state.

The CL&P Emergency Response Plan (June 2011) employs a multi functional operational structure that uses the principles of the Incident Command System structure. CL&P has a dedicated Emergency Management Group that works in conjunction with the Northeast Utilities System Restoration and Emergency Preparedness Group. Both of these groups are focused on ensuring that CL&P is prepared for an event. In addition, CL&P has a dedicated Emergency Operations Center located in Berlin as well as dedicated district storm rooms across Connecticut.

CL&P began to prepare specifically for this event on Tuesday, August 23. At that time the district emergency operations center rosters as well as district crew availability were gathered and reviewed. The district rosters are predominately staffed by people who work or live in the same geographic location. Then, prior to the storm's arrival on Saturday August 27, all of the districts and area work center EOCs were activated and the initial team included: Wires down guards; damage assessors (patrollers); food and lodging teams, E-911 coordinators, and line crews.

The CL&P Emergency Plan incorporates a communication plan to ensure unity of message. This plan is also a guide to assist with the interactions with public officials and emergency response agencies. The Communications Plan was initiated early and helped ensure the communication process continued throughout the event.

We communicated with the people of Connecticut, advising them that restoring power could take more than a week to accomplish. We issued a series of public service announcements and YouTube videos where our President, Jeff Butler, personally provided safety messages and preparation tips. We launched social media channels to help us connect with our customers.

Before Irene made landfall, CL&P doubled the usual number of crews available and pre-staged them at hotels and work centers across the state. We also sought additional crews, but other states could not release them for duty in Connecticut because of storm problems at home.

CL&P made extensive use of nontraditional employees. All CL&P employees have storm assignments. In addition, the Northeast Utilities Service Company employees served in roles during the restoration process. As an example 1,123 nontraditional employees have been trained as "wires down guards". Others fulfill roles as patrollers, food and lodging coordinators, analyzers, bird dogs (guides for line crews) and state and town liaisons.

Major equipment suppliers for transformers, poles and poletop hardware were contacted and placed on notice for anticipated material needs. Special production runs for transformers were commenced with a target need of 1600 additional transformers to be delivered to CL&P. Pole inventory was verified at 2500 poles at the suppliers facility located in Connecticut. Material was pre-staged in the work center store rooms across Connecticut as well as the central warehouse in Berlin. The 3 material trailers made specifically for deployment during

storm restoration activities were readied for deployment. One additional material trailer was modified for use during Storm Irene.

In terms of safely restoring service to our customers, our performance was very strong. The extent of the damage was the highest ever in CL&P: over 671,000 customers were without power at the peak and 1,000,000 overall. Without any serious injuries to our employees or contractors, we restored all of the customers in nine days. For comparison, it took ten days to restore the 506,150 customers who were out at the peak from Hurricane Gloria.

Global estimated restoration times began to be published 48 hours after the storm ended.

CL&P employed a restoration strategy that targeted the restoration of power to the greatest number of customers within the shortest amount of time.

CL&P retained supplemental crews from 6 other utilities and 43 utility contractors. The mutual aid came from at least 21 different states and 3 Canadian provinces.

The CL&P Emergency Response Plan includes a process to gather lessons learned following a major storm. Implementation plans include specific tasks and tracked completion dates.

See Exhibit A – Hurricane Preparedness Action List

3. What was the damage from Tropical Storm Irene? How many lines were affected? How many customers were affected?

Tropical Storm Irene 8/27/11 - 9/6/11

There was extensive damage to the distribution system from trees and large limbs.
Lines affected - 270
Trouble locations - 16,101
Total customers affected - 1,024,032
Peak customers affected - 671,000
Total number of broken poles - 1,297
Wire that was replaced - 572,000 ft
Transformers that were damaged or destroyed - 1,748

4. What was the extent of your disaster preparedness plan? Please provide details.

The NU Incident Response Plan covers many different classifications of events. These include: 1) Personnel, 2) Fire/Explosion, 3) Natural Events, 4) Vehicular Accident, 5) HazMat / Biohazard, 6) Loss of Power / Communications, 7) Security, 8) Judgment, 9) Sabotage and 10) Cyber Security.

Hurricane Preparedness is specifically addressed in attachment 10, the Hurricane Preparedness Action List, which is referenced in question Q-LEGIS-002.

Were we prepared for a category 1 hurricane?

We believe that we were prepared for a category 1 hurricane. As part of the preparation for Storm Irene, CL&P used the CL&P Hurricane Preparations Check List to ensure that all of the preparation activities were completed before Saturday, August 27. We also used the damage reports from Hurricane Gloria as a guide to estimate damage and resources requirements. We had sufficient material and had more than doubled the normal number of line crews prior to the event. Personnel were assigned to storm roles, the EOC and district storm rooms were staffed for 24x7 operation. All project work was stopped and the electric system was brought to normal configuration. In addition, the automation schemes in the distribution system were defeated to ensure that downed wires would not be re-energized. The hydrology maps were reviewed to understand the impact of the potential storm surge. Key pieces of equipment and facilities were reviewed to ensure that they were ready.

What damage could have been done?

It is clear that trees and large limbs caused most of the damage to the electric system. Fortunately, Storm Irene did not damage the facilities by excessive wind, flooding or sea spray.

