



SECRETARY OF THE STATE
CAPITOL OFFICE

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STATE OF CONNECTICUT
GOVERNOR DANIEL P. MALLOY

**The Two Storm Panel
Special Meeting Minutes
Wednesday, December 14, 2011
Room 1D, Legislative Office Building – 10:00 a.m.**

Members Present: (Co-Chair) Joe McGee (joined meeting at 11:05 a.m.), (Co-Chair) Major General James Skiff, Terry Edelstein, Lee Hoffman, Scott Jackson, Robert McGrath and Cathy Osten (joined meeting at 10:58 a.m. and left the meeting as a voting member at 5:21 p.m.).

Members Absent: Peter Carozza

1. **Call to Order:** Major General James Skiff called the meeting to order at 10:02 a.m.
2. **STOCS, ICALL/ITAC, and High Band Radio:** Mike Varney, DEMHS

Mike Varney presented his testimony to the Panel (see attachment A).

3. **JISCC Military Department:** LTC Warren, ICRI/INMARSAT, Maj. Janusz

LTC Warren and Maj. Janusz gave the presentation to the Panel (see attachment B).

4. **Connecticut Amateur Radio Emergency Service (11:00 a.m.):** Wayne Gronlund, N1CLV

Wayne Gronlund gave his presentation to the Panel (see attachment C).

Terry Edelstein requested all of the speakers to provide some kind of high level organization chart to understand how these services are linked up or could be linked up. She asked them to clarify the management of the communication.

Mike Varney said that the coordination of assets at any event and plan is done within each region. For an organizational chart on the planning side, it would go to up to the planning committee. In the field it would require communication leaders and there are roughly 60 individuals in CT with the necessary training to work for the commander to address communications concerns. The planning is sponsored by DEMHS, but in the field it is up to the incident commander.

Scott Jackson noted that there is wide array of technology for communications purposes. He asked them to discuss the plain language used to communicate, as has been done in many areas after September 11th.

Mike Varney said that with the implementation of NIMS throughout the State of CT, they are converting to the use of plain language. Some organizations still use codes as communication for their internal operations. One of the core things they look at in their evaluations is the use of plain language communication.

Scott Jackson asked whether there are continuing training opportunities following certification of HAM operators.

Wayne Gronlund said that yes, there are additional exercises and training. They do a number of tests, including a “field day” which occurs over a weekend in June where the operators work completely off the grid. They also deploy HAM radio volunteers at public events in case there is a safety issue.

Major General James Skiff asked how to include and coordinate with the utilities. He asked whether they are on any councils or working groups.

Mike Varney said that presently the utilities are not on any councils or working groups, but they are looking to change this practice .

Major General James Skiff asked how survivable this infrastructure is in high winds.

Mike Varney said that the state infrastructure exceeds the national safety public standards. It is designed to withstand 90 mph winds and ½ inch of ice. In the past, if municipalities lose their tower, they will deploy in a mobile unit.

Major General James Skiff said that the mobile unite might not work properly if they need to operate in the canyons of the cities. He asked how to work around this issue.

(Cathy Osten arrived as voting member at 10:58 a.m.).

Mike Varney said that they position them on hills near cities and can also use STOCS boxes at high locations. These have been tested and used in real life events.

Major General James Skiff thanked the presenters for coming. He noted the need to get the utilities involved in these operations. He said it may be the responsibility of DEMHS to get the various agencies involved.

5. Department of Social Services: Kathy Bruni, MPA, LCSW Program Manager Alternate Care Unit, Medical Care Administration, Department of Social Services

Kathy Bruni presented her testimony to the Panel (see attachment D).

(Joe McGee arrived as voting member at 11:05 a.m.).

Terry Edelstein asked Kathy Bruni to expand on the need for emergency shelters and the possible need for regional shelters.

Kathy Bruni noted that this is a challenging question. She said that ideally if needs could be met in a local shelter, this would be the best option. She said that moving individuals to regional shelters might be more challenging and with fewer benefits. She said that many people are electricity dependent and their needs are being addressed within the local communities. She said that for those who might need further care the nursing homes and hospitals met these needs.

Major General James Skiff noted that smaller communities may not have capabilities to respond to certain needs. He said that perhaps we could get away from regional shelters, but perhaps a multi-community shelter. He said that those centers which are run by all volunteers might have challenges meeting functional needs.

Kathy Bruni said that those who have functional needs, they have case workers to assist them. She said that part of the pre-planning for the storm was to link up those individuals with local service providers. This could warrant more discussion with case managers to bring more of this together with some pre-planning.

Joe McGee said that earlier testimony indicated home health care aids could not get out of their streets to get to work, so clients were without their services. The request was that this workforce be given some priority in terms of clean up. He asked how big of an issue this is.

Kathy Bruni said she was aware of this issue. She said that part of the plan requirement is that , this everyone should have a backup plan to address the needs of the clients. The backup plans may not work either. If the home health aid is unable to get out of their streets, the daughter, who may be the backup plan is also unlikely able to leave their streets. It is a problem and if this could be a priority, this would be helpful.

Joe McGee asked if there was an issue with backup power with nursing homes that created a major problem.

Kathy Bruni said she was not the best person to speak to this. She heard some anecdotal reports, but certainly not anything that would be significant. Everybody had challenges with generators, and one good lesson is to start them once a month. She didn't hear of any needed evacuation.

Joe McGee asked who does the licensing of nursing homes and if backup generators are required.

Kathy said that DPH does the licensing and she was not sure about the generators.

Scott Jackson noted that she indicated that in retrospect they would have issued the emergency provisions earlier. He asked when did they issue them and when does she think is the right time to issue the emergency provisions.

Kathy Bruni said they had it done in September. In the October storm, they were working on it Monday afternoon. Still, she said this was enough time for there to be confusion. She said they

could do better and changing the regulations to have it happen automatically is the best way to deal with this issue.

Terry Edelstein noted that there needs to be an additional form of communication beyond email. She asked Kathy Bruni to speak of the responsibilities of the case managers and first responders.

Kathy Bruni said that the case managers contacted the local fire departments to check on certain individuals, and the case managers' requests were never refused. Also, neighbors were checking on neighbors.

Joe McGee noted that they have been looking at the issue of training and real-time training. Specifically looking at a requirement of town CEO's to be trained. He asked what she thought about the issue of training state commissioners. He said that when talking with the state of Florida, they said that one of the biggest lessons is they realized they had various players who had actually never trained together, so they implemented real-time training. We don't do this in CT where we bring everybody together.

Kathy Bruni said that it is an interesting idea. She is not able to speak for state government and commissioners. She said that coordination is important. The frustration was within the lack of communication regarding what was going on or getting answers. Improvement on this is something that certainly warrants further consideration.

Major General James Skiff asked if she was familiar with the ESF and NIMS.

Kathy Bruni said she was not.

Major General James Skiff said that his experience with other commissioners was that they are trained in their specific ESF (Emergency Safety Function) areas. Perhaps support staff which move from one commissioner to another could be included in that process.

Terry Edelstein said that the Panel had heard from testimony that various organizations have questions about the various reimbursements and said that it would be helpful to hear what statutory changes she is recommending.

Major General James Skiff thanked Kathy Bruni for her testimony. He noted that the automatic waiver recommendation is an important issue to consider.

6. Break: Major General James Skiff called for a recess at 11:27 a.m.

Major General James Skiff reconvened the meeting at 1:07 p.m.

7. Department of Corrections: Commissioner Leo Arnone and Deputy Commissioner Cheryl Cepelak

Commissioner Leo Arnone did not prepare testimony, but he came prepared to answer questions.

Major General James Skiff said that he knew their agency worked considerably with DPH with their field hospital and would appreciate them giving an overview on what they did during the storm.

Commissioner Arnone said that the two storms were a culmination of training for the last 30 years. Thirty years ago they started the training for prison situations, not storm situations. They were asked to provide some trained staff to help out in certain situations. When the first storm hit ground it became clear that the state police might need a little assistance because everybody was stretched. So they provided some emergency response personnel with the troopers. They had staff in Bridgeport, East Haven, and they helped with crowd control. He had received great reviews on their staff. The line officers deal with adversity every day, but are rarely recognized. During the storm, the members of the staff were recognized and grateful for that and were happy to help however they could. Evacuation plans were ready to go, but they were lucky because they evacuated only one unit and were able to keep the inmates on the same grounds. The backup unit worked out very well. The second storm tested the northern system. Eight facilities were without power. It tested their generator capacity, the ability to run on limited power. Osborne lost all power, it was completely dark when the generator went down, and it was only for 15 minutes. He indicated he has been with the state for 38 years, worked in various agencies, and he has never seen a department of the state tested in this manner. He only had day in the entire area where he had staffing problems and it was the first day when people were unable to get out of their homes. Backup systems are for the safety of the public to keep the appropriate safeguards running.

Cathy Osten noted that she worked in the DOC for 21 years as a line supervisor. She asked the commissioner to discuss commodities they provided.

Deputy Commissioner Cheryl Cepelak said that she had the pleasure of serving as the chair of commodities task force for both storms. First, they prepare MREs and water for towns in need, also provide blanket and pillows. In the first storm they were able to provide some packets for infants. In Irene, they served 87 towns and 82 in Alfred. They received supplies from FEMA and were operating out of Rentschler field. Towns were able to pick up commodities and the National Guard also did total deliveries out of Rentschler for Alfred. During Alfred, there was a town pick up at Webster, not sure they will do that again because they were unable to keep track of the distributions adequately. DOC had staff at Rentschler 24 hours a day.

Cathy Osten said that she is aware they did some work to get FEMA to the different towns and asked them to elaborate on that process.

Commissioner Arnone said that officers brought FEMA people around. They were able to get anywhere the FEMA people needed to get. Those familiar with the locations were matched with FEMA workers to go to certain areas.

Cathy Osten asked how many emergency response teams do they have and what kind of training.

Commissioner Arnone said they have 200 trained officers and they have over 300 people ready to move in the state at anytime. Training is riot control, emergency services, securing perimeters. They offered minimum security inmates to help towns by clearing the debris, starting with host communities and moving out into other communities. They provided 4,000 meals for Red Cross in both storms

Major General James Skiff asked if they provided staff to the regional EOCs.

Commissioner Arnone said they may have provided a few to bolster personnel.

Major General James Skiff asked what their capacity was should the facilities go down.

Commissioner Arnone said it would depend on which facilities went down. One facility has 2,000 inmates, which would press significantly on their resources. If they needed, they could probably do about 1,000 inmates should relocation be necessary.

Joe McGee said that right now there are inmate crews that work with DOT along the highways. He asked about their responsibilities.

Commissioner Arnone said that DOT provides a foreman who is trained by DOC regarding what the inmates are allowed to do and not to do. The foreman then takes the crew, all minimum security level 2 inmates who are leaving soon, to clean up on the side of the roads. The inmates really enjoy this program because they get out and they get a little bit better pay, so they have a few dollars when they get out.

Joe McGee asked to explore this model. He said that inmates are working with DOT supervision maintaining state roads. He asked if they could clear roads from brush and debris during storms.

Commissioner Arnone said this is something they have explored. They have to look at training and worker safety, just like at any job. They have looked at the training for inmates to participate in this. This is exactly where they want to head.

Joe McGee said there is a large population in the prison system, including inmates who are healthy and able to do this work. He noted they could have a training program. In storms we have a problem bringing in labor, which is time consuming and costly.

Commissioner Arnone said that one issue is that they only have about 4,000 maximum that are in the classification that could leave the facilities under minimum supervision. After that, you are dealing with a classification issue, where they are too high of a level to be out of the facility without more supervision. More supervision becomes costly. Still, supplying a couple of thousand people to do some of this labor is not out of the realm of possibility.

Joe McGee noted that in a CAT 3 storm there will need to be much more debris clean-up than the storms we had this year. He asked the Commissioner his thoughts on training the inmates in this skill and getting them a job to help the communities.

Commissioner Arnone thought this was a good idea. He said the inmates are going home already and training them and supplying them with a job that is helpful for the community is a positive approach. When inmates are working really hard for their communities, they are seen in a different light by the community members.

Joe McGee asked about the security issues regarding this program.

Commissioner Arnone said yes there may be slight security issues, but he hasn't had any problems in years.

Joe McGee asked how this program can happen in regards to meeting with the utilities.

Commissioner Arnone said that the issue would be working around wires. This would be a piece that they would need to work with the utilities as there is nobody in DOC that can train at that level. However, they can manage regular debris clearing and tree clearing, but it's the working around the wires that's the issues. Or perhaps the utility could train a DOC worker to train the inmates.

Cathy Osten noted that the DOC may have other resources people may not be aware of such as there are a couple of buildings available that still have backup generators attached. She asked how long it would take to get them on-line and asked whether or not they are handicap accessible.

Commissioner Arnone said it would take a couple of days and they are handicap accessible.

Cathy Osten asked if J.B. Gates or Bergin would be able to handle the traffic.

Commissioner Arnone said he wasn't sure if Bergin could handle the traffic, but with J.B. Gates, perhaps some of the York front property. But Webster in Cheshire is an optional facility. They offered Webster but the local hotels were empty. If they needed, they could house a couple of hundred people.

Joe McGee indicated that DOC employees and state police worked together during the storm. He asked the commissioner to expand on this.

Commissioner they would double up with the troopers. At this point they do not have arrest powers so they could not go off on their own. They would need to team up with officers to get real work done.

Major General James Skiff was pleased with their response. He asked who was on the task force.

Deputy Commissioner Cheryl Cepelak said that Michael Varney, Red Cross, DPH, DOC, the National Guard were on the task force.

Major General James Skiff commended them on their interagency work.

8. Department of Emergency Management and Homeland Security: William Hackett and Brenda Bergeron, DEMHS; and Commissioner Reuben Bradford, DESPP

Commissioner Bradford presented his testimony to the Panel (see attachment E).

William Hackett presented his testimony to the Panel (see attachment F).

The following task force leaders presented their testimony to the Panel:

Mark Raymond , Communications Task Force presented his testimony to the Panel (see attachment G).

Mary Duley presented her testimony to the Panel (see attachment H).

Judy Pahl, Emergency Management Program Specialist, IDMTF (Interagency Debris Management Task Force) and Diane Duva, Asst. Director, DEEP BMMCA presented their testimony to the Panel (see attachment I).

Major General James Skiff observed that task forces were effective. Working groups need to take hold before and in between events and include utilities.

Terry Edelstein wanted to explore the shelter task force. She noted that she is intrigued about the aftercare recommendations and the lessons learned and would find it helpful to hear this information publicly.

Mary Jolie discussed best practices of the task force. She noted she will provide written work regarding this information. The daily guidance to the local town CEOs was found to be very beneficial. She also noted that interactive communication with various stakeholders to determine the needs and to facilitate the coordination of the responses.

Joe McGee noted that we're positioning DEMHS as a leader in the state in such an event. He referenced her recommendation for a mass-care coordinator to exist in the state.

Mary Jolie noted that there is a position of a mass-care coordinator that could be requested at the FEMA level, but we do not currently have one in the state of CT. This is a recommendation that CT should have this position.

Lee Hoffman asked how long a temporary disposal site is kept active.

Diane Duva said there are two types of temporary. The first one is for 90 days. The wood chips would have a 2 year period of time where they would be managed instead of disposed of so they could be recycled or reused. They are electing to manage the material based on best practices.

Lee Hoffman asks what happens if the time limits are up and there is still material on the sites.

Diane Duva said that they would poll representatives to determine if those dates needed to be extended.

Lee Hoffman said that in regards to Irene, was there anything the task force had to do with anything other than woody debris.

Diane Duva said that those materials are being managed through the existing infrastructure. They have emergency permitting for facilities to handle additional debris material.

Joe McGee asked when “debris” begins in terms of contract. He asked when a contractor’s work begins.

Diane Duva said that the debris task force works with the EOC and they have a liaison with both large utilities. If a request comes in, they check with them to find out if that area is safe. Many of the reports included debris entangled with wires, so utilities would have to address that first. In many cases they would clear non-wire debris and follow up debris after wire work had been completed. The coordination occurs to see where resources have already been deployed. If DOT has resources to take care of a request, then the debris removal crews might augment the DOT in their efforts.

Joe McGee asked if these are state roads as the contractors could be clearing the roads immediately if there are no wires.

Diane Duva said that is correct. They check with the utilities to see if they are working on this, or if they need assistance in these areas.

Joe McGee asked how many debris clean-up crews would be operating during the storms.

Diane Duva said it is a day by day number.

Judy Pahl said that if they were able to make their assessments quicker they could have had more people contracted sooner. This is still an issue they will have with every storm because every storm is uniquely different. She said they offered to help utilities, but the utilities were reluctant to receive the help.