Where/how could we have done better?

The information from the storm critiques is still being gathered and reviewed so no specifics are available at this time. However, it is clear that communications with our customers and town leaders could be better.

5. What lessons did you learn?

The post storm critique is underway and, until completed, CL&P will be unable to provide a thorough answer to this question. However, it is clear that despite the development and implementation of a significant town communications plan, including the assignment of CL&P liaisons to every town that accepted one, more work needs to be done to improve communications with towns and cities during a natural disaster of this magnitude.

CL&P learned that the detailed outage restoration information towns require is not in alignment with the detailed outage restoration information electric utilities currently have available. CL&P has detailed information in terms of substations and electric circuits that are not coincident with town and city boundaries, and our detailed information often spans multiple towns.

CL&P, working with state and municipal officials, needs to develop a new "cut, clear and make safe" strategy that increases the efficiency of making downed wires safe so that state and municipal departments can start clearing roads sooner. Improperly installed emergency generators continues to create a public safety hazard of "back feed", energizing downed wires, that needs to be addressed by this strategy.

6. What are your standards in regards to tree trimming? Have these standards changed over the past 10 years?

There have been no changes to the basic specification in the last 10 years. The clearance specifications remain 8 feet to the side, 10 feet below and 15 feet above the nearest primary electric conductor (Figure 1, page 3). For lines previously cleared to Enhanced Tree Trimming (ETT) specifications, clearance for backbone lines is to the previously established ETT clearances and for lateral lines 20 feet above conductors (Section 2.3, page 5) including removal of all brush. These specifications are based on average tree growth rates and a four year trim cycle. In PURA Docket No. 09-12-05, CL&P was ordered and is on target to achieve a five year cycle.

CL&P continues to believe that full funding for a four year trim cycle would improve service reliability for our customers. Further, an aggressive risk-tree removal program would reduce the number of road closures and the damage to the electric delivery system following storms.

CL&P welcomes the opportunity to reconsider clearance specifications, trim cycles and risk-tree removals with the Department of Energy and Environmental Protection, the Public Utility Regulatory Authority, and the Department of Emergency Management and Homeland Security.

See Exhibit B – Specification for Local Distribution Line Clearance Tree Work and Brush Control

B. Staffing/Labor

7. How many line crews were deployed during peak restoration?

The total number of crews used to fully complete the restoration efforts was 1889.

CL&P crews = 204
Mutual aid crews = 1,130 --- NU: 59 (WMECO 13, PSNH 46); Other Utilities 76; Outside Line Contractors 995
Tree Crews = 555

8. How many line crews were brought in from other places, if any?

There were 1130 line crews brought in from other places. The supplemental crews came from 8 other utilities and 43 utility contractors.

9. How many line crews are employed by your company now vs. 2000?

CL&P tracks the number of physical electrical workers that are critical to the restoration of power during storm events and they include the follow job titles: line mechanics, electricians, trouble shooters, and cable splicers. These job titles work in various crews sizes ranging between one and three persons depending on the work assigned. For comparative purposes it

is more accurate to compare by the total number of workers versus crews. CL&P employed 647 of these workers in 2000 and currently employs 641 of these workers. There were a total of 198 CL&P distribution line crews restoring customers after Tropical Storm Irene.

10. What are your policies/standards regarding hours of work (hours/shift)?

The Company's highest priority will always be the safety of the public and its employees. As such, the Company plans all its work schedules, including those during storm periods, to help limit the likelihood that its workers become susceptible to fatigue and to help limit the likelihood they may make dangerous mental errors. CL&P's policy on work schedules can be found in the Company's emergency management plan on page 25, section 5.5. In summary, work schedules are established for physical workers to ensure that approximately 75% of available resources work the day shift to take advantage of the more productive daylight hours and approximately 25% of available resources work the night shift to respond to life threatening emergencies and other assigned restoration work. Physical workers involved in the restoration are placed on a schedule that provides for approximately 16 hours of work per shift with a minimum of eight hours of rest between shifts. The Jacobs Consultancy report prepared for the Public Utilities Regulatory Authority on October 26, 2010 noted on page 69, section 8.6.2.1 that CL&P's work schedule is in conformance with industry practices.

11. How was the communication between your company and municipalities?

Overall, the communications between CL&P and municipalities were effective, however, there are a number of opportunities for improvement. CL&P initiated many actions during the week preceding storm Irene in an effort to prepare Connecticut towns, as well as to ready the CL&P staff required to support municipal communications during and after the storm. One significant action taken was the mobilization of Town Liaisons (TL), a role enhanced by CL&P after the March 2010 storms that affected Southwestern CT. These TLs were designated to be an effective single-point-of-contact in their assigned town. A second key action taken was to provide daily updates on the tracking of storm Irene to all town contacts during the days leading up to the storm. This daily communication was conducted using email and also included additional information that the municipalities could use such as: how to prepare for the storm, what to do when the storm hit, when to call 911, how to report an outage, information about the benefits of leveraging their trained local TL, and a request to contact their assigned Account Executive (AE) if they opened their town Emergency Operations Center (EOC). Three additional communication channels were also established prior to the onset of the storm. The first was the deployment of liaisons who were on-site continuously at the Department of Emergency Management and Homeland Security (DEMHS), based at the State EOC in Hartford. Another formal communication channel that was established was with cable TV companies that serve Connecticut. The establishment of the CATV liaison role was another improvement step taken after the March 2010 storm. Finally, CL&P established a direct communication process with AT&T via placement of their personnel in our EOC.

The widespread nature of the storm damage triggered deployment of TLs across CL&P's service territory. TLs were physically based in towns that had open EOCs. TLs were

physically based in areas local to the town such as the town hall or CL&P's local area work centers for those towns that did not have open EOCs or did not desire on-site TLs support. The TLs met with or communicated with their pre-designated town contact at least twice daily. The information exchanged included: available damage and restoration information as it became available, CL&P restoration priorities (hospitals, waste treatment plants, schools); and solicitation of the town's restoration priorities for use by CL&P when developing their work plans. During the course of the restoration process, Summary Briefing Sheets were developed and used as an additional communication tool with many towns. In many towns, information exchange was augmented by: an overview of CL&P's restoration process, driving tours of towns to review damage and work progress, a review of circuit maps of their town, and visits to satellite CL&P work centers. In addition to communicating with towns, there were several items communicated directly to the public including information on "safe use of emergency generation" and a residential service entrance diagram intended to educate the town and its residents on the demarcation between CL&P service responsibility and homeowner responsibility.

Throughout the storm, the DEMHS liaisons were available to provide information to state agencies regarding restoration plans and progress. To better facilitate communication with the State Department of Transportation (DOT), CL&P assigned four geographic based liaisons to the ensure DOT priorities were appropriately prioritized within CL&P's restoration plan.

What worked?

CL&P continues to gather information on our municipal communications to determine what worked and possible areas for improvement. During the restoration process, we received significant feedback concerning municipal communications and several towns have since conducted debriefs sessions or held town meetings. We have attended these events where possible to gain insights into our restoration and communications processes. In addition, we have initiated a formal survey of all towns that we serve to solicit detailed feedback in these areas. We have also announced and are undertaking a comprehensive initiative to meet directly with the town leaders to better understand the effectiveness of our communications processes.

Based on the feedback received thus far, the communications between CL&P and the municipalities we serve was varied. In general, municipalities that opened Emergency Operations Centers and utilized our Town Liaisons had smoother and more comprehensive communications. In many instances, the municipalities that had Town Liaisons found them very helpful in communicating local priorities, coordinating road clearing, understanding the restoration process, and managing public expectations.

What didn't?

There were several municipalities where the Town Liaison structure did not achieve the level and quality of communications with municipalities that we are seeking to achieve. We continue to seek and gather feedback to refine and enhance our execution of this important process.

How could this communication be improved?

As indicated above, we continue to actively seek feedback to inform our corrective actions, but areas that we have initially identified for enhancement include:

- improved coordination and communication with municipalities concerning clearing roads blocked by trees and power lines,
- better translation of CL&P's business into information that is meaningful to municipalities,
- improved communication and understanding of CL&P's restoration process for events causing widespread damage and integration of municipal priorities into the process.

C. Communication

12. How was the communication between your company and your customers? What worked?

Pre-storm:
Days before Irene impacted Connecticut, we began a multi-faceted campaign encouraging our customers to prepare for the storm, providing tips on staying safe and informing them that restoration of electric service could take more than a week. To get these messages out, we used outbound calling to all customers, three news releases, a series of Public Service Announcements, YouTube videos, and social media, including Twitter and the Company's first Facebook page.

In addition, CL&P called 20,020 customers with a "Medical" coding in our system on Thursday, August 25, and those same 20,020 customers were called again on Friday, August 26. The message was concerning the likely power outages from the storm and to be prepared to have a backup power source or move to an alternate location. Moreover, 1,069,839 residential customers of CL&P received a recorded call on Saturday, August 27 warning them of the impending storm and our preparations for it.

During the storm:
CL&P increased staffing at its Windsor, Connecticut Customer Call Center in order to respond to increased call volume from customers. In addition, CL&P ensured that its affiliate's Customer Call Center in Manchester, New Hampshire was appropriately staffed and available to handle calls from CL&P's customers.

During the storm event, which was 12:01 a.m. Sunday August 28 to 11:59 p.m. Tuesday, September 6, the Call Centers handled 1,013,227 inbound calls from CL&P customers. Power outage calls can be handled in one of 3 methods during a storm. They can go to a Customer Service Representative (CSR), they can be handled by our Interactive Voice Response system (IVR) or they can go to our outsource provider's IVR if the volume of calls

is greater than what our phone system capacity can handle. Of the total calls received, the breakdown by type of calls is as follows:

- CSR Handled: 263,640
- IVR Handled: 476,392
- Overflow to Outsourcer's IVR: 273,195

In addition, on Friday September 2, a recorded message was sent to 2,120 CL&P "Medical" customers asking them if their power was restored, and if not, did they need any special assistance that we could help with. If assistance was requested, these callers were transferred back to a team of representatives and a list of needs was created and forwarded to the Connecticut Red Cross. On Saturday September 3, additional calls were placed to 1,155 medically coded customers.