Joe McGee said that the issue of storm assessment and how the information is shared is a critical issue. This report has provided another example. He is concerned that there is a gap.

Judy Pahl agreed there is frustration. She said they were continually communicating with the utility people at the EOC but it was a difficult situation. In the first days they had probably 30 units available, with that number increasing as days progressed and they became more aware of the areas to clear.

Major General James Skiff said that the Witt report said that ESF 12 was not addressed properly, meaning that the utilities need to be brought into the process.

Joe McGee said that in their testimony they said they offered help to the utilities and they did not accept the offer.

Judy Pahl said that this is a utility issue. The down wires are dangerous. She said that the utilities are not accepting the help or asking for any.

Joe McGee noted there debris clearing program looks excellent. They have the ability to clear roads that don't have down wires, but it doesn't appear that opportunity was fully utilized by towns or utilities which could have sped up the clean-up process.

Diane Duva said that their recommendation is for investment in technology to integrate information on infrastructure so better data is available early on following the storm.

Joe McGee said that in regards to communications, he asked whether it was correct that there were privacy issues around data and backup generation that they could not reveal the nature of the backup generations.

Mark Raymond said no. The utility providers did not want to provide the information regarding outages because they view it as competitive information.

Joe McGee said that if there were no recommendations made, how do we measure it and how do we make recommendations. He asked whether the communications task force is comfortable with the current state of affairs.

Lee Hoffman clarified Joe McGee's question regarding the current state of affairs.

Mark Raymond said that they felt the effort and coordination had improved in terms of rapid restoration of services when the commercial power had been turned on.

Joe McGee noted that when the power came back ,so did the telephone service.

Mark Raymond said that with the movement of a lot of communications services with cable and VOIP (Voice Over Internet Protocol) there is a different restoration process than traditional services.

Joe McGee said that they heard different reports on restoration for the communications systems in state. He said that there may be a problems in the telecommunications companies in the state in terms of backup power generation.

Mark Raymond said that the reports regarding the ability to communicate were sporadic and they appeared to be in locations that were traditionally low-served. There are still locations throughout the state that regularly have poorer cell service, but for those areas that had a more robust infrastructure, those were able to continue and they were able to get cell service ..

Lee Hoffman said that this Panel has looked at infrastructure hardening. He asked if the task force looked at the back hall issue and what steps might be taken to harden that infrastructure.

Mark Raymond said that during the event they coordinated the restoration of the back hall infrastructure. If people needed access to a facility that was blocked, they helped to get them access. They didn't make any recommendations with hardening the back hall infrastructure in the long term. In the height, there were up to 50 lines that were down, but they did not make any recommendations on that.

Lee Hoffman asked if there were any recommendations made regarding COLTs or COWs.

Mark Raymond said that it was difficult to coordinate this. They need to work with municipalities to make sure these are deployed in an appropriate and secure location.

Cathy Osten asked if it was a recommendation that they would make that there would be preselected sites.

Mark Raymond said that would be helpful. It may be a failing on their part by looking at this in terms of overall communications within the state as opposed to rapid restoration. He agreed that it is important for people to have access to communication services to make emergency phone calls.

Joe McGee said that the issue of backup generation for cell towers becomes a critical issue for the Panel when looking at a CAT 3.

Mark Raymond said that this is something they worked on with the communication providers and for those with a backup generator, to make certain they had an adequate fuel supply and battery power.

Terry Edelstein asked about the health and safety of the people in the state. She said that the Panel is not only discussing the re-fueling of backup generators but the requirement of having backup generators. There needs to be more communication than just receiving a text. We expect a more robust communication system and she hopes this can be applied to future situations.

Major General James Skiff said that a number of the task forces had utilities as members, but some of the working groups did not. Some of those issues have been resolved so that next time a task force could be even more prepared.

(Scott Jackson arrived as voting member at 2:55 p.m.).

William Hackett completed his testimony.

Brenda Bergeron spoke to William Hackett's testimony.

Major General James Skiff asked if a state agency should be responsible for each ESF.

Brenda Bergeron said it is important to notify a lead agency for each ESF. She said there should be at least one lead agency, but not more than two. There are certainly emergencies where it is clear which agencies should be the lead. Overall, having lead agencies is an appropriate recommendation.

Joe McGee said the issue of training and real-time exercises is incredibly important and he congratulated them on that recommendation. He asked about the process of how this happens, and who should be held accountable. DEMHS is the lead agency in these situations, but they cannot do everything. He asked how it would get done that an agency like DEEP would be responsible for trimming trees.

William Hackett said that they have a state natural disaster plan and a state would include that data and could include those recommendations or changes. Most of them are in that plan now.

Joe McGee noted that there is an extensive training program. He asked about the size of the training department now.

William Hackett said that there are six staff currently, with three vacancies. They would need to get their trainers into the regions to do that work.

Joe McGee said that CT should look to other states to compare the training programs and the budget to see if CT has the necessary resources. It is great to have a plan, but how do we make it work.

William Hackett said there is training available through Homeland Security Grant Funds, there are centers of excellence available, and FEMA can also do training.

Joe McGee said so if we asked you to do a real-time exercise to train town CEO's and commissioners and he would like to know what the budget would like for this training.

William Hackett said that other ramifications are backfill and overtime for municipalities for training.

Joe McGee said that this is part of DEMHS' responsibility. He said it seems all players would not necessarily need to have overtime budgets and that this would be a part of the role of the local staff.

William Hackett noted that the Homeland Security funding has been cut in CT over 40%. There are new guidelines from the emergency guidance performance grant, but there has to be training tied into the grant, so this is going to assist them this year.

Joe McGee congratulated them on this plan. The Panel has been asked about the cost of the storms. He asked if they have an ability within the department to give a full cost of these storms. He asked how this would be assessed.

Brenda Bergeron said that it is not easy to come up with the real cost. Other numbers that they have identified is insured losses, which was \$235 million for one of the storms. It's hard to get a handle on what are the denied claims which are not covered under FEMA or insurance. If a tree falls in your yard, and isn't covered by home insurance or FEMA, then you will absorb that cost of the tree by hiring someone or doing the work yourself.

Joe McGee noted that one of the big issues is the cost/benefit analysis. Right now they are vague as to the real cost of the storm.

Brenda Bergeron agreed, that there is not normal a statistical way of capturing the cost of a storm.

Joe McGee would like a recommendation on how to do this.

Major General James Skiff thanked the presenters for their testimony.

9. Strengthening Utility Infrastructure (2:30 p.m.): Dana Louth, Vice President, CL&P and Joseph Thomas, Vice President, UI

The CL&P team gave the presentation to the Panel (see attachment J).

Joe McGee asked how much of the pole infrastructure was built in the 1950s and 1960s.

The CL&P team said roughly 40% which is roughly 200,000 poles. The number that might have structural difficulties is much lower than that.

Joe McGee asked what is a spacer cable and how does it work.

The CL&P team said that spacer cable is actually three cables like the covered one and one messenger cable, and there is a diamond shaped spacer that holds them apart. It performs 10-15% better than covered wire. There are pros and cons. One of the cons is that when it comes down it takes more time and more men to put it back up. However, it stays up longer than other wire. Spacer cable is better in rural lines. They consider spacers in that application as opposed to city lines.

Joe McGee asked if we are using spacer cable in CT.

The CL&P team said yes, roughly 5-10%, mostly in rural areas.

Joe McGee asked for information regarding the number of poles that were damaged in both storms and information regarding the overlay of the damaged poles.

Joe McGee asked, in regards to tree trimming, if have they researched information regarding tree trimming techniques under different scenarios.

The CL&P team said they use nationally recognized line clearance tree trimming companies. They do look at proper techniques for tree health as well. The great amount of trimming they do is the limb to wire connection.

Lee Hoffman asked how the number is generated from page 14 of the presentation in terms of improvements in reliability.

The CL&P team said that they use these techniques in places for advanced trimming and compare how those locations performed compared to the rest of the line in terms of failures per miles of line. They also have good statistics for covered wire in the past which covers day-to-day activity.

Joe McGee said that we may look at this as a performance standard. If we give you \$4 billion to accomplish this, and if the performance standard isn't met, they may be fined; or rewarded for doing well. This will force them to harden their structure. The claim here for a 30%-40% improvement in reliability is significant.

The CL&P team said that the reward/penalty system idea is a good point. This may be something to consider.

Joe McGee said that the more information the team could provide, would be very valuable to the Panel.

Major General James Skiff clarified the numbers with the team.

Team CL&P team said they are not recommending the undergrounding, until perhaps a university helps them to study more factors.

The UI team gave their presentation to the Panel (see attachment K).

Joe McGee said that one problem with mutual assistance is that the Panel has questions with how it works in regards to contractors versus electrical employees.

The UI team said mutual assistance are utility workers, the mutual assistance practice is that they will assist other utilities in their damage once their own areas are restored. In CT, we can only draw from the west, north or south, we cannot go east because these storms come up along the east coast. No utility is going to clear workers to help in other areas before their own customers are restored.

Joe McGee asked in terms of these two storms, what percentage were utility company crews versus independent contract crews.

The UI team said they can get more accurate numbers, but they speculate it was a 50/50 split.

Joe McGee asked about the compensation for utility crews and contractor crews.

The UI team said they are not sure how the electrical crews get paid, but the independent contractor crews get double time. Contractors don't get paid until all of the documents are reviewed. Because they are vulnerable to get resources, the time to get crews here is 3-4 days, however, if the utility invested in older bucket trucks, you can fly linemen in a much quicker. They want to look at having emergency backup equipment for the incoming crews.

Joe McGee said that the Panel was told in earlier testimony that contractors were available for tree trimming for the state. They said those resources were offered, but refused.

The UI team said that there were no other external offers except Bridgeport and Shelton of which they are aware.

Joe McGee said that Homeland Security does not have an issue with distribution system information being released.

The UI team said they have an issue with sharing the switching points. They recognize the value to interfacing the system, but there is information that is not relevant and does not need to be shared with other parties. There is the electrical infrastructure security and customer information security. We need to identify what information should be shared.

Joe McGee said that a protocol that is agreed to regarding which information to share is a fair point.

Joe McGee asked why it has not happened that cell towers are not located on main lines or adjacent to the substations. Joe McGee said that there is a lot of debate regarding siting in terms of cell towers.

The UI team said that those transmission towers are not in locations where a need may be located. When they deployed their advanced metering systems, some of it was attached to cell towers. There may be opportunities for the telecommunications industry to leverage the transmission towers, but they were not sure.

Joe McGee said that he thought there would be more conversation between cell towers and the utility to share the towers.

Joe McGee said looking at the CL&P presentation, they put a dollar number out there, which gives the Panel an opportunity to analyze the cost/benefit ratio. It would be helpful if UI could provide a dollar figure to the Panel. What was interesting for CL&P is that it gives the public a chance to consider the increase in their bills.

The UI team said that they did not put any numbers forward as it is important to know what the design parameters should be going forward, including the end design.

Joe McGee noted that the utility is the vendor and they have an obligation to lay out their recommendations. The state lays out the standards, but the Panel needs to know their recommendations for these standards.

Joe McGee noted that CL&P said that their hardening program would sustain dramatic damage in a CAT 3 storm, but the program would make improvements for a lesser storm. So, if the Panel said they wanted to see a 40% savings in basic reliability and a 30%-40% improvement in reliability in terms of these past two storms, what would that look like.

The UI team said that this is fair and they will provide this information to the Panel.

Joe McGee asked about the poles that are past their useful life, but are still reliable.

The UI team said there are 20,000 that are greater than 40 years old. In actuality if poles are properly maintained they can be useful well past 40 years. But roughly 25% of their poles are over 40 years old.

Major General James Skiff said he assumed that the advanced criteria for tree trimming for UI is the same as CL&P, which is to take out the overhangs and go straight up from there in terms of trimming above the pole and lines.

The team said that UI does not currently have a similar program as CL&P. They said they do see the benefit in having an advanced tree trimming program. Certainly, it may not stop all trees from falling, but it would reduce the damage of breakage of the trees. In some communities, if they attempt to do blue sky trimming, they would be met with public outrage. They would support legislation to allow for certain trimming.

Joe McGee said that the Panel is not proposing clear cutting trees in the state of CT, but it has become clear that trees have been a big threat to the system. The basic question is, this has been identified as a threat, yet the investment of tree trimming has not kept pace with the threat. There is an issue with the utilities' behavior in regards to this threat. Both companies have identified this threat, yet the budgets have remained relatively flat in a number of years. There is a question regarding the utilities' approach to this.

The UI team said that they were not accounting for inflation, but they were asked to look at tree trimming costs over a ten year period. Back to 2001 it was \$1.4 million; in 2010 it was \$2.7 million. So, that is a four-fold increase over that period of time. Their tree trimming is focused on everyday reliability issues, but not around major storms. They will make assumptions based on what they believe the threats are and will propose cost estimates. They use spacer cable, which is good for reducing the trim pattern, but will not stop a tree that comes down. The spacer cables can be difficult to work with and may be more dangerous. He said that he just wanted to be sure that everyone is aware of the potential sensitivity of the issue to the public.

Joe McGee wants to know what they believe is an appropriate annual expenditure in terms of tree trimming and what that gets us. And what this will cost the customer.

The UI team said they will be happy to provide this.

Major General James Skiff thanked them for their testimony and the work they have done.

Joe McGee appreciated the work the utilities have done and how helpful they have been in providing the information to the Panel

(Cathy Osten left the meeting as a voting member at 5:21 p.m.).

10. Approval of the December 2, 2011 Special Meeting Minutes: Lee Hoffman moved to approve the December 2, 2011 special meeting minutes with the following amendments: on top of page 9 of 14, the first sentence should read "internal model said back by Wednesday, and internal target of 99% by Sunday"; page 10 "Lee Hoffman" is misspelled; page 12 capitalize "Pentagon"; page 13 "Terry Edelstein" is misspelled, seconded by Joe McGee. All members present voted in favor. The motion carried.

11. Approval of the December 7, 2011 Special Meeting Voting Record: Terry Edelstein moved to approve the December 7, 2011 special meeting voting record, seconded by Robert McGrath. All members present voted in favor. The motion carried.

- 12. Approval of the December 7, 2011 Special Meeting Minutes:** Lee Hoffman moved to approve the December 7, 2011 special meeting minutes with the following amendment: on page 3 of 17 it should read that Joe McGee said “in terms of low hanging fruit” instead of “low hanging wires”, seconded by Terry Edelstein. All members present voted in favor. The motion carried.

- 13. Adjournment:** Lee Hoffman moved to adjourn the meeting, seconded by Robert McGrath. All members present voted in favor. The motion carried. The meeting was adjourned at 5:25 p.m.

Attachments

- A. Testimony of Mike Varney, DEMHS
- B. JISCC Military Department Presentation
- C. CT AREAS “Two Storm Panel”, Presentation given 14 Dec 2011, Wayne Gronlund, N1CLB, CT Section Emergency Coordinator
- D. Testimony of Kathy Bruni, MPA, LCSW Program Manager Alternate Care Unit, Medical Care Administration, Department of Social Services
- E. Testimony of Commissioner Reuben Bradford, DESPP
- F. Testimony of William J. Hackett, State Emergency Management Director, DESPP, DEMHS, December 14, 2011
- G. Testimony of Mark Raymond , Communications Task Force
- H. Testimony of Mary Duley, Mass Care/Sheltering Task Force AAR
- I. Testimony of Judy Pahl, Emergency Management Program Specialist, IDMTF (Interagency Debris Management Task Force) and Diane Duva, Asst. Director, DEEP BMMCA
- J. Governor’s Two Storm Panel: Distribution Infrastructure Hardening Options and Recommendations, Dana Louth, CL&P VP – Infrastructure Hardening, December 14, 2011
- K. Testimony of the United Illuminating Company to the Two Storm Panel Regarding Electric Utility Infrastructure Hardening Alternatives and Changes to Restoration Process, December 14, 2011

Submitted By:
Mike Caplet
Lauren Mauer

(A)

Good Morning – Thank you Chairman McGee and General Skiff as well as the committee members.

My name is Michael Varney I work in the Department of Emergency Services and Public Protection (DESPP) and I serve at the Connecticut Statewide Interoperability Coordinator (SWIC). I also serve as the Vice Chair of the National Council of Statewide Interoperability Coordinators and the SAFECOM Executive Committee. My role is to support the daily operations of the State's interoperability efforts, coordinating interoperability and communications projects, maintaining governance, and assembling interoperability working groups to develop key recommendations and programmatic implementation, guided by the initiatives outlined in the National Emergency Communications Plan and the State's Communication Interoperability Plan.