Also, CL&P's customer service representatives made numerous outbound calls to customers to confirm whether power had been restored. For example:

- On Sunday September 4, recorded calls were placed to 2,726 customers served by our Newtown area work center ("AWC") who had previously reported no power, but whom the AWC believed were now restored as we attempted to confirm the restoration was complete. If the customer said they did not have power, the call was transferred to a representative.

- On Monday September 5, 36,015 recorded calls were placed to all CL&P customers serviced by our Middletown AWC to confirm that their power was restored, and to allow them to re-report the outage if they were still not restored. If the customer said they did not have power, the call was transferred to a representative.

- On Monday September 5, recorded calls were made to 220,700 customers in CL&P's Eastern Region (which are served by AWC's in Madison, New London, Willimantic, East Hampton and Danielson) to confirm that power had been restored. Due to the high volume of calls needed, these calls were transferred back into our IVR if the customer needed to re-report their outage, rather than giving them to a CSR.

Moreover, CL&P's Communications team responded to over 550 calls from Connecticut, regional and national media outlets including more than 80 live interviews, with some of those via Skype. CL&P Account Executives (AE) communicated directly with large businesses who were without power. Information was provided to customers through PSAs, Facebook and Twitter and nearly a dozen on-camera and radio interviews with Spanish media outlets. CL&P issued 16 news releases during the event, including three joint news releases with United Illuminating (UI). CL&P's President, Jeff Butler, hosted five briefings with the media and joined Governor Malloy and representatives from UI for news conferences.

CL&P also maximized social medial communications. Customers were able to easily obtain updates on the latest restoration estimates via text by texting their zip code to CL&P and in return CL&P provided a reply text showing the latest estimated restoration time for the

customer's city or town. During the course of the restoration effort, the Northeast Utilities system received 572,473 text messages and we estimate that at least approximately 500,000 of those texts were sent by Connecticut customers.

CL&P also established and frequently updated storm-related data on its website which provided customers, in a user friendly format, with updated restoration projections, an outage map, news releases, responses to frequently asked questions, safety tips and other helpful information. In response to unprecedented traffic on its website, CL&P worked with AT&T to host its outage map on an external server to assure continuous online communication. As restoration estimates became available, CL&P posted the information online as well as via Customer Service. During the course of the restoration effort, CL&P's website had approximately 1,228,591 hits.

CL&P's newly launched Facebook page received 8,354 "likes" with significant customer interaction. Through Twitter, we sent over 200 tweets and gained 4,180 followers, bringing total followers to 6,390 during the storm. The 11 storm-related videos we posted on our YouTube channel were viewed a total 11,395 times during the course of the storm.

Post-storm:
On September 3, the American Red Cross of Connecticut was presented with a donation of $1,000,000 from the Northeast Utilities Foundation to directly assist Connecticut residents impacted by Hurricane Irene. We also committed to waive late payment fees for customers and arrange flexible payment programs for those who experienced unprecedented losses and disruptions to their lives.

Beginning on September 7, a series of radio and print ads appeared across the State thanking CL&P customers for their patience and committing to improved communications and information sharing going forward. In particular, CL&P understands that accurate projections of restoration times are very important to its customers and we are endeavoring to become more accurate.

On September 11, CL&P issued a news release announcing that a CL&P executive, Bill Quinlan, will lead CL&P's effort to enhance storm-related communications with elected and municipal officials. In addition, on September 14, 2011, an the Hartford Courant printed editorial from Jeff Butler emphasizing that while the company was well-prepared and executed the restoration well, there are lessons that were learned from this experience and CL&P will continue to strive to improve its preparation and response efforts for future storms.

What didn't? How could this communication be improved?

While CL&P recognizes that there were many customer communications that went well, we also recognize that there are always opportunities for improvement. We are conducting our own evaluation of our communication based on feedback from customers to help identify those opportunities and determine corrective actions. For example, we will be looking for ways to improve the timeliness and accuracy of our restoration estimates and to expand and enhance our use of social media. Additionally, we expect to enhance our partnership with the

municipalities we serve to ensure that our customers, particularly in hard hit areas, better understand the restoration process and steps that should be taken to lessen the impact of such events.

This is an ongoing process and we believe that as we continue efforts to solicit feedback from customers, we will discover other opportunities for improvement as well.

EXHIBIT A

ATTACHMENT 10: HURRICANE PREPAREDNESS ACTION LIST

EVENT - five days before landfall - Discussion, Informing and Notifications

- Checklists sent to Distribution Operations Area Work Centers to validate staffing numbers / needs, this also includes key management personnel, staging areas etc…
- Make contact with Transmission / CONVEX Groups to make sure preparatory actions are being shared and resources secured.
- Contact Yankee Gas to make sure preparatory actions are being shared and resources being secured.
- Ensure Operating Company Leadership and Corporate Center Support Leadership meetings are held to discuss anticipated support resource needs.
- Contact the Stores Organization to ensure stock levels are sufficient and to reach out to vendors / manufacturers to secure delivery options should the need arise.

EVENT – four days before landfall – Resources and System Alignment

- Review all of Northeast Utility's major projects and maintenance and take action to ensure completion or restoration to normal one day before landfall.
- Begin mutual aid calls. Execute one to one outreach with utilities and contractors to the west and north to discuss resource availability.
- Secure current Vegetation Management resources and ensure additional resources are available, if needed.
- Confirm Customer Experience has secured appropriate staffing levels and resource availability.
- Ensure the Environmental Group; including contractors is sufficiently staffed for the predicted conditions.
- Contact Base Logistics to raise their awareness and secure anticipated needs for food and lodging at Northeast Utility's during the restoration effort.
- Secure aerial patrol capability with Air Ocean.
- Contact Northeast Utility's generator vendors to ensure the availability of generators as needed for the impending conditions.
- Secure additional security resources as needed for impending conditions.

EVENT – three days before landfall – Communications and Coordination

- Begin regularly scheduled preparedness conference calls with cross functional leadership group to maintain alignment and discuss options for escalation or down scaling of current actions as forecasts change. Populate and use the Resource Summary Table Below.

Northeast Utilities Preliminary Resources Summary

	Line crews	Tree Crews	Service Crews
PSNH			
WMECO			
CL&P			
CL&P System Projects			
Transmission			
Mutual Aid & Contractors			
Possible Additions Close			
Possible Additions Far			
Totals			

Close is 6-24 hours

Far is 24-36 hours

- Issue Executive letter confirming priority and obligation of storm duty requirements, announcing the rescheduling of other company events (e.g. United Way day of Caring) and reminding people of applicable pay policies.
- Begin aggressive communications protocol and a public service campaign.
- Share preparations actions and support commitments with AT&T, Verizon, Fairpoint and CATV companies.
- Contact with impacted states to determine state staging areas for debris removal so as to not overlap with Northeast Utility's staging areas.
- Contact Governor's Office(s) to assure that a formal state of emergency is declared. If necessary forward documentation to the Federal Emergency Management Agency (FEMA) and Immigration and Customs Enforcement (ICE) to expedite mutual aid border crossings.

- Coordinate with IT Ops to ensure no IT maintenance is scheduled during the restoration effort.
- Assign safety coverage
- Assign corporate analyzers as required
- Assign corporate patrol teams as required
- Assign state and town liaisons
- Assign corporate food and lodging support personnel as needed
- Assign corporate wires down guards as needed

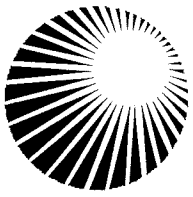
EVENT – two days before landfall – Publicity and Facilities

- Begin publicity campaign to:
    - promote customer preparedness
    - inform customers Northeast Utilities is prepared
    - remind customers not to touch downed wires
    - remind customers to report outages
- Ensure that the Facilities Group checks all buildings and grounds for unsecured materials and that all generators are operational.
- Ensure that the Substation Maintenance Group checks all substations for unsecured materials.
- Obtain feedback from assigned employees with storm assignment availability and resolve individual situations.

EVENT – one day before landfall – Final Verification of Action Completions

- Verify all actions have been completed.

EXHIBIT B



Northeast Utilities System

SPECIFICATION

for

LOCAL DISTRIBUTION

LINE CLEARANCE

TREE WORK and BRUSH CONTROL

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2008

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Northeast Utilities
Specification for Local Distribution
Tree Work and Brush Control

1. General Requirements

This document describes the scope of work and technical requirements for the Northeast Utilities Distribution Line Clearance Program. All work shall be performed by qualified line clearance contractors. Safety shall take precedence over all requirements described herein and at no time shall work be performed in an unsafe manner.

- All contact with the public and government officials shall be done in a courteous manner.

- Work shall be subject at all times to inspection by NU and government officials. The crew foreman, or the contractor's designee, shall notify NU of the crew's daily work location and of any change made during the day.

- Work shall be performed in such a manner that it will not interfere with or affect in any way the operation of any existing energized lines or electrical equipment, except as specifically directed by NU.

- All line clearance work shall be performed in strict accordance with all applicable federal, state and local governmental laws and regulations or approved standards and safety practices – ANSI A300 (Part 1)-2001, Best Management Practices – Utility Pruning of Trees, ANSI Z133.1-2006, OSHA 29 CFR 1910.269. The contractor shall be responsible for the knowledge, supervision and enforcement of them.

- When necessary, the contractor requests permission from tree owners and others to perform line clearance tree work around electrical conductors. Where the tree owner is not at home, use the appropriate permission card and customer brochure. For all refusals, light trims or no contacts the contractor shall fill out a copy of form OP5520, DISTRIBUTION LINE CLEARANCE PERMISSION REFUSAL/LIGHT TRIMMING and submit the form weekly.

- The crew foreman shall complete a WEEKLY DISTRIBUTION TREE OR BRUSH CONTROL REPORT adding information daily for all T&M work. The report shall be submitted to NU no later than Tuesday of the week following the completed work week.

- The line clearance crew shall work progressively along the distribution system, as directed by NU, and shall complete all work on a given portion

of the line before starting work at another location, unless otherwise approved by NU.

- Retrimming will be required to correct all situations where trimming quality is determined by NU to be improper.

- Climbing irons shall not be used in any tree unless the tree is to be removed.