This morning I will describe several relevant public safety communication capabilities, assets and planning efforts statewide.

During the two storms no significant communication failures were reported to public safety land mobile radio communication systems in CT, although there were significant outages with the public commercial telecommunication systems within CT.

All of the communication interoperability efforts in CT in the last 10 years have been coordinated by Connecticut Public Safety Interoperability Communications Committee. This committee is comprised of representatives from all the municipal first responder disciplines as well as regional, state and federal partners. This group is chartered and reports through the DEMHS Advisory Council.

I will now describe several interoperable communication systems which have been developed or enhanced:

ITAC/ICALL – this system is designed for use by public safety responders to achieve interoperability across Connecticut, made up of national allocated frequencies for this use. The primary function of this system is providing for command and control or communications where they cannot be achieved by some other means. This robust system is comprised of several components. Connecticut has coverage of over 90% of the state with its fixed infrastructure and the remaining can be addressed with mobile assets. This system is comprised of 5 sets of radio channels 1 calling channel for requests and coordination and 4 tactical channels all of which may be used simultaneously.

Fixed Infrastructure: DESPP maintains the majority of the fixed infrastructure of this system is comprised of 40 fixed tower locations though out the state. DESPP coordinates the activation of these repeaters when needed by a request of any user via phone or radio call.

Mobile infrastructure: There is a portable tower mounted on each of the 34 mobile decon trailers , along with a repeater, control station and cache of portable radios. These trailers are strategically located throughout the state. Mobile repeaters are also installed on several municipal, regional and state agency vehicles for use.

Control stations are installed in all of the state's primary service answering points (PSAPs) and associated communication centers.

Portable radios: There are currently several thousand portable radios in CT programmed with these frequencies for use on this system. Each Fire Chief, Police Chief, Emergency Management Director, and Emergency Medical Services chief of serves have been issued radios and chargers through this program. In addition key DOT supervisors, DEEP response personnel, State Fire Coordinators, State Police, and some federal agencies all have been issued radios with these channels installed.

Local radios systems which operate a trunked radio systems within this 800MHz bandwidth also have this systems installed throughout their radio systems, such as Waterbury, West Hartford to name a few.

Training: Training in the form of train the trainer programs have been provided to municipalities since radio distribution in 2004 using DEMHS, Fire and Police Academy staff through the years.

So what does this mean? This system addresses the first goal of our committee to provide command and control communications for all of the states fires responder organizations. It has been used countless times for many events since rolled out for multi discipline or multijurisdictional events, or to supplement local communication systems failures.

In addition to this we continue to enhance the system by increased coverage and capabilities for its use.

A similar system created and installed for statewide use is CSPERN (Connecticut Statewide Police Emergency Radio Network) an 800MHz radio system created to provide a statewide radio channel for law enforcement use by mobile units. Control stations and portable radios have been distributed throughout CT to police departments for use within their patrol cars and communication centers. This system addresses an additional goal of our committee to provide law enforce mobile coverage for moving events such as multi-town operations and chases.

STOCS the Statewide Tactical On scene Communications System is another systems developed by our committees technical sub-committee to provide interoperability at an incident scene for different radio bands to communicate with each other. One of the major challenges with radio interoperability is the ability to have radios from different bands talk to each other, because the radios carried in the field have several limitations with regard to their bandwidth capacity. This system was developed to allow a VHF radio, a UHF radio and an 800MHz radio to all communicate seamlessly by changing to a predestinated channel on their existing radios. Many of the first responders in CT have programmed these channel for use in their existing radios.

It is comprised of two boxes and an antenna hence the name used STOCS BOX. The first box is a power supply which will run the radios for an eight hour period on full charge, the second box contains three radios and control equipment to make it work. These can be rapidly deployed anywhere without any additional equipment to provide instant cross band communications. These units have been deployed to many local municipalities and regional teams for use in the field with an MOU signed with DEMHS for use. These are one hundred of these units in Connecticut for deployment. This system addresses an additional goal of our committee to provide on scene cross band communications for multi jurisdictional

or multi-discipline events. These boxes have been also used many times over the past several years at planned and emergency events throughout the state with great success.

DEMHS High band radio system: This system was created by the office of civil defense and enhanced several years ago to provide a communication mechanism for each municipal emergency management department to communicate with eth the DEMHS regional offices in the event of all other communications were to fail. It was made a grant deliverable, requirement, previously to ensure that each municipality has this system for use. It is test quarterly to ensure effectiveness and issues are logged to be addressed by DEMHS staff. This goal achieved by this system as described was to provide a last means of communication by the municipalities and the regional office in the event of communication failure of other systems.

The last capability I will speak to this morning is the state's Mobile Internet Communications Asset developed with DAS BEST. It is a mobile cache of equipment which provides internet access and voice communications via satellite for twenty phones and laptops to provide resiliency for outages, emergencies or planned events. It is a very similar unit to the JISSC with you will hear about later today.

Planning efforts: There are several levels of plans which have been developed over the past five years which have guided and provided important information to achieve interoperable communications across the country.

Starting at the regional level, each of the five DEMHS regions has completed a tactical interoperable communications plan or TICIP. Connecticut is the first state to accomplish this goal of having each county or planning region complete these plans.

The Tactical Interoperable Communications Plan (TICIP) is designed to allow the regions to document interoperable communications governance structures, technology assets, and usage policies and procedures. The TICIP is used to clearly define the breadth and scope of interoperable assets available in the area; how those assets are shared and how their use is prioritized; and the steps individual agencies should follow to request, activate, use, and deactivate each asset.

These plans have all been tested either through exercises or real life events within the regions. These plans also provided the collection of radio and communication data regarding each of the regions local systems and assets and how to provide interoperability as needed between the different organizations.

The state developed a Statewide Interoperable Communications Plan or SCIP in 2007. This is a planning document which is used to guide the priorities of our committee regarding the work efforts and resources to accomplish goals set forth by the committee. This plan like all of our goals is stakeholder driven by the practitioners in the field that need and use these capabilities. This plan is currently being updated to address updated goals this coming year.

Federally National Emergency Communications Plan was also developed by The Department of Homeland Security's Office of Emergency Communications (OEC) to serve as the nation's first strategic plan for emergency communications guidance. The NECP outlines three strategic goals for emergency

response situations. All three goals focus on response-level communications and provide set standards for emergency response personnel to achieve by certain dates.

- Goal 1 By 2010, 90 percent of all high-risk urban areas designated within the Urban Areas Security Initiative (UASI) are able to demonstrate response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.
- Goal 2 By 2011, 75 percent of non-UASI jurisdictions are able to demonstrate response-level emergency communications within one hour for routine events involving multiple jurisdictions and agencies.
- Goal 3 - By 2013, 75 percent of all jurisdictions are able to demonstrate response-level emergency communications within three hours, in the event of a significant event as outlined in national planning scenarios.

Important to note Connecticut was measured for their achievement for Goal 1 and Goal 2 and proved to meet those goals to active interoperability. Goal 1 was demonstrated by DEMHS regions 1 & 3 using planned events and out of state evaluators and Goal two was achieved using a self assessment tool to evaluate real life events and planned events in all of the five DEMHS regions.

Future projects which are underway include:

The procurement and distribution of six mobile communication vehicles with enhanced capabilities to be deployed to and by local organizations and the state to provide interoperable communication capacity which cannot be accomplished using the tools I previously mentioned. These units are being built now and anticipate being placed in service this coming spring.

The Public Safety Data Network PSDN is a project being completed by DESPP and DAS BEST to provide high speed data connectivity via fiber to each of Connecticut's PSAPs, Police Departments, Fire Departments and key state facilities and communication sites to provide secure resilient communications for emergency response and planning. This network is being constructed similar to the existing Connecticut Education Network, which I must note did not have any backbone failures during either of the storms and actually provided the only means of communication for some of the affected towns. This project has a grant deadline of October 2013.

The P25 switch which has been installed is a standards based communications switch which will provide radio system integration through the state using the PSDN to link disparate radio systems or to be leveraged to local municipalities to provide capacity for their own local systems if needed. This system is installed and end-point equipment will start to be placed into production in early 2012.

Transit communication network – This network also leverages this statewide infrastructure mentioned and will provide communications for all of the response organizations along the New York to New Haven rail corridor. It will allow these organizations to communicate with each other and directly with the rail lines in the vents of emergency. These final components of this system will be completed and users trained this spring.

And the last one of many projects I would like to mention is the Region 1 1700 MHz communication system. This project is being built leveraging the regions overall Urban Area Security Initiative monies to build a fourteen town 700Mhz system for communication interoperability through their region while being tied into a larger statewide network. This project is projected to be completed in 2012.

The great majority of all of these systems and projects I have mentioned were made possible by the leveraging of federal grants dollars from multiple sources and the tremendous work of the many practitioners and committees members who are very passionate in solving these communication issues.

Thank you and I would be glad to answer any questions you may have.

JISCC

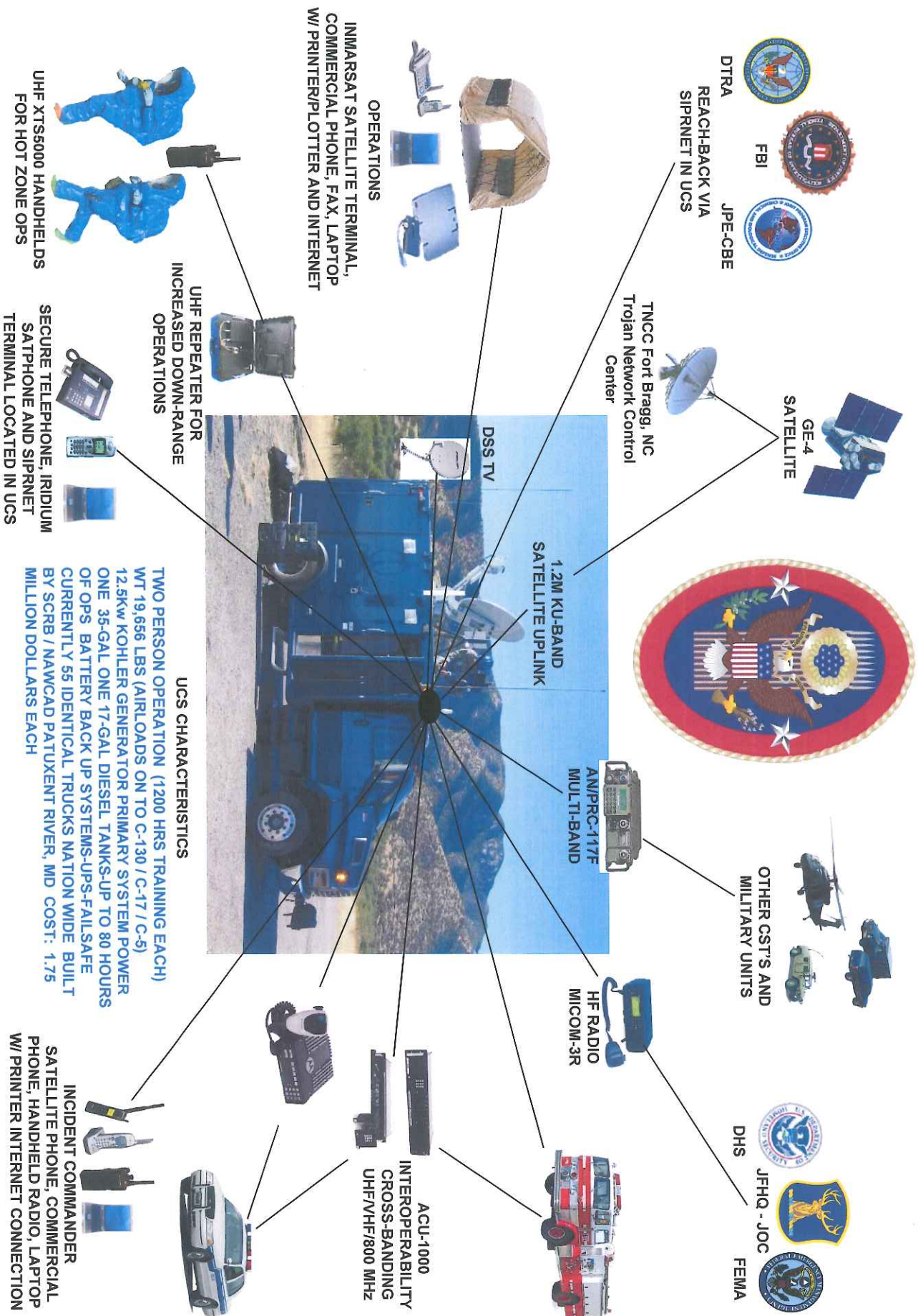
(Joint Incident Site Communications Capability)

(B)

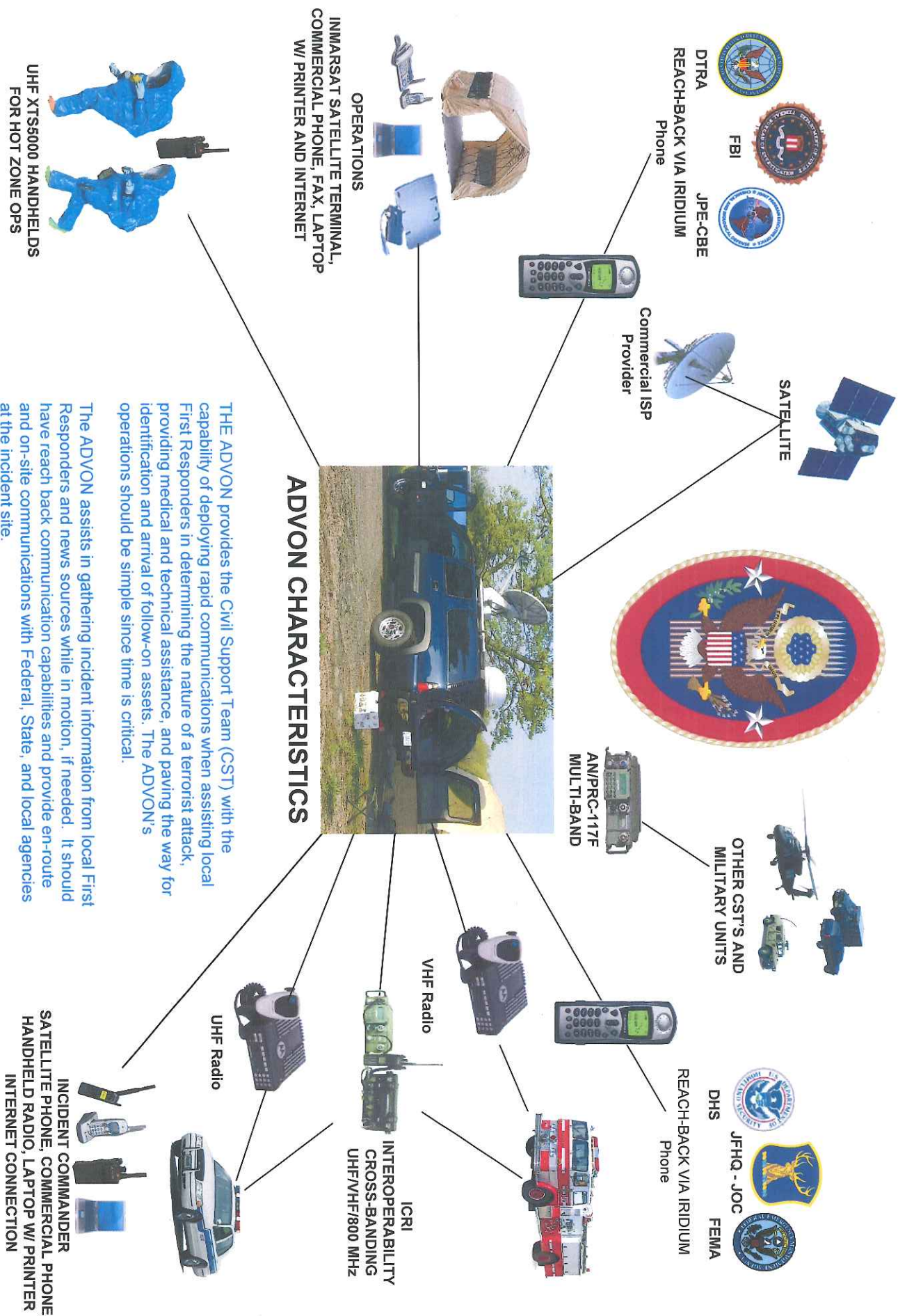
- Purpose:
 - Bridge gaps in first responder voice and data communications
 - Can accommodate Secure voice
- Provides:
 - Satellite Internet connectivity
 - Wireless at site (~50)
 - Hard line data (~48)
 - Laptops provided (15)
 - Radio interoperability
 - Allows radios on different frequencies to communicate
 - VHF/UHF/700/800 Mhz HF radio
 - LMRs (25)
 - IP Phones (15)
 - Video teleconferencing
- CTNG has 1
- Approximately 33 available nationwide



UNIFIED COMMAND SUITE (UCS)



Advance Liaison (ADVON)



ADVON CHARACTERISTICS

THE ADVON provides the Civil Support Team (CST) with the capability of deploying rapid communications when assisting local First Responders in determining the nature of a terrorist attack, providing medical and technical assistance, and paving the way for identification and arrival of follow-on assets. The ADVON's operations should be simple since time is critical.

The ADVON assists in gathering incident information from local First Responders and news sources while in motion, if needed. It should have reach back communication capabilities and provide en-route and on-site communications with Federal, State, and local agencies at the incident site.



DTRA
REACH-BACK VIA IRIDIUM
Phone



Commercial ISP
Provider



SATELLITE



AN/PRC-117F
MULTI-BAND



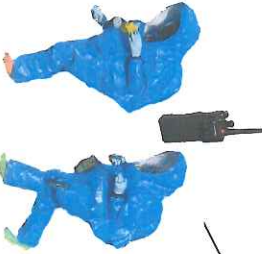
OTHER CST'S AND
MILITARY UNITS



REACH-BACK VIA IRIDIUM
Phone



OPERATIONS
INMARSAT SATELLITE TERMINAL,
COMMERCIAL PHONE, FAX, LAPTOP
W/ PRINTER AND INTERNET



UHF XT55000 HANDHELDS
FOR HOT ZONE OPS



VHF Radio



ICRI
INTEROPERABILITY
CROSS-BANDING
UHF/VHF/800 MHZ

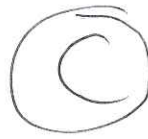


UHF Radio



INCIDENT COMMANDER
SATELLITE PHONE, COMMERCIAL PHONE,
HANDHELD RADIO, LAPTOP W/ PRINTER
INTERNET CONNECTION





Allen Pitts, W1AGP
Media & PR Manager, ARRL

With help from:
Steven Katz, NSWL
Harold Kramer, WJIB

Modified by:
Wayne Gronlund, N1CLV
CT Section Emergency Coordinator

Amateur Radio...

Emergency Radio... Getting the message through for your family and community

ARRL The national association for AMATEUR RADIO www.emergency-radio.org

"Amateur"

- am'e-tur - *noun*
- **A person who engages in an art, science or other activity purely for the personal interest or self-improvement value of it, rather than a financially compensated profession**
 - Amateur athlete
 - Amateur astronomer
 - Amateur musician

ARRL The national association for AMATEUR RADIO

Amateur Radio

- Often called "ham radio"
- Has consistently been among the most reliable means of communications in emergencies

ARRL The national association for AMATEUR RADIO

Every year hams help out

- Haiti 2010
- Hawaiian earthquake 2006
- NE states flooding 2006
- Katrina, Wilma and Rita 2005
- TX, OK, NM wildfires 2005
- Charley, Frances, Ivan, and Jeanne 2004
- Asian tsunami 2004
- Central CA earthquake 2003
- Isabel 2003
- September 11, 2001

ARRL The national association for AMATEUR RADIO

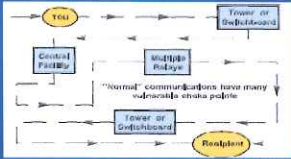
Simply put - ham radio works!

- Most of the time things work fine
- Despite the development of complex systems - or maybe because they ARE so complex - ham radio has been called into action again and again to provide communications when it really matters

ARRL The national association for AMATEUR RADIO

Conventional communications systems

- **Telephones, cell phones, Internet, trunk lines, and satellite phones all go through many vulnerable choke points**



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Other reasons they may fail


- **They need electrical power**
- **Even when functioning, they can be overwhelmed with cries for help and families seeking information**




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Ham Radio is different

- **Hams can "go direct" and talk straight to each other without intervening infrastructure**



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By selecting the right frequencies

Hams can talk across town, across the state, or around the world



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National Weather Service

- **Relies on ham radio operators**
- **Ground level reports**
- **Radar can't see everything**
- **SKYWARN program very active during the Two Storms in CT**



ARRL The national association for AMATEUR RADIO


National Hurricane Center

- **Miami, FL**
- **Relies on ham radio**
- **Has station WX4NHC**
- **Receives reports from hams in affected areas on the HWN**





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ARES



- Amateur Radio Emergency Service
- Must have ham radio license
- Continually learn about emergency communications



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ARES




- Has formal national agreements to provide emergency communications for :
 - FEMA
 - Citizen Corps - DHS
 - American Red Cross
 - Salvation Army
 - Many other organizations




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Hams...



- Over 700,000 hams in the USA
- Over 10,000 hams in CT
- Perhaps 3,000 active hams in CT
- 650+ are members of CT ARES



ARRL The national association for AMATEUR RADIO



CT ARES

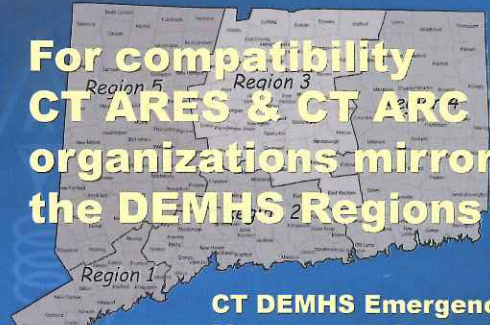


- Has formed partnerships with many Served Agencies:
 - CT DEMHS
 - CT American Red Cross
 - Many municipalities
 - Many local CERTs




ARRL The national association for AMATEUR RADIO

**For compatibility
CT ARES & CT ARC
organizations mirror
the DEMHS Regions**




CT DEMHS Emergency Management Regions




ARRL The national association for AMATEUR RADIO

CT ARES



- Some examples of ham radios:
 - Region 4 Shelter Box Radio
 - Kenwood TH-D72A with GPS
 - Kenwood VC-H1 Visual Comm



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Voice Communications

Utilizing Portable "Go Box" Radios



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Region 4 Mobile Comms Unit



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Region 4 Mobile Comms Unit



ARRL The national association for AMATEUR RADIO

Region 4 Mobile Comms Unit



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Winlink Airmail (radio email)



ARRL The national association for AMATEUR RADIO

Winlink can send small (20KB) attachments via Airmail, e.g. Red Cross Shelter Reports

Shelter To Ops Headquarters Activity Report

Report Name: _____ Title: _____
 Report ID: _____ Date: _____ Time: _____ AM / PM

Line	Time Period	Use Period
	(if none, enter "0")	(if none, enter "0")
1	New Shelters Registered	
2	Current Shelter Population	
3	Red Cross Workers In Shelter	
4	Non Red Cross Workers In Shelter	
5	Meals Served	
6	Shelter Status	
7	Health Services Contacts	
8	Mental Health Services Contacts	
9	Comfort Kits Distributed	
10	Hour CACR Charges Committed	


11. Other Information / Remarks:

Prepared By: _____ Date/Time: _____
 Sent By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____

Rev. 5/2011

ARRL The national association for AMATEUR RADIO

Automatic Position Reporting System (APRS)



Slow Scan Television (SSTV)


Capture images on a camera and send them via radio link to local EOC



ARRL The national association for AMATEUR RADIO

Simply stated...

- *Ham radio provides the broadest and most powerful wireless communications capability available to any private citizen anywhere in the world*



ARRL The national association for AMATEUR RADIO

If a chicken in every pot is a good idea...

Why not a HAM in every EOC?

ARRL The national association for AMATEUR RADIO


Recommendation:

Designate CT ARES a "civil preparedness force"

(CT Gen Statutes 28-14)

ARRL The national association for AMATEUR RADIO

Questions?



ARRL The national association for AMATEUR RADIO

D



STATE OF CONNECTICUT

DEPARTMENT OF SOCIAL SERVICES

25 SIGOURNEY STREET HARTFORD, CONNECTICUT 06106-5033

Governor's Two Storm Panel
Joe McGee-Co-chair
Major General James Skiff -Co-Chair

Good Morning, my name is Kathy Bruni and I am the Program Manager in the Alternate Care Unit in the Department of Social Services (DSS). I am here today in my capacity as manager of the Medicaid waive programs that serve elders and those with disabilities who require home and community-based services to remain in community settings of their choice. I also manage the pre-admissions screening program for all persons entering a nursing facility and also the medical necessity determination for Medicaid payment for nursing homes.

A number of questions have been posed to the department by the committee, which I will address in my testimony.

I would like to start with an explanation of the pre-admission screening process. Every person applying for placement in a nursing home that accepts Medicaid payment must be screened for the presence of a mental illness or developmental disability prior to entering a nursing home regardless of payment source, through a process known as PASRR or Pre-Admission Screening Program. This is a federal requirement that has been in existence since 1988. Part of this process for persons identified as having a serious mental illness or developmental disability is the additional requirement of a level of care screen. The level-of-care screen is also required for persons who are seeking Medicaid payment for their nursing home stay.

During both storms, the department required the pre-admission screen, which is a web based process, but waived the level-of-care requirement for seven days. Those individuals who have an indication of a major mental illness or developmental disability are required by the PASRR regulations to have an in depth, face-to-face evaluation by a clinical person to evaluate the need for nursing home placement, and to determine if the applicant's needs can be met in a nursing home. In emergency situations, federal regulations allow the state to utilize an exemption to this requirement. The department quickly implemented this exemption and persons in hospitals who were in need of care in a nursing facility were not held in the hospitals waiting for the Level II evaluation to take place. Instead, approvals were issued to transfer the individuals to nursing facilities where they would get the care that they needed. The only exception to this would be in a situation where there was concern that a person might be a risk to themselves or others, in which case a Level II evaluation prior to transfer to a nursing home would be clinically indicated. The department is not aware of situations where a person's hospital discharges were delayed while they waited for a Level II evaluation.

In addition, for Medicaid recipients, the department allowed persons to be admitted to the nursing homes without the medical necessity level-of-care determination being done for the first seven days of their stay. For stays that exceeded seven days, a medical necessity determination was required. If a facility did not have power or computer access and could not complete the PASRR screen preadmission, the department did not penalize the facility in any way. It was understood that these were extraordinary circumstances and every attempt was made to be reasonable in our expectations.

During both storms, the department collaborated with staff at the Department of Public Health (DPH) and issued a blast fax to hospitals and nursing homes advising them of the emergency provisions that were being followed. The department never received any follow up concerns from nursing homes regarding persons who were in their facilities beyond the seven days. In retrospect, there seemed to be some confusion in the provider community as to what provisions were being waived under PASRR. Although the written communication addressed the issues and concerns, it might have been helpful if we could have released that communication sooner.

Questions were also raised about the availability of prescriptions. The department waived all requests for early refills. If the department received a prior authorization request and was unable to reach the physician due to communication problems, we allowed for temporary supplies to be dispensed. We also have the one-time 14 day fill that can be dispensed at the pharmacy without prior authorization. We heard that pharmacies automatically provided temporary supplies and we were not made aware of any situation where a Medicaid recipient was not able to get their medication because of a problem with payment or authorization.

The Department provides home and community-based services under Medicaid waiver programs to thousands of Connecticut residents who have physical disabilities, developmental disabilities or psychiatric disabilities. The largest home and community-based services program is the Connecticut Home Care Program for Elders that serves approximately 15,000 clients. These clients have case management services as part of their total plan of care. The case management agency is contractually required to develop and maintain an emergency classification system for clients with special needs including: electricity dependent, care dependent treatment dependent or who are otherwise at risk. Prior to the storms, the case managers contacted every client at risk to discuss their backup plan. They also worked closely with the provider network and the local emergency services. Clients were registered with their electricity provider and with the town fire departments. Services generally provided in the home were provided in the shelters giving the frail elder some continuity of care. The most significant challenge faced by the case managers was addressing the needs of persons who were quite dependent on care or had special needs. However, both hospital and nursing home providers were actively engaged with the care managers in meeting the needs of the frailest elders.

In retrospect, it is apparent that although there was efficient and effective communication between DSS and DPH, there is a need to discuss modifications to regulations so that procedures that were implemented could be automatically implemented thereby eliminating any lag time in the response by the department. Through our experience in the September and October storms our providers developed and enhanced their connections with local community services and were able to meet the needs of frail elders in the community and in institutional settings if needed. However, there needs to be more dialogue about managing the care of persons with high needs or special needs during prolonged outages such as those the state experienced in September and October.



Chairmen McGee, Chairman Skiff:

Thank you for this opportunity to briefly comment before the Governor's Two Storm Committee.

I'd like to begin by thanking you and the members of the panel for your important efforts in reviewing the preparedness, response and recovery efforts of the state and its partners – including the utilities and municipalities – related to Tropical Storm Irene and the historical October Nor'easter, which dumped over 20 inches of snow in some areas of the State and resulted in over 800,000 power outages.

This is currently an unprecedented time for the Division of Emergency Management and Homeland Security. Over the past 20 months, Connecticut has received four Presidential Disaster Declarations.

DESPP/DEMHS is currently administering all of these open Disaster Declarations totaling over \$180 million dollars. I would like to thank all of our employees who continue to work so hard to get this critical financial relief to our residents and municipalities.

In fact, I want to take this opportunity to publicly thank all of the staff of the Division of Emergency Management and Homeland Security, as well as their partners throughout the five DEMHS Regions for their countless hours of service. The most

visible part of their service has been that carried out in response to these two storms. At least equally important, however, is the planning and preparedness efforts that took place *before* the storms. I am sure this panel is especially aware that the planning and preparedness that took place prior to these storms was of tremendous value in enabling the state to withstand and recover from the storms. The two storms, along with the record-breaking winter of 2011, demonstrate the importance of planning and preparedness at the local, state, and federal level. The more we can plan and prepare, the more resilient we will be to any emergency that may affect the state. We must continue to enhance our preparedness at every level, including individual preparedness.

In going forward, it is essential that we maximize finite resources by making sure that none are wasted because of lack of communication. In order to be fully prepared for any future disasters, it is essential that the lines of communication between DEMHS, the 5 Regions, our municipal partners *and* the utility companies be completely open with a shared single goal of making sure that the State of Connecticut is as well prepared for any future disasters as possible and that response and recovery efforts take place with open communication and shared resources.

State Director of Emergency Management,
William Hackett will now provide you with

greater details of the DEMHS response to this storm and the steps that will be taken to enhance our emergency preparedness.

(F)

TESTIMONY OF WILLIAM J. HACKETT
STATE EMERGENCY MANAGEMENT DIRECTOR
DEPARTMENT OF EMERGENCY SERVICES AND PUBLIC PROTECTION
DIVISION OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY
December 14, 2011

Thank you Commissioner Bradford, Chairman McGee and Chairman Skiff:

It seems like a long time ago since I was before your panel on October 25th, talking about the State's response to Tropical Storm Irene. Who would have expected that, two days later, we would have been gearing up the State Emergency Operations Center (EOC) for a historic October Nor'Easter? I will provide you with details on the state response to this unprecedented October storm, ask some of the EOC Task Force leaders to give you a brief description of their activities, and then describe some of the steps we have taken, and intend to take, to continue to enhance emergency preparedness in Connecticut.

With regard to the response to the storm, I am providing with my testimony an executive summary of the October Nor'Easter, including a summary of the response and a timeline of some of the other activities at the State EOC. Here are some of the highlights: The State EOC was in 24/7 full activation for 11 days. The 5 DEMHS Regional offices were also staffed 24/7, with our own staff supplemented by Department of Correction personnel. Across the state, at least 71 municipal Emergency Operations Centers were also opened. At least 27 municipalities declared states of emergency, as did Governor Malloy. Thirty-three volunteer Community Emergency Response Teams (CERTs) were activated by towns and approved by DEMHS, including the State Animal Response Team (SART). Eight volunteer Medical Reserve Corps Teams (MRCs) were activated. The CERT and MRC teams, as well as 400 Red Cross volunteers, provided needed help in a number of ways, particularly in staffing shelters. Eleven state Behavioral Mental Health Teams were also deployed. At least 58 overnight shelters and 118 warming centers were opened. Over 34,000 cases of MREs (Meals Ready to Eat) and over 34,000 cases of water were distributed to 86 towns. Over 50 generator missions were handled, to maintain critical facilities ranging from elderly housing projects to waste treatment plants. Thousands of meals were served to thousands of residents. It is estimated that at the peak, over 3500 residents were sleeping in shelters.