- Wherever NU is solely responsible for clean-up (as differing from NU special instructions where a public authority or property owner or his agent has agreed to clean-up), normally it shall be completed daily and the site shall be left in at least as neat and orderly condition as it was found.

2. Scope of Work

This Specification covers the trimming and removal of trees and brush, including the use of herbicides for brush control along rural and urban overhead electrical lines and around substations owned or used by Northeast Utilities. This includes clearing for existing lines as well as for new lines, and applies to local distribution only, along and off-roads, and not bulk supply distribution rights-of-way.

2.1. Scheduled Maintenance Trimming (SMT)

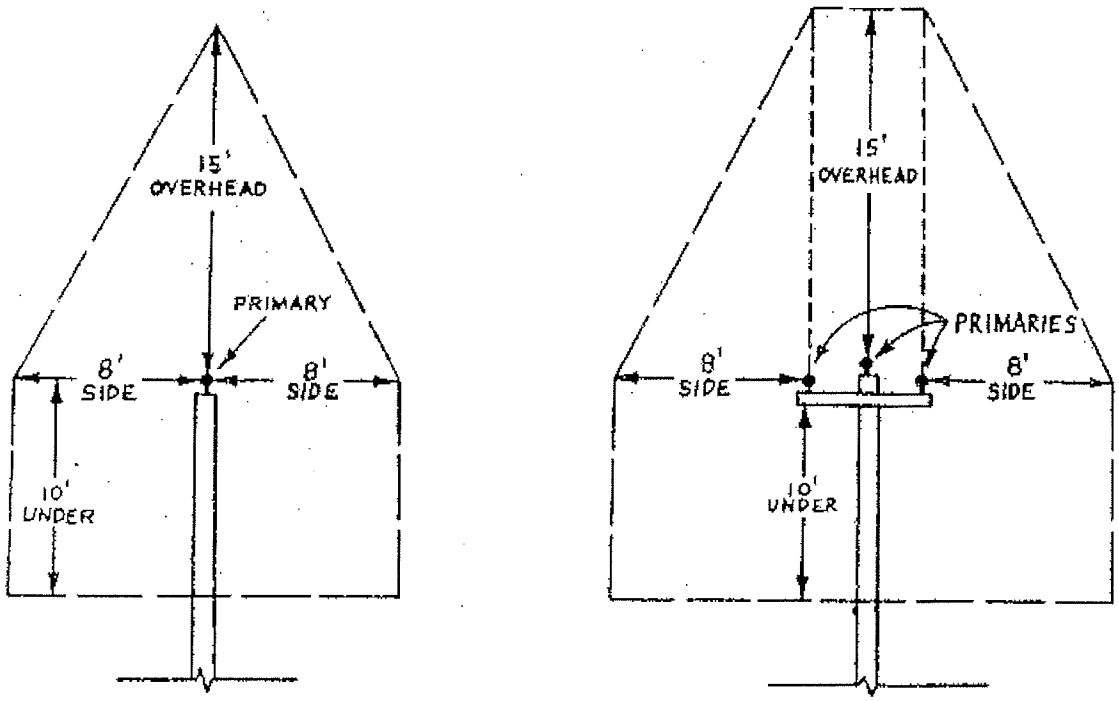
2.1.1. Primary Conductors

Conductor clearances relative to various primary wire positions at the time of clearing are shown in Figure 1. Each tree must be evaluated on its own at the time it is trimmed. The tree crew must consider the variables including tree species, condition, growth rate and location.

Watersprouts and suckers shall not be trimmed, they shall be removed back to the originally established clearance level.

Figure 1

CLEARANCE ZONE DIMENSIONS
for
PRIMARY VOLTAGE CONDUCTORS (2.4 to 34.5 kV)



The 15 feet overhead clearance shall be measured vertically upward from the highest primary.

The 8 feet side clearance shall be measured horizontally outward from the outermost primary.

The 10 feet under clearance shall be measured vertically downward from the lowest primary.

Normally, remove all branches within the clearance zone bounded by the dashed line perimeter and all overhead hazards within reach of a 55' aerial lift.

If the existing clearance is less than the required clearance between tree trunk or large (>= 6 inches in diameter), healthy limb (with strong crotch) and wires, leave them and remove all other branches within the clearance zone.

2.1.2. Service Drops and Secondaries Without Primaries Above

2.1.2.1. Triplex

Do not clear around them unless authorized by NU. When approved, trim only limbs in contact with the conductor. Trimmed branches shall provide 2 feet of clearance around all conductors.

2.1.2.2. Open Wire Secondary

Do clear, trimmed branches shall provide 2 feet of clearance around all conductors.

2.1.3. Tree Removal

Remove all hazard trees up to and including 16 inches DBH within 8 feet of the outermost conductor. The removal of any tree greater than 16 inches DBH must be approved by NU. NU will provide specific instructions in each case depending upon whether others are sharing the cost or disposing of the tree parts.

2.2. Enhanced Tree Trimming

2.2.1. Fall Zone Hazard Tree Management

- Inspect, evaluate and eliminate all hazardous trees within the fall zone by pruning or removal.

2.2.2. Roadside Clearance Zone

2.2.2.1. Lateral

Prune and remove all overhead hazards and provide a minimum of 20 feet of overhead clearance above primary conductors.