Over 300 State Roads were impassable at one time. Hundreds of local roads were closed. The National Guard, Army Corps of Engineers, CT's volunteer Urban Search and Rescue Team, and a FEMA Incident Management Assistance Team were all activated. Governor Malloy held 24 Unified Command and/or conference calls, bringing together his state agency heads and subject matter experts as well as utility and non-profit organization leaders. In addition, 13 statewide municipal conference calls were held, to inform the municipalities of developments at the state level, and to communicate municipal issues back to the State EOC.

The Governor requested and received a Presidential Emergency Declaration, which provided for direct federal assistance, an amended Emergency Declaration, which ensured that state agencies and municipalities would receive FEMA reimbursements for debris and emergency protective measures for at least a 72 hour period, and finally, a Major Disaster Declaration, which provided additional FEMA reimbursements for the 7 state counties that met the FEMA thresholds for assistance to town governments, state agencies, and eligible non-profit organizations.

As with Tropical Storm Irene, the State EOC activated a number of Task Forces to address specific critical areas, including Fuel, Communications, Shelter Guidance, Commodities, and Debris. I am going to ask each Task Force Leader to come up and give a very brief summary of the Task Force'' activities. I will then return to discuss next steps.

Although less than 60 days had passed since Irene, we were able to implement some of the lessons learned from Irene, including:

- the establishment of a Shelter Guidance Task Force;
- delivery of commodities directly to towns;
- providing direct communications between the utilities and municipal leaders, and;
- 24/7 staffing of the DEMHS Regional Offices.

Brenda Bergeron, the lawyer for this Division, can describe for you some of the actions that we are taking with regard to the DEMHS Statewide Advisory Council, which was created by Commissioner Bradford to replace the DEMHS Coordinating Council which was dissolved as of July 1st, when our new agency was formed.

NEXT STEPS

There is more work to be done. As Commissioner Bradford indicated in his testimony, we are currently administering 4 open major disasters, which is unprecedented in Connecticut. For the October storm, we are estimating approximately \$112 million in eligible damages for Public Assistance. For Tropical Irene, we are estimating approximately \$60 million in eligible PA damages, as well as \$7.5 million in Individual Assistance for residents. In addition, we are anticipating over \$24 million in Hazard Mitigation Grant Program funds. This is a tremendous workload for our staff, but it is the nature of what we do—to handle the unexpected. When the sun comes out after a storm, our work is just beginning. That is why we are working to increase staffing at DEMHS, including the hiring of a new Region 2 Coordinator, additional training and exercise staff, and additional Emergency Management Planning Specialists. We will also be looking to continue and add to the valuable working relationships with our state agency partners and with FEMA.

As Commissioner Bradford also stated, the work between disasters is critical. The planning, training, and exercises that take place then are the keys to a successful response to the next inevitable event.

Therefore, we are proposing the following next steps: First, as Governor Malloy has directed, we will be working to enhance planning at the state and local levels to deal with utility outages. This planning effort will include: establishing an ESF 12 Energy and Utilities Working Group of the DEMHS Advisory Council; creating an ESF 12 template for the Local Emergency Operations Plans, and encouraging the establishment of Regional ESF 12 working groups under the Regional Emergency Planning Teams (REPTs); convening a Web EOC working group to study how to better use real-time web-based situational awareness systems, and: determining how to enhance the use of GIS to provide real-time information.

Our recent recommendations to this Panel also include the following:

(1) EXERCISES: Hold at least one real-time exercise annually, organized through the Regional Emergency Planning Teams (REPTs), involving each of the 5 DEMHS regions, with the State EOC participating as well. Exercises should include utilities and private sector partners, as well as local and state government agencies. The Public Utility Regulatory Authority should be involved to assist in supporting and monitoring the role of the utilities. DESPP/DEMHS will support the REPTs in the preparation for and implementation of these exercises. Other state agencies with emergency support function roles, including the Department of Energy and Environmental Protection, Department of Public Health, Department of Transportation, should also participate in the planning and implementation phases of each exercise.

(2) TRAINING

All individuals involved in emergency response and emergency management need training on the National Incident Management System (NIMS), which provides standardized procedures for managing personnel, communications, facilities and resources. The Incident Command System (ICS) components of NIMS are an integral part of incident management throughout the State of Connecticut, as well as across the nation. In addition to NIMS/ICS training, disaster preparedness training should include instruction on the operational interaction between municipalities and the State Emergency Operations Center, as well as legal training on the roles and responsibilities of local and state officials.

Therefore, we recommend that, at least every two years, each local chief elected official/executive officer participate in disaster preparedness training, including ICS, operations, and legal training. The curriculum should be established by DESPP/DEMHS, in cooperation with the Regional Emergency Planning Teams, and training should be provided by DEMHS or under the direction of DEMHS, in order to ensure standardization and consistency.

In addition, local emergency management directors should complete a minimum amount of ICS course work within one year of accepting the position, and should attend or participate in on-line

refresher courses every five years. The exact requirements should be established by DESPP/DEMHS with input from the REPTs.

State agency heads should also receive disaster preparedness training soon after taking office.

Utility personnel both at the executive level and in the field, should also complete a certain level of ICS training, so that we are all on the same page during a disaster.

By working together, we can continue to enhance preparedness in Connecticut.

OCTOBER NOR'EASTER ("STORM ALFRED") EXECUTIVE SUMMARY

December 14, 2011

SUMMARY

- Most severe October snow storm in Connecticut history, dating back to 1650
- Governor declared State of Emergency
- Governor requested and received Presidential Emergency Declaration, Amended Emergency Declaration, and Major Disaster Declaration
- Over 850,000 electric utility customers without power at the height of the storm
- CL&P reported that 77% of its customers were affected by this storm, compared with 55% affected as result of Tropical Storm Irene
- Over 1000 cell towers were down, meaning that over 35 % of all cell sites were out across the state: in some counties, over 50% of cell towers were down
- State Emergency Operations Center was in full 24/7 activation for 11 days
- 10 fatalities
- According to DPH, more carbon monoxide poisonings than in Hurricane Katrina
- Diversion of 23 flights from NY, NJ and Boston, resulting in many hundreds of stranded passengers at Bradley Airport
- At least 71 local Emergency Operations Centers were opened
- At least 27 municipalities declared local states of emergency
- State Interagency Debris Management Task Force activated. Preliminary estimate of 4.2 million yards of debris
- 33 volunteer Community Emergency Response Teams (CERTs) activated
- 8 volunteer Medical Reserve Corps (MRCs) teams activated
- Over 11 state Behavioral Crisis Teams were deployed
- At least 58 overnight shelters and 118 warming/bathing centers were opened across the state, including 63 centers in fire stations
- National Guard, Army Corps of Engineers, CT Urban Search and Rescue Team, and FEMA Incident Management Assistance Team deployed
- Over 34,000 cases of Meals Ready to Eat (MREs) and over 34,000 cases of water distributed to 86 towns
- Over 50 generator missions were handled, to maintain critical facilities from elderly housing projects to waste treatment plants
- Tens of thousands of meals were served to thousands and thousands of residents across the state
- A conservative estimate of residents sleeping in shelters exceeds 3500 per night at the peak
- 10 days after the storm, 12 overnight shelters and 46 warming shelters remained open
- United Way 211 Info Line fielded almost 550 storm-related calls, and an unprecedented 30,000 hits to the 211 web site

- Over 90 nursing homes and over 30 residential facilities operated on generator power for a week or more
- 3 substance abuse facilities and 6 mental health residential living homes were evacuated
- Over 100 CT Department of Developmental Services residential settings were evacuated
- 300 State roads were impassable, as well as hundreds and hundreds of local road closures
- 74 towns reported less than 25% of fuel stations were operating in aftermath of storm
- State provided fuel to municipalities to maintain critical response and essential services
- As with Tropical Storm Irene, the State EOC activated a number of Task Forces, including Debris, Fuel, Communications, Shelter Guidance, Commodities

TIMELINE

October 26, 27, 2011: External Weather Forecasts issued by DESPP Division of Emergency Management and Homeland Security (DEMHS)

October 28: Reach out to CL&P, UI and ATT

External Weather Forecast

Unified Command (UC) (all include utilities) and EOC Recommendations 1500

Statewide Municipal Call (all include utilities) 1600

October 29: 1730 Governor declares State of Emergency

UC Calls: 1500, 1730, 2115

October 30: Governor requests Presidential Emergency Declaration

UC Calls: 0800, 1130, 1700

Municipal Calls: 1000, 1900

October 31: Presidential Emergency Declaration for direct federal assistance Category B

UC Calls: 0800, 1700

Municipal Call: 1200

November 1: Governor's Request for Amended Emergency Declaration

UC Calls: 0800, 1700

Municipal Call: 1200

November 2: UC Calls: 0800, 1700

Municipal Call: 1200

November 3: Amended Presidential Emergency Declaration for Category A and B, 72 hour limit

UC Calls: 0800, 1700

Municipal Call: 1400 (with Rep. Larson)

November 4: UC Calls: 0800, 1700

Municipal Call: 1200

November 5: UC Calls: 0800, 1730

Municipal Call: 1200

November 6: UC Calls: 0800, 1730

Municipal Call: 1100

November 7: UC Calls: 0800, 1730

Municipal Call: 1045

November 8:

Municipal Call: 1100

November 11: Governor files request for Major Disaster Declaration

November 17: President declares a Major Disaster for 7 of 8 Counties for Public Assistance.

Total Number of Situation Reports: 53, as of November 10, 2011

State Response Framework References (Version 2, September, 2011)

Appendix B, page 5, Section VII

Appendix B, Attachment A, page 11

Appendix C, Planning Chief Duties, p.17, 19

Total Number of Incident Action Plans: Ongoing- 17 as of December 13, 2011 (3 State, 14 Joint)

State Response Framework References (Version 2, September, 2011)

Appendix B, p. 3, Section III

“Planning P”

Appendix C, p.17

Total Number of Statewide Municipal Conference Calls: 13

Total Number of Governor’s Unified Command Conference Calls: 24



Communications Task Force – “Two Storm” Testimony

Purpose

The Communications Task force was initially formed in the immediate aftermath of Hurricane Irene. The goal of this group was to facilitate the restoration of wireless, wire line, cable and VoIP communication services. This task force was reconvened for Winter Storm Alfred and remained active until communications reached normal operations.

Composition

The Task force was co-chaired by Kevin Delgobbo, Chairman of the Public Utility Regulatory Authority (PURA) within the Department of Energy and Environmental Protection and Mark Raymond, Chief Information Officer for the State of CT within the Department of Administrative Services.

Participants from the State of CT included: the Department of Emergency Services and Public Protection, PURA, National Guard, and DOT

Participants from Federal Partners included: US Department of Homeland Security – Office of Emergency Communications and FEMA.

Participants from the Private Sector included: AT&T, Sprint, T-Mobile, Verizon, Comcast, Charter, Cox, Cablevision, Metrocast and FiberTech.

Cadence

During the height of the recovery process, this group met two times a day in data collection mode and four times a day in data sharing mode; participating in all EOC briefing events.

In addition to the regular schedule, an e-Mail list was setup and managed by the Task Force so that immediate escalation of issues could occur outside the established meeting times.

Items Discussed

The format of the dialog included:

- Unique information requirements for the EOC or actions required by the communication services providers. Could include remediation of large outage areas, specific governmental or municipal needs, etc.
- Status updates for each provider including :
 - number of outages (cell towers, T1 lines, head-ends, etc).

- reasons for outages and large effected areas.
- Restoration needs for the providers including: coordination with debris removal, generator deployment, escalation between providers on priority T1 lines, escalation to utilities on power restorations.
- Projected restoration timelines

Observations

Observation #1: The providers consider most of the information discussed to be confidential and wish the data to be protected from disclosure to the public or to their competitors. This made discussing details in the broader group very difficult. We were successful discussing summary data in the broader group and leaving the details for the individual discussion.

Observation #4: Only one of the major commercial carriers equipped the majority of their cell towers with generator backups. Those that utilized battery backup began to see failures as the batteries became exhausted. It took several days to bring additional generators into the state.

Observation #5: Many citizens have moved to VOIP/Cable for home telephone services that requires commercial power to operate in the home. The loss of power for long periods of time and the degradation of wireless services due to battery drain created areas without communication.

Observation #6: Cable outages and restoration tracked closely with commercial power loss and restoration. Embedding cable providers with utility companies improved restoration times.

Observation #10: Carriers reported that the Task Force structure focused on communication made it easier to deal with the needs of the EOC.



GOVERNOR'S TASK FORCE AFTER ACTION REVIEW

NAME OF TASK FORCE: Mass Care/Sheltering

TASK FORCE CO-CHAIRS: Mary Duley, RN, MA (chair from 10/30-11/4/11), Department of Public Health; Pamela Giannini (chair from 11/4-11/10/11), MSW, Department of Social Services

PARTICIPATING TASK FORCE MEMBERS: Ron Johnson (211), Valerie Black and Seth Gardner (FEMA Liaisons), Bert Plant (DCF), Stacey Hafen (ARC), Dennis Mitchell (DDS), Ellen Blaschinski and Barbara Dingfelder (DPH), Brenda Bergeron (DEMHS), LTC J. Dano (CTNG), and Kate McCarthy-Barnett, Disability Integration Specialist- Region 1 (FEMA) – available by phone for consultation throughout event

TASK FORCE ROLE(S) IN EVENT: Mass Care/Sheltering Task Force was stood up the afternoon of Sunday, October 30th 2011 and stood down in the AM of Thursday, November 10th 2011 (last night residents in shelters was 9th November 2011).

Daily Activities: Had daily meetings/conference calls starting on Monday, October 31st, which continued until the last shelter was closed on Thursday, November 10th; monitored the mass care taskforce email box; provided updates at the daily Governor's Briefings for State Agencies and local municipalities; Guidance Memos developed by TF and sent out to the local CEOS and EMDs throughout the response.

Staffing at SEOC: 24/7 monitoring of TF email by task force members who had desks staffed at SEOC

Meetings/Conference Calls: daily; DPH members also had daily conference calls with acute care hospitals and local health and ESF-8 chairs and issues related to mass care/sheltering were always one of the agenda items for the calls.

Interaction with other Task Forces & Agencies represented at the SEOC: Commodities Task Force; ARC Desk, 211 Desk, DPH, SEOC Ops Desk, FEMA Liaisons, CTNG

BEST PRACTICES:

1. Daily Guidance to Local CEOs and EMDs regarding shelter management at local level
2. Expanding the membership to include ALL the agencies involved in sheltering, i.e. DDS, DCF & DSS...and having CTNG as member of the WG
3. Interactive communication with various local stakeholders (e.g., government, LHDs, hospitals) to determine shelter needs and facilitate coordinating responses

RECOMMENDATIONS FOR IMPROVEMENT:

1. It will be important in the future for all task force members to have a clear understanding of what the purpose of the Mass Care Task Force is.
2. Contingency Plans need to be developed and/or utilized at the local level...must follow their respective Regional Emergency Response Plans.
3. At the local level needs to be a better understanding of their responsibility as it relates to being able to provide shelter services to ALL members of their community, and not to separate out

individuals, putting them into “separate shelters”. Definitely need to clarify the issue of the separate shelters established by some towns for those with physical disabilities and the issue with the DOJ.

4. Utilizing WebEOC correctly...not all shelter activity reported accurately. **The Task Force can't emphasize enough the importance of a system for obtaining timely and accurate shelter counts. The tool used (WebEOC, calling in to the Red Cross/2-1-1, etc.) doesn't matter nearly as much as making sure that every jurisdiction with an open shelter reports those numbers daily. The Task Force and the entire Operations Section should be using those numbers to drive decisions.**
5. **While the idea of “regional shelters” or “multiple communities coming together to plan for joint shelter operations” is a difficult issue with the towns, the Task Force suggests that it be looked at it again for this kind of event.** We all saw this time that the towns can only keep a shelter open for so long. In a larger event, that would have rapidly become a serious problem.
6. Coordination with the Commodities Task Force for verification of items ordered/requested based on shelter residents and to confirm shelter listed on WebEOC.
7. DEMHS should have a Mass Care Coordinator position that would work with the other key agencies that support sheltering during this type of event. Until this is a permanent position in the near future Connecticut might consider using the Emergency Management Assistance Compact (EMAC) to bring in a mass care coordinator from another state in this kind of event



Debris Management Plan Implementation: Key Info December 14, 2011 --Storm Alfred

10-30-11 Governor activated the state disaster debris removal and monitoring contracts and activated the Interagency Debris Management Task Force [DESPP/DEMHS, DEEP, DOT, DAS, CT National Guard, CT DOL-ConnOSHA, US DOL-OSHA, FEMA]

Implementation of *CT Natural Disaster Plan* and *CT Disaster Debris Management Plan* ongoing.

There are seven (7) temporary debris management sites supporting state agencies and seven (7) wood chip management sites supporting state agencies and municipalities. There are several municipal sites identified through the state's emergency authorization issued to all municipalities.

To date, the state's activated standby contractors have removed more than:

- **1.6 million cubic yards of woody debris**
- **90,000 hazardous trees and hanging branches removed**
- About **500 local residents working as monitors at peak** of response; currently still about 250 working as monitors; hundreds of trucks and equipment operators working
- State contractor supporting DOT by removing roadside debris in **44 Towns with DOT-maintained roads and along Route 2 and I-384.**

Debris team assessed whether any sewage treatment plants, pump stations, resource recovery facilities, or communication towers have access blocked by debris without wires.

Debris removal assistance/coordination provided in response to requests from **Sprint** (12 towers) and **Comcast** (one location).

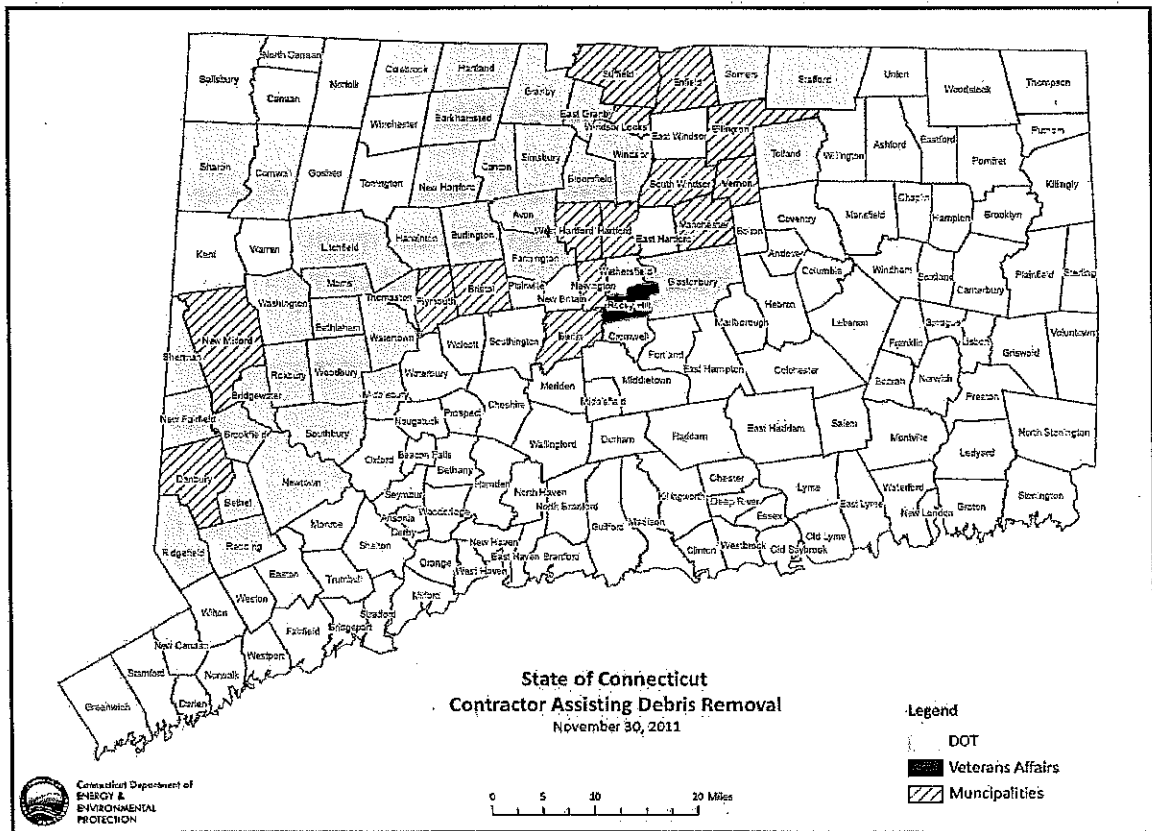
Connecticut National Guard completed emergency route clearance work in **34 towns.**

16 Municipalities to date engaged in mutual agreements with state's standby contractors:

Berlin	New Milford
Bristol	Newington
Danbury	Plymouth
Ellington	South Windsor
East Granby	Suffield
Enfield	Vernon
Hartford	West Hartford
Manchester	Windsor Locks

State agencies that requested and received assistance from standby disaster debris removal and monitoring contractors include **DOT, Connecticut Department of Veterans Affairs** [Veterans Home and Health Care Facility and Cemetery in Rocky Hill], and **Department of Energy and Environmental Protection.**

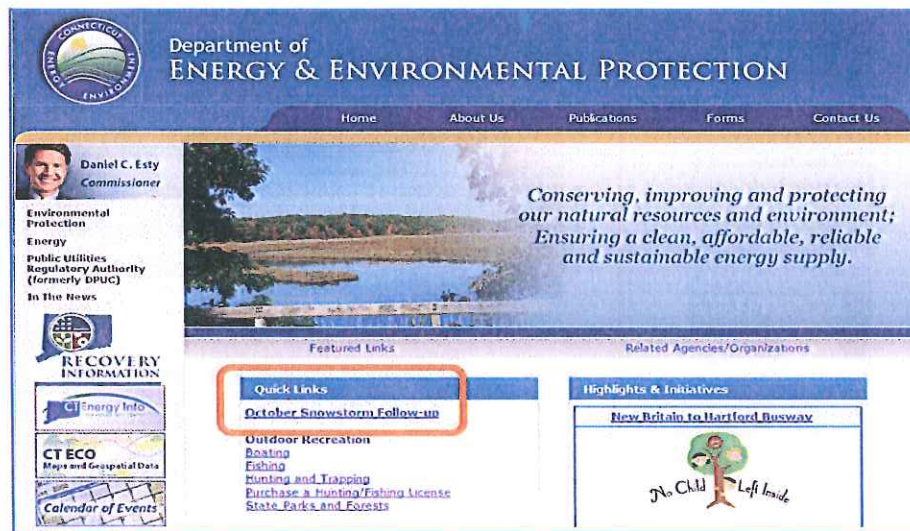
- The summary map below depicts towns in which the state's contractor has collected disaster debris for state agencies and municipalities.



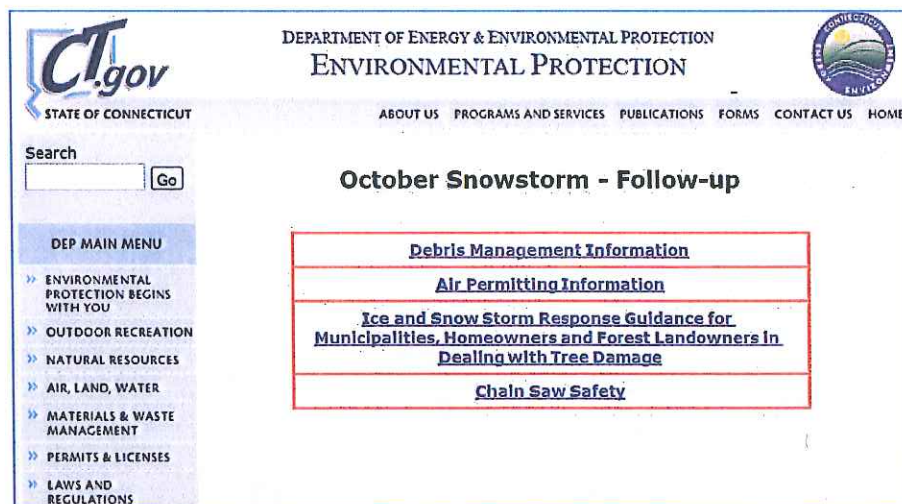
- There are seven final destination sites. These are locations that are **managing the wood chips for future potential reuse as mulch or as an ingredient in compost.**
- Two statewide emergency authorizations were issued for municipalities and state agencies regarding disaster debris management [October 31] and wood chip management [November 17]. Individual emergency authorizations have been issued to permit temporary debris management.
- The locations of the debris management sites are located to ensure that there are an ample number of debris management sites within a cost-effective distance.
- ConnOSHA and US OSHA have been kept informed of the temporary debris management sites. DEEP provides daily field presence at these locations.

Outreach/Awareness of Available Assistance:

- Through the State EOC Operations Desk E-mails were periodically sent to Regional Coordinators and Municipal Emergency Management Directors (EMD), CEO and/or Director of Public Works providing information about Emergency Authorizations, fact sheets, and links to DEEP website
- Additionally information was distributed through the CT Conference of Municipalities and the CT Council of Small Towns, and UConn's Public Works Directors listserve. The following web pages were updated:



The screenshot shows the homepage of the Department of Energy & Environmental Protection (DEEP). At the top, the DEEP logo is on the left, and the text "Department of ENERGY & ENVIRONMENTAL PROTECTION" is on the right. Below the logo is a navigation menu with links for Home, About Us, Publications, Forms, and Contact Us. A banner image of a lake with a boat is featured, with the text: "Conserving, improving and protecting our natural resources and environment; Ensuring a clean, affordable, reliable and sustainable energy supply." Below the banner are sections for "Featured Links" and "Related Agencies/Organizations". In the "Featured Links" section, a box titled "Quick Links" contains a link for "October Snowstorm Follow-up" which is highlighted with a red box. Other links in this section include "Outdoor Recreation", "Boating", "Fishing", "Hunting and Trapping", "Purchase a Hunting/Fishing License", and "State Parks and Forests". The "Related Agencies/Organizations" section contains a link for "New Britain to Hartford Busway" and a "No Child Left Inside" logo.



The screenshot shows a specific page on the DEEP website titled "October Snowstorm - Follow-up". The page header includes the "CT.gov" logo, the text "STATE OF CONNECTICUT", and the DEEP logo. A navigation menu at the top right lists "ABOUT US", "PROGRAMS AND SERVICES", "PUBLICATIONS", "FORMS", "CONTACT US", and "HOME". A search bar is located on the left. On the left side, there is a "DEP MAIN MENU" with links to "ENVIRONMENTAL PROTECTION BEGINS WITH YOU", "OUTDOOR RECREATION", "NATURAL RESOURCES", "AIR, LAND, WATER", "MATERIALS & WASTE MANAGEMENT", "PERMITS & LICENSES", and "LAWS AND REGULATIONS". The main content area features a large heading "October Snowstorm - Follow-up" and a list of links, each enclosed in a red box: "Debris Management Information", "Air Permitting Information", "Ice and Snow Storm Response Guidance for Municipalities, Homeowners and Forest Landowners in Dealing with Tree Damage", and "Chain Saw Safety".



DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
ENVIRONMENTAL PROTECTION



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State of Connecticut Disaster Debris Management Preparedness

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- » USED OIL
- » WASTEWATER
- » WASTE TRANSPORTERS & FACILITIES
- » INFORMATION FOR MUNICIPALITIES
- » WASTE DISPOSAL INFORMATION FOR INDIVIDUALS AND HOMEOWNERS
- » REGULATING WASTE MAIN PAGE
- » DEP MAIN MENU



Department of Energy and Environmental Protection
75 Elm Street
Hartford, CT 06105-8127

Phone: (800) 434-3000
Voice/TTY



Information for Municipalities:

- [Site Selection Guide for Temporary Debris Storage and Reduction Sites \(TDSRS\)](#)
- [Emergency Authorization Fact Sheet for Managing Storm Generated Debris](#)
- [Downed Trees](#)
- [New - Emergency Authorization for Wood Chip Management - Storm Alfred](#)
- [New - Municipal Emergency Authorization - Storm Alfred \(October Snowstorm\)](#)
- [New - Information Pertaining to Debris Management Contracts](#)
- [New - FEMA Debris Management Brochure](#)
- [New - CT Municipal Mutual Agreement - AshBritt \(debris removal\)](#)
- [New - CT Municipal Mutual Agreement - SAIC/EDR \(monitoring\)](#)
- [New - Best Management Practices - Force Account Labor & Equipment for Debris Management](#)
- [New - FEMA Guidance on Debris Management Contracting](#)
- [Municipal Emergency Authorization - Hurricane Irene](#)
- [Municipal Guidance on Use of State Disaster Debris Removal and Monitoring Contracts](#)
- [Fact Sheet - Appointment of Local Open Burning Official and Guidance on Brush Management Options](#)

Information for Municipalities and Residents:

- [New - Tree Debris Pickup Planned along State-Maintained Roads](#)
- [Solid Waste Management - Household Garbage: Storm Debris](#)
- [Picking up the Pieces - Putting Your Debris at the Curb for Pickup](#)
- [Important Health Information - Hurricane Irene \(CT DPH\)](#)
- [Public Information Concerning Disaster Debris Pickup](#)

Plans, Guidance Documents and Contracts	Resources	DEEP Contacts
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DECEMBER 14, 2011 – TWO STORM PANEL

INTERAGENCY DEBRIS MANAGEMENT TASK FORCE –FACT SHEET

August 2006 – EPA & USACE meet with DEP and DEMHS

2007 – Updating of DEP Disaster Debris Management Plan
Preparation of RFP

June 2008 Contracts Awarded – First State Contracts in the Country
State Agencies named in Contracts – DAS, DEEP, DEMHS/DESPP/DOT

Dec 2008 – AshBritt and BDR Briefing
Committees Formed – Policy & Procedures, IDMTF, TDSRS, Finance,
Public Information and Education

Disaster Debris Management Concept of Operations Plan developed and revised as
necessary 2009-2010

November 13, 2009 Disaster Debris Management Workshop "Strengthening Interagency
Planning, Communication, and Coordination."

April 2010 - The New England Office of the U.S. Environmental Protection Agency (EPA)
selected the Connecticut Disaster Debris Plan Team to receive an Environmental
Merit Award.

June 2010 Tabletop Exercise

December 2010 – Contracts extended to June 30, 2014. (Would have expired June 30, 2011)

August 26, 2011 – Contracts extended for use by municipalities directly.

AGENCIES INVOLVED IN INTERAGENCY DEBRIS MANAGEMENT TASKFORCE:

DAS, DEEP, DEMHS/DESPP, DOT, CTNG, CT DOL-OSHA, DMV, OPM, DPH

ASHBRITT, SAIC/BDR, US DOL-OSHA, FEMA

DEMHS/DESPP administers FEMA Public Assistance Program

CONNDOT administers USFHWA Emergency Relief Fund

*Submitted by Judy Pahl, IDMTF Leader, DEMHS/DESPP Emergency Management
Planning Specialist*

GOVERNOR'S TASK FORCE AFTER ACTION REVIEW

NAME OF TASK FORCE: Mass Care/Sheltering

TASK FORCE CO-CHAIRS: Mary Duley, RN, MA (chair from 10/30-11/4/11), Department of Public Health; Pamela Giannini (chair from 11/4-11/10/11), MSW, Department of Social Services

PARTICIPATING TASK FORCE MEMBERS: Ron Johnson (211), Valerie Black and Seth Gardner (FEMA Liaisons), Bert Plant (DCF), Stacey Hafen (ARC), Dennis Mitchell (DDS), Ellen Blaschinski and Barbara Dingfelder (DPH), Brenda Bergeron (DEMHS), LTC J. Dano (CTNG), and Kate McCarthy-Barnett, Disability Integration Specialist- Region 1 (FEMA) – available by phone for consultation throughout event

TASK FORCE ROLE(S) IN EVENT: Mass Care/Sheltering Task Force was stood up the afternoon of Sunday, October 30th 2011 and stood down in the AM of Thursday, November 10th 2011 (last night residents in shelters was 9th November 2011).

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Staffing at SEOC: 24/7 monitoring of TF email by task force members who had desks staffed at SEOC

Meetings/Conference Calls: daily; DPH members also had daily conference calls with acute care hospitals and local health and ESF-8 chairs and issues related to mass care/sheltering were always one of the agenda items for the calls.

Interaction with other Task Forces & Agencies represented at the SEOC: Commodities Task Force; ARC Desk, 211 Desk, DPH, SEOC Ops Desk, FEMA Liaisons, CTNG

BEST PRACTICES:


1. Daily Guidance to Local CEOs and EMDs regarding shelter management at local level
2. Expanding the membership to include ALL the agencies involved in sheltering, i.e. DDS, DCF & DSS...and having CTNG as member of the WG
3. Interactive communication with various local stakeholders (e.g., government, LHDs, hospitals) to determine shelter needs and facilitate coordinating responses

RECOMMENDATIONS FOR IMPROVEMENT:

1. It will be important in the future for all task force members to have a clear understanding of what the purpose of the Mass Care Task Force is.
2. Contingency Plans need to be developed and/or utilized at the local level...must follow their respective Regional Emergency Response Plans.
3. At the local level needs to be a better understanding of their responsibility as it relates to being able to provide shelter services to ALL members of their community, and not to separate out

individuals, putting them into “separate shelters”. Definitely need to clarify the issue of the separate shelters established by some towns for those with physical disabilities and the issue with the DOJ.