2.2.2.2. Backbone

Prune and remove all overhead limbs.

2.2.2.3. Side and Under Clearance and Brush Removal

Prune to provide 8 feet of side clearance and 10 feet of under clearance around primary conductors. Flat cut all brush. Cut vines on all poles and guy wires.

2.3. Maintenance Enhanced Tree Trimming

2.3.1. Lateral

Prune to provide a minimum of 20 feet of overhead clearance above primary conductors.. Remove all overhead hazards within reach of a 55 foot aerial lift.

2.3.2. Backbone

Re-clear to the previously established ETT clearances including new growth into the clearance zone. Remove all overhead hazards within reach of a 70 foot aerial lift.

2.3.3. Side and Under Clearance and Brush Removal

Prune to provide 8 feet of side clearance or to the previously established tree line and 10 feet of under clearance around primary conductors. Flat cut all brush. Cut vines on all poles and guy wires.

2.3.4. Hazard Tree Management

Remove hazard trees up to 16 inches DBH within 8 feet of the outermost conductor.

2.4. Mid-Cycle Trimming

Inspect and evaluate tree conditions along the entire back bone section of line scheduled. Prioritize pruning and removals based on tree conditions and likelihood of a tree causing an outage prior to the next scheduled routine trim. Where necessary:

- Remove hazard trees within the fall zone.
- Prune and remove all overhead hazards.
- Cut vines on all poles and guy wires.

- Prune trees to establish a minimum clearance of 8 feet to the side, 10 below and 15 feet above the primary conductors

2.5. New Business and Capital Construction

Remove all tree species in a strip centered on the pole line 8 feet to either side of the outermost conductors.

Provide hazard tree removal as specified in article 2.2.1 and clearance as specified in article 2.1.1 for laterals and 2.2.2.2 for backbones.

3. Pruning

Prune and remove limbs in all trees that are not scheduled to be removed. Remove overhead hazards. Pruning shall be performed in accordance with ANSI A300 standards and the Best Management Practices – Utility Pruning of Trees.

4. Tree Removal

- Contractor shall not "top" trees unless authorized by the Owner's Representative. Normally, these trees will be removed.

- Any tree which would, after trimming to clearance, be left with less than 66% of its original leaf area shall be removed. Trees greater than 16 inches DBH shall be removed only after authorization from the Owner's Representative.

- Specific instructions on billing of T&M removals, depending upon whether others are sharing the cost will be provided by the Owner's Representative.

5. Stumps

All stumps shall be cut as close to the ground as possible, and in no case shall they be cut higher than 3 inches unless used as supports for a fence or approved otherwise by NU. If certain trees serve as fence supports, they shall be cut no higher than 2 inches above the fence. All stumps shall be cut off parallel to the ground to avoid leaving sharp points on the stumps.

Normally, sproutable cut-off stumps (all hardwoods, pitch pine and vines) shall be treated with an NU approved herbicide mixture in accordance with label directions and regulatory requirements.

6. Brush and Vine Removal

All tree stems less than 6 inches DBH shall be considered brush. Brush shall not be trimmed or topped. The width of the brush removal area shall be 8 feet on each side of the outermost conductor. Flat cutting or selective brush removal shall be approved by NU.

Cutting of tree brush and woody vines shall be done with care to minimize damage to non-interfering shrubs such as the following that are permitted to remain:

Pinxterbloom Azalea	Hazelnut
Highbush Blueberry	Gray Dogwood
Redosier Dogwood	Huckleberry
Oldfield Common Juniper	Spicebush
Sweetfern	Mountainlaurel
Bayberry	Rhododendron

6.1. Flat Cutting Brush

Remove all brush that is capable of growing tall enough to touch the primary conductors.

6.2. Selective Brush Removal

Selectively remove only that tree brush which is presently at or above the height of the telephone conductor(s). Where no telephone conductor exists, tree brush 16 feet tall and over shall be removed.

6.3. Vines

All woody vines which are growing up poles or guy wires shall be cut at the groundline and cleared for 3 feet up the pole or guy.

7. Wood and Chip Disposal

The contractor shall make every effort to minimize the amount of wood and wood chip disposal that requires hauling away from the site. This can be accomplished by; making agreements with property owners to leave logs and larger limbs at the site for use as firewood, blowing chips onto the ground in rural and unimproved natural locations, and offering chips to property owners for use as mulch. All debris shall be disposed in accordance with all local laws and regulations.

The tree contractor shall not sell any unwanted logs or chips directly from his trucks during the normally scheduled work day.

The contractor shall not leave cut-off brush overnight except on off-road sections.

7.1. Chips

Smaller limbs, branches, or cut-off brush shall be chipped, normally by chipping into a truck mounted dumping chip box. However, at unimproved natural locations, chips may be blown upon the ground provided that the depth of fresh chips shall be no greater than 3 inches. Limited brush piling may be done along the edges of off-the-road pole lines, either method being subject to the land owner's approval.

7.2. Logs

Logs from the tree trunks and larger limbs shall be cut into mutually agreed or convenient handling lengths. No logs shall be split.

7.3. Debris disposal

The tree owner shall be given first preference to utilize logs and/or chips. This agreement shall be made at the time of the permission request.