4. Utilizing WebEOC correctly...not all shelter activity reported accurately. **The Task Force can't emphasize enough the importance of a system for obtaining timely and accurate shelter counts. The tool used (WebEOC, calling in to the Red Cross/2-1-1, etc.) doesn't matter nearly as much as making sure that every jurisdiction with an open shelter reports those numbers daily. The Task Force and the entire Operations Section should be using those numbers to drive decisions.**
5. **While the idea of “regional shelters” or “multiple communities coming together to plan for joint shelter operations” is a difficult issue with the towns, the Task Force suggests that it be looked at it again for this kind of event.** We all saw this time that the towns can only keep a shelter open for so long. In a larger event, that would have rapidly become a serious problem.
6. Coordination with the Commodities Task Force for verification of items ordered/requested based on shelter residents and to confirm shelter listed on WebEOC.
7. DEMHS should have a Mass Care Coordinator position that would work with the other key agencies that support sheltering during this type of event. Until this is a permanent position in the near future Connecticut might consider using the Emergency Management Assistance Compact (EMAC) to bring in a mass care coordinator from another state in this kind of event




Governor Malloy's Working Group:
Two Storm Panel
December 14, 2011




Debris Management Overview

Tropical Storm Irene August 28, 2011
Snow Storm Alfred October 29, 2011



State of Connecticut
Interagency Debris Management Task Force




Irene Storm Debris





- o Downed trees and branches
- o Structural materials along coast
- o Flood debris



Alfred Storm Debris





- o Downed trees and branches; twice the volume of Irene
- o Hazardous trees and branches cut and collected



Connecticut's Preparation for Disaster Debris Management

- **Natural Disaster Plan** 2006, updated 2009
- **Disaster Debris Management Plan, 2008**
 - FEMA approved 2008
- **State Standby Contracts for [debris removal](#) and [monitoring of debris removal](#) operations**



Interagency Debris Management Task Force

- Governor activated task force in both storms. Coordinates the collection and disposal of storm-generated debris for state agencies and municipalities requesting assistance via Emergency Operations Center.
- Manages the pre-positioned emergency contractors (AshBritt and SAIC) to augment State forces for removal and documentation.
- Agencies issue emergency authorizations as needed.

Task Force

DESPP-DEMHS
DEEP
DOT
DAS
OPM
CT National Guard
DOL-CannOSHA
US OSHA
US FEMA
NU
UI

Additional entities:
CCM & COST;
DMV; US EPA, USDA-NRCS; USDA-Forest Service; UConn

State Implementation Process




- Provided by the Concept of Operations Plan
 - Guidance for the State, its contractors, and other parties to facilitate the removal, management, collection and disposal of debris.
 - Provides a pre/post event timeline and related activity and/or plan execution action items.
- Executed by the **Interagency Debris Management Task Force**

Governor Malloy activated standby disaster debris management contractors in both storms: on 8/26/11 (pre-event) & 10/30/11

Phase 1: Emergency Push & Shove (first 70 hours)

Task Force deployed activated standby disaster debris removal contractor or National Guard to assist:

- road clearance for power companies;
- debris clearance from access roads to communication towers or other critical Infrastructure;
- municipalities.

Phase 2: Debris Removal and Recovery

Post 70 hour period

- Towns may contract directly with state’s contractor, or may competitively select contractor of their choice
- Contracts must be competitively bid to be eligible for federal reimbursement



Storm Alfred—Scope of activity—standby contractors

FEMA requires County-wide disaster declaration for a town to seek reimbursement

State and Towns must carefully document and monitor all activities related to debris removal and management for final recycling or disposal

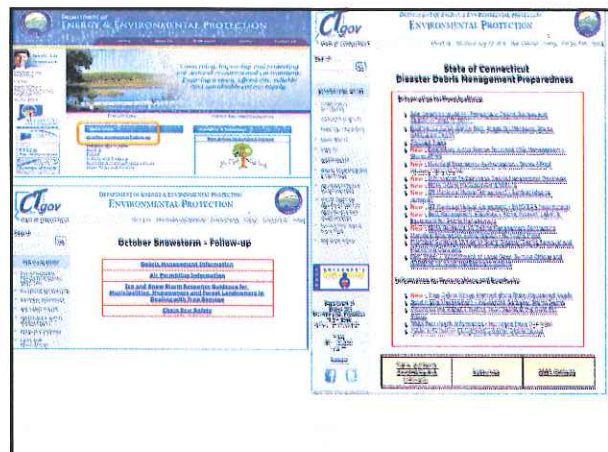
State agencies (DOT, VA, DEEP) and 16 municipalities using standby contractors for Storm Alfred

- Berlin
- Bristol
- Danbury
- Ellington
- East Granby
- Enfield
- Hartford
- Manchester
- New Milford
- Newington
- Plymouth
- South Windsor
- Suffield
- Vernon
- West Hartford
- Windsor Locks



DEEP Web Site Information

- **Information for Municipalities:**
- [Site Selection Guide for Temporary Debris Storage and Reduction Sites \(TDSRS\)](#)
- [Emergency Authorization Fact Sheet for Managing Storm Generated Debris](#)
- [Downed Trees](#)
- [Municipal Emergency Authorizations](#)
- [Municipal Guidance on Use of State Disaster Debris Removal and Monitoring Contracts](#)
- [Fact Sheet - Appointment of Local Open Burning Official and Guidance on Brush Management Options](#)

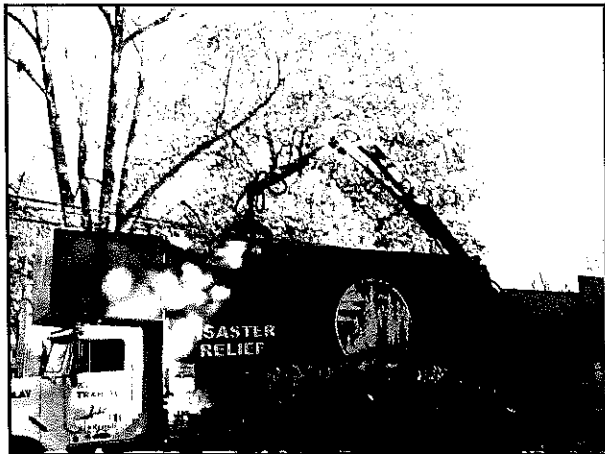


Storm Alfred—summary of work of activated standby contractor

- 1.6 million cubic yards of woody debris collected to date
 - for DOT and state agencies and
 - 16 municipalities using state's standby contractor
- 90,000 hazardous trees and hanging branches removed to date
- About 500 local residents working as monitors at peak of response; currently still about 250 working as monitors; hundreds of trucks and equipment operators used
- State contractor supporting DOT by removing roadside debris in 44 Towns with DOT-maintained roads
- Almost 100% of trucks hauling out wood chips from debris staging sites to wood chip recycling locations are CT trucks
- 19 of 22 temporary debris management sites are operated by CT companies



Windsor, Conn., November 8, 2011 -- Photo by Norman Lenberg/FEMA



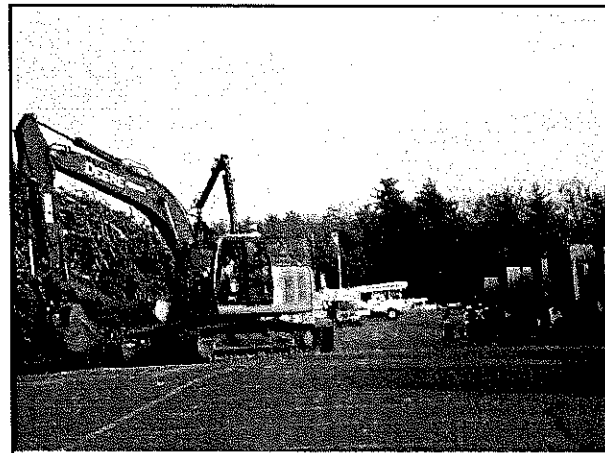




Windsor, Conn., Nov. 19, 2011 — Contractor crews unload "green waste" at a debris reduction site here. Photo by Norman Lentburg/FEMA



Windsor, Conn., Nov. 19, 2011 — Contractor crews unload "green waste" at a debris reduction site here. Photo by Norman Lentburg/FEMA





Lessons Learned: Debris Management

- There is an opportunity for improving the pairing of state resources with utility crews for road clearance.
- There is an opportunity for continued planning and coordinated investment in IT and GIS capabilities by and between DOT/DESPP-DEMHS/DEEP/DAS, (State GIS GeoLab), utilities, municipalities, and National Guard.
- Debris removal is a separate and distinct priority from power restoration, though intertwined from the perspective both of critical infrastructure and municipalities.
- Recycling material locally results in significant cost savings over disposal at distant facilities, and is consistent with state's Solid Waste Management Plan.
 - Therefore the state can keep costs down if we understand what the reuse and recycling market can absorb in a large debris-generating event and if state authorizations create ability for facilities to accommodate storage.
 - The state and municipalities need to identify additional pre-designated debris management sites at both the state and local level.

Summary

- A major natural disaster can cost the State millions of dollars just for debris removal and disposal.
- Pre-positioned contracting and pre-designated locations promotes managing debris cost effectively and in a coordinated manner, resulting in cost savings.
- Documentation is key for reimbursement, and standby documentation/monitoring contractor is key for ensuring state's capacity to document debris management.

In Storm Alfred the tip fee for receiving chipped woody debris has been \$0 for 100% of debris managed to date.

Wood chips are being managed at temporary wood chip management locations for future reuse and recycling.





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①

Governor's Two-Storm Panel: Distribution Infrastructure Hardening Options and Recommendations

**Dana Louth, CL&P VP - Infrastructure Hardening
December 14, 2011**



Topics for today's presentation

- Review of infrastructure hardening/expected outcomes
- Share experiences from other utilities and states
- Describe options, unit costs and total costs for infrastructure hardening scenarios at CL&P
- Discuss CL&P's initial infrastructure hardening recommendations and implications



Reprise of Distribution Infrastructure Hardening Techniques and Application Options

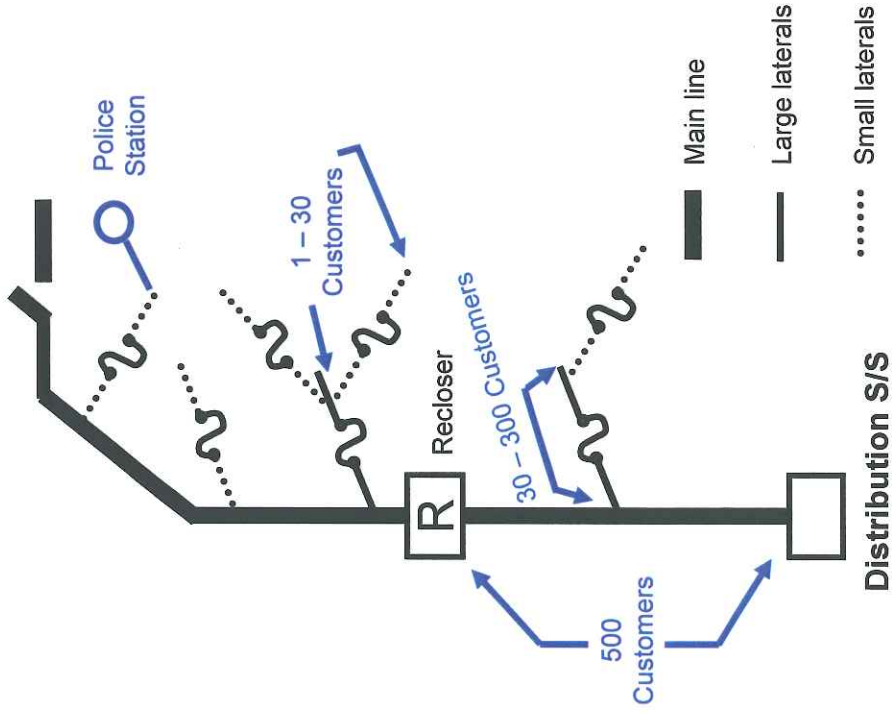
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As we discussed previously....

Distribution infrastructure hardening techniques fall into four general categories

- Vegetation Management
 - Cycle – Frequency of trim
 - Clearance specifications
 - Risk tree removal
 - Incremental overhang removal
- Structural Hardening
 - Poles, cross arms, wire ties
 - Pole guying
 - Span length control
- Electrical Hardening
 - Wire size and type
 - Line sectionalizing
 - Lightning protection
- Undergrounding
 - Replace overhead conductors with underground
 - Requires replacement of some customer-owned equipment

These techniques can be applied to different portions of the infrastructure



An optimal hardening program will apply effective technique(s) to the portions of the circuit where there will be significant impact.



Effects of Vegetation Management Techniques

How does storm hardening reduce the impact of major storm events?

Hardening Technique	Targeted Areas	Description of Effect of Hardening
Vegetation Management	Trees	<ul style="list-style-type: none">Removal of overhanging branches and trees at risk of falling into utility lines reduces tree initiated weather related interruptions



Trimmed to specifications, but with overhangs



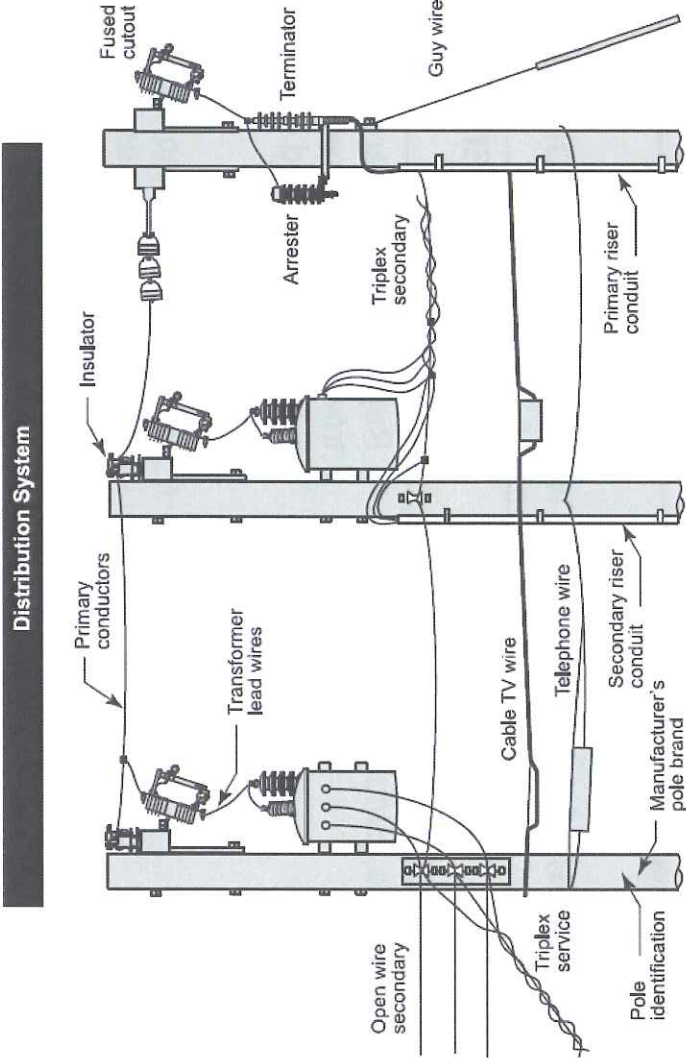
After enhanced tree trimming

Expanded or enhanced tree trimming is the most cost effective way of reducing storm impact on distribution systems.

Effects of Structural Hardening Techniques

How does storm hardening reduce the impact of major storm events?

Hardening Technique	Targeted Areas	Description of Effect of Hardening
Structural	Poles, pole tops, cross arms, guying	<ul style="list-style-type: none"> Replaced, upgraded or "unloaded" structures supporting utility lines will better withstand higher mechanical stresses which occur during (ice, snow, wind) events



Structural upgrades are generally targeted toward bringing older construction up to more modern requirements and standards which result in a stronger infrastructure.



Effects of Electrical Hardening Techniques

How does storm hardening reduce the impact of major storm events?