7.3.1. Chips

Where chips cannot be left on site, they shall be delivered to the nearest appropriate disposal space.

7.3.2. Logs

Logs shall be left at the work site in a safe location, not to pose a hazard to anyone, for a maximum of 7 days, during which time they will be available for anyone to pick up. Any logs remaining after 7 days shall be delivered to the appropriate disposal site.

8. Substation Perimeter Clearing

This section describes how tree and brush work shall be performed around substations. Prior to beginning any work around a substation, NU personnel will provide site specific guidelines to the contractor. At no time shall contractor personnel enter the fenced area of the substation without an NU approved escort.

8.1. Brush removal

8.1.1. Non-visually sensitive or non-landscaped substations

Cut and remove all brush within 10 feet of the substation fence. If the land adjacent to the substation fence slopes toward the fence, the cleared area shall be 20 feet.

8.1.2. Visually sensitive or landscaped substations

Clear as far away from the fence as practical as directed by the NU representative.

8.2. Pruning

Trim back all branches that touch or overhang the fence. Minimum clearance shall be 5 feet to the side and 10 feet over the top of the fence.

8.3. Ornamental Screens

Ornamental trees and shrubs (arborvitae, hemlock, white pine, yew, etc.) that have been planted to provide a visual screen of the substation shall not be removed. If necessary, shearing shall be performed as directed by the NU representative.

8.4. Stump treatment

All stumps from trees and brush that have been removed and are capable of resprouting shall be herbicide treated with an appropriate herbicide as directed by the NU representative.

8.5. Cleanup

Remove and dispose of all trimmings and removal debris away from the job site unless directed otherwise by NU. The site shall be left in at least as neat and orderly condition as it was found.

9. Definitions

ANSI A300 (Part 1)-2001 Pruning – American National Standard for Tree Care Operations – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning)

ANSI Z133.1-2006 – American National Standard for Arboricultural Operations – Safety Requirements.

Backbone – a three phase section of line starting at a substation and extending to the first fused device or single/double phase reclosing device.

Brush - Tree species with a DBH of less than 6 inches. Occasionally, shrub species are considered as brush, if they have to be removed for line clearance or access.

Clearance - The distance between vegetation and conductor.

Clearance zone – The area within 8, 10 and 15 feet for laterals, within 8,10 and 20 feet for lateral enhanced and 8, 10 and clear overhead for backbones.

Contractor - The business or employees of that business, that has contracted with Northeast Utilities to perform line clearing.

DBH - Diameter Breast Height - Diameter of a tree measured at a point 4 1/2 feet above ground.

Fall Zone - The area including the roadside clearance zone and extending from the conductors out a distance to where an uprooted tree could strike the conductor and cause an outage.

Hazard tree – Any tree that is dead or, after evaluation using the ISA's A Handbook of Hazard Tree Evaluation for Utility Arborists, rates as a moderate or high hazard.

Lateral – a section of primary voltage line extending from the end of backbone to a secondary or service wire.

Line Clearing - Controlling vegetation to maintain proper clearance from conductors which includes tree trimming, removal, topping, and brush and woody vine removal.

NU - Northeast Utilities Service Company or The Connecticut Light & Power Company or Public Service of New Hampshire or Western Massachusetts Electric Company employee who is the Northeast Utilities representative.

OSHA – Occupational Safety and Health Administration.

Overhead hazards – dead, dying, diseased, insect infected and structurally weak branches including those which could break at weak points and strike conductors when swinging down in an arc.

Refusal – A refusal is when a property owner does not allow any trimming to be performed. A light trim is when the property owner allows some trimming but does not allow the contractor to trim for the required clearances.

Shrub - A woody plant normally maturing less than 20 feet in height and presenting a generally bushy appearance because of its several erect, spreading or prostrate stems.

Stump Treatment - Herbicide applications made to sproutable cut-off stumps (all hardwoods and Pitch Pine) in order to prevent the stump from sprouting.

Substation - An electrical facility that receives electricity at high voltages and reduces the voltage so that it can be passed on to customers at a lower voltage.

Tree - A woody plant normally maturing at 20 feet or more in height, usually with a single trunk, unbranched for several feet above ground, with a definite crown. It shall have a DBH of 6 inches or greater.

T&M – Tree work performed at Time and Material billing rates. Work is recorded on the Weekly Distribution Tree or Brush Control Report using labor and equipment codes approved by NU's Purchasing Department.

Wires/Lines/Conductors - The overhead wires which carry the electric current at required voltages. Also to be considered for tree clearance and safety are other pole mounted equipment such as transformers, fuses, circuit breakers, etc.

Wire types –

Primary - A wire running from pole to pole operating at a voltage level exceeding 600 volts (2400 to 34500 volts on the NU overhead System), and normally located at the top of a pole.

Secondary - A wire running from pole to pole operating at a voltage level of 600 volts or less (normally 120 to 240 volts on the NU overhead System), and normally located approximately 4 feet below the pole top.

Triplex - Two insulated wires in a twisted configuration around a bare neutral wire.

Open Wire Secondary - Three parallel wires normally in a vertical configuration separated from each other by a few inches.

Service Drop - The secondary wires connecting the point of attachment on the premises being served to the nearest pole of the distribution system.