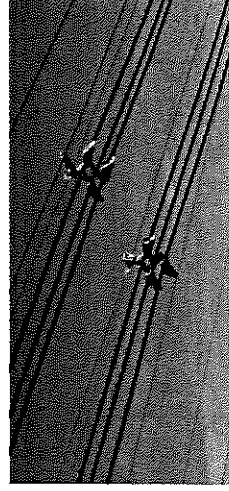
Hardening Technique	Targeted Areas	Description of Effect of Hardening
Electrical	Wire, circuit protection	<ul style="list-style-type: none">• Replacement of "bare" wire with "covered" tree resistant wire reduces number of tree related outages and is often mechanically stronger• Adding in line protective devices (fuse/cutout) reduces numbers of customers impacted by outages



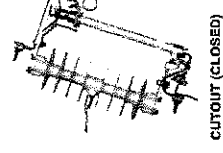
Bare Wire Cable



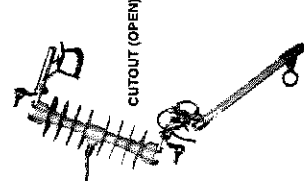
Covered Wire Cable



Spacer Cable



CUTOUT (CLOSED)

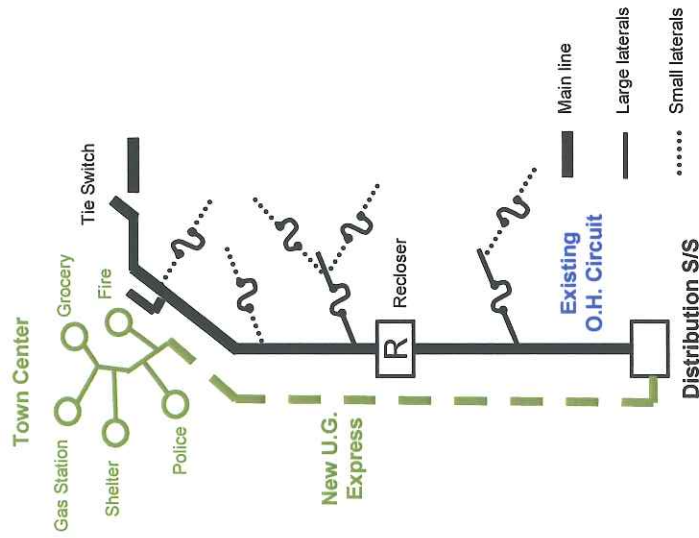


CUTOUT (OPEN)

Effects of Undergrounding Techniques

How does storm hardening reduce the impact of major storm events?

Hardening Technique	Targeted Areas	Description of Effect of Hardening
Undergrounding	Overhead circuitry	<ul style="list-style-type: none"> Underground circuitry which replaces or supplements overhead circuitry is largely impervious to most storm events



The "express" underground circuit concept places important facilities in town or regional centers on a supply that is unlikely to be impacted by major storms in the northeast.



Infrastructure Hardening Experience in Florida

- Florida Public Service Commission mandated a series of storm hardening activities after 2005 hurricanes¹
 - Eight-year wooden pole inspection program
 - Reduction in the vegetation management cycle
 - Distribution geographic system (GIS) enhancement
 - Post-storm data collection and forensic analysis
 - Collaborative research
 - Effects of hurricane winds and storm surge
 - Vegetation management
 - Undergrounding of utility infrastructure

- Florida Power & Light (FPL) also implementing new standards for key facilities including revision of pole design criteria and is conducting incremental hardening strategies to increase strength of circuit backbones, including²:
 - Use of non-wood pole materials (steel, concrete) for critical poles
 - Shorten the span between poles
 - Install guy wires and upgrade cross arm materials

¹ Represent distribution and storm hardening related initiatives identified in Order No. PSC-06-0351-PAA-EI.

² FPL Electric Infrastructure Storm Hardening Plan, filed May 3, 2010.



Infrastructure Hardening Experience in Texas and Oklahoma

Texas Analysis of Cost effective Storm Hardening Programs after Hurricanes Rita and Ike ¹

- Improved post-storm data collection or carefully designed post-storm data collection programs that capture key features at failure sites and are statistically significant.
- Hazard tree removal (dead or diseased trees outside of a utility's right of way).
- Targeted electric distribution hardening focusing spending to high-priority circuits, important structures, and structures that are likely to fail.

Oklahoma Gas & Electric after the December 2007 Ice Storm²

- Aggressive Vegetation Management Investment Breakdown
 - Move to a four year cycle
 - Removal of risk trees
 - Herbicide program for rural areas
 - 4 ft additional clearance over standard
 - Removal of large trees on feeder lines
 - Remove overhang during cycle
 - "Right tree in the right place" program
- Pilot to install breakaway connectors on the pole side of the service drops.
- Pilot to convert overhead services to underground.
- Increased investments in distribution automation/smart grid.

¹ Cost-benefit analysis of the deployment of utility infrastructure upgrades and storm hardening programs. Quanta Technologies for Public Utilities Commission of TX. March 2009.
² OG&E Distribution Hardening Plan presentation to Oklahoma Corporation Commission. August 2008.



Summary of Recent Undergrounding Studies

Texas – 2009¹

- Cost of undergrounding was estimated at \$35 billion for the entire regional distribution system making it cost prohibitive.
- Selective undergrounding could make sense for new land development and to serve critical facilities when other excavation work is ongoing.

Oklahoma – 2008²

- Information gathered indicated that undergrounding all the facilities is not a feasible solution.
- Found that no Public Utility Commission has found a mechanism to permit undergrounding on an universal basis.
- Preferred approach for undergrounding is to focus on certain areas (i.e., poorly performing circuits, secondary line extensions).
- Estimated costs at \$30 billion for just distribution and that electric bills would go up \$80 to \$260 per month.

Florida – 2008³

- Determined that it is well-known that the conversion is costly and costs always exceed benefits.
- Found that there is insufficient data to show that this high cost is 100% justifiable by quantifiable benefits such as reduced O&M and reduced hurricane damage.

¹ Electric Service Reliability in the Houston Region, Mayor's Task Force Report, April 2009.

² Oklahoma Corporation Commission's Inquiry into Undergrounding Electric Facilities in the State of Oklahoma, Prepared and Submitted by Oklahoma Corporation Commission Public Utility Division Staff, June 2008.

³ Undergrounding Assessment Phase 3 Report: Ex Ante Cost and Benefit Modeling, by Quanta Technology, May 2008.

Studies have shown that undergrounding is not a cost effective solution, except on specific targeted situations.



Unit Cost Estimates of Different Hardening Activities

Initial estimates

	Hardening activity	Unit cost	Installed cost per unit ¹
Vegetation management	Four year cycle	Mile	\$6,000
	Enhanced tree trim and removal, focusing on overhang and risk tree removal	Backbone mile	\$20,000
		Lateral mile	\$40,000
Structural hardening	Pole replacement to improve storm performance	Backbone pole	\$6,000
		Lateral pole	\$5,000
	Pole top/cross arm/pin/tie refurbishment	Pole	\$1,000
	Pole guying	Pole	\$2,000
Electrical hardening	Bare wire reconductoring with tree wire (includes poles, cross-arms, covered wires)	Backbone mile	\$700,000
		Lateral mile	\$450,000
	Fuse sectionalizing	Pole	\$1,500
Undergrounding	Express circuit to town center areas undergrounding	UG Mile	\$1,000,000 - \$3,000,000 ²

¹ All-in costs including labor, materials, trucks/vehicles, etc.

² Based on estimates and review of analysis conducted in other jurisdictions



Initial estimates of 10-Year Total Costs of Hardening Activities by Infrastructure Segment on CL&P System

						Initial estimates
	Hardening activity	Harden circuit backbones	Harden large laterals	Harden small laterals	UG express circuits	Total
Vegetation management	Four year cycle	\$13M 208 miles/yr	\$19M 313 miles/yr	\$19M 313 miles/yr	--	\$51M
	Enhanced tree trim and removal	\$84M 4,180 miles	\$250M 6,260 miles	\$250M 6,260 miles	--	\$584M
Structural hardening	Pole replacement	\$157M 26,200 poles	\$197M 39,400 poles	\$197M 39,400 poles	--	\$551M
	Pole refurbishment	\$18M 17,500 poles	\$26M 26,250 poles	\$26M 26,250 poles	--	\$70M
	Pole guying	\$7M 3,500 poles	\$11M 5,250 poles	\$11M 5,250 poles	--	\$29M
Electrical hardening	Bare wire reconductoring	\$0.7B 1,045 miles	\$0.7B 1,565 miles	\$0.7B 1,565 miles	--	\$2.1B
	Fuse sectionalizing	NA	\$8M 5,000 poles	\$8M 5,000 poles	--	\$16M
Under-grounding	Express circuit to town center areas	--	--	--	\$1.0B 500 mi. for 100 circuits	\$1.0B
Total		\$1.0B	\$1.2B	\$1.2B	\$1.0B	\$4.4B
Res. monthly bill impact (year 10)		\$5.89	\$7.13	\$7.13	\$5.88	\$26.03



CL&P's Infrastructure Hardening Recommendation Objectives

- Achieve a significant improvement on infrastructure performance during weather events (small, medium and large).
- Use techniques that have been proven effective at CL&P or elsewhere in the industry.
- Focus on comprehensive review of existing standards to enact changes on an ongoing basis.
- Manage customer bill impacts by focusing on cost-effective solutions and deploying the infrastructure hardening program over time.
- Leverage new distribution automation and smart grid technologies to improve the real time monitoring and operations of the distribution system.



CL&P Key Recommendations

CL&P recommends implementing a 10-year hardening program focused on the circuit backbones and large laterals.

Program would include two key elements:

- Implementation of an enhanced **vegetation management** program.
- Implementation of a **structural and electric hardening** program.

CL&P recommends the initial evaluation of **selective underground options** and **back-up generation** alternatives for town centers and other critical locations.

CL&P is beginning the implementation of three other infrastructure hardening initiatives:

- Evaluation of **existing design standards** to address recent extreme weather conditions.
- Expansion of existing **distribution automation/smart grid** capabilities to enhance real time monitoring and operations of the distribution system through targeted pilots.
- Enhancement of **post-storm forensic** process and capabilities.

Beyond year 10, CL&P might extend **enhanced tree trimming** for small laterals.

	Hardening activity	Harden circuit backbones	Harden large laterals	Total
Vegetation management	Four year cycle	\$13M 208 miles/yr	\$19M 313 miles/yr	\$32M
	Enhanced tree trim and removal	\$84M 4,180 miles	\$250M 6,260 miles	\$334M
Structural hardening	Pole replacement	\$157M 26,200 poles	\$197M 39,400 poles	\$354M
	Pole refurbishment	\$18M 17,500 poles	\$26M 26,250 poles	\$44M
	Pole guying	\$7M 3,500 poles	\$11M 5,250 poles	\$18M
Electrical hardening	Bare wire reconductoring	\$0.7B 1,045 miles	\$0.7B 1,565 miles	\$1.4B
	Fuse sectionalizing	NA	\$8M 5,000 poles	\$8M
Total		\$1.0B	\$1.2B	\$2.2B
Res. monthly bill impact (year 10)		\$5.89	\$7.13	\$13.02



Performance Impact from a Hardening Program

Preliminary Estimates

We estimate that the recommended program would have the following benefits:

- Reduction in numbers of customers out by 30-40%
 - Storm like Irene would reduce customers out from 671k to ~430k
 - Storm like the Nor'Easter would reduce customers from 831k to ~590k
- Reduction in restoration duration by ~2 days in similar events, which leads to reduced storm restoration costs and reduced impact to economic activity in the state.
- Improvement of 35% in annual SAIDI – System Average Interruption Duration Index (from 135 to 100 minutes).
- Reduction in the number of customers with multiple outages and customers with long outage durations
- Reduction in annual O&M expense of ~\$13M.



Additional Impact of a Hardening Program

In addition we believe a hardening program would have additional second level benefits including:

- Enhanced storm preparedness as the company would have permanent access to a higher number of crews.
- Economic boost from the hardening investment leading to increased number of jobs, increased economic activity and increased taxes both for the state and municipalities.
- Important reduction in electric line losses by reconductoring bare wire.
- Ability to establish a plan to address attrition due to an aging workforce.
- Proactive mitigation of the impact of an aging infrastructure.



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Questions

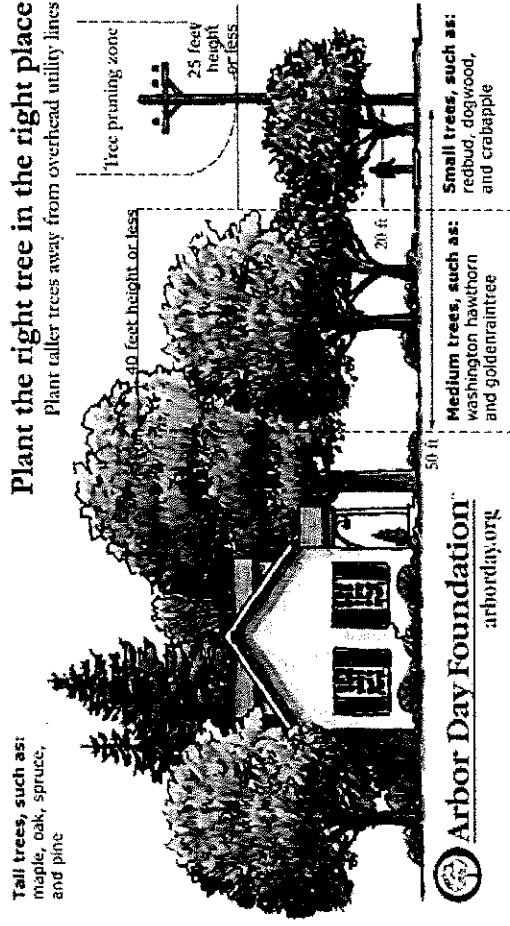
Appendix – Key initiatives



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Implement an enhanced vegetation management program

- Move to a 4 year cycle, including a 2-year mid-cycle inspection/trim on backbones.
- Conduct an enhanced tree trimming program on all backbone and large laterals rights-of-way, with special focus on removal of overhangs and risk trees.
- Incent a Right Tree, Right Place program.



Source: Arbor Day Foundation.



Appendix – Key initiatives

Implement a long-term structural and electric hardening program

- Invest significant capital over the next 10 years to harden the system, with initial focus on circuit backbones, large laterals, and town centers.
- Develop a hardening program based on a detailed assessment by circuit and pole using outside engineering services where necessary. Options for circuit/pole will include:
 - Older (higher class) pole replacements
 - Addressing heavily loaded poles
 - Refurbishment of pole tops, cross-arms, pins, ties, etc. where need is indicated by age, visual inspection or loading
 - Guying upgrade as needed for critical structures
 - Bare wire reconductoring in heavily treed areas
 - Sectionalize fusing



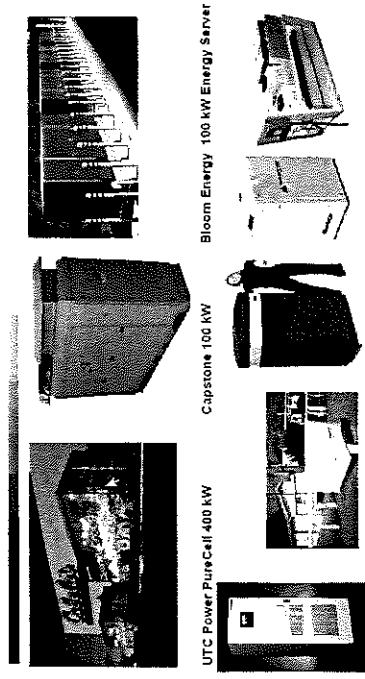
Appendix – Key initiatives

Evaluate selective underground options and back-up generation alternatives

- Given the wide variance in undergrounding cost estimates and CL&P's limited practice, CL&P recommends a partnership with a university to conduct a detailed assessment of undergrounding to truly assess the costs and benefits in the specific circumstances of CL&P's territory.
- In addition CL&P recommends conducting a parallel analysis of the trade-offs between undergrounding and multiple back-up generation options including:
 - Diesel
 - Natural gas
 - Combined heat and power (CHP)
 - Micro-turbine
 - Combustion turbine
 - Fuel cell
 - Emerging/future applications such as battery energy storage and/or use of electric vehicles as back-up generators

State Year of Study	Estimate / Actual Cost	Project Information	Cost per Mile
EEL, 2006	Estimate	Minimum Cost	\$90,000
North Carolina, 2003	Estimate	Minimum Cost	\$151,000
Maryland, 1999	Estimate	Minimum Cost	\$350,000
Florida, 2007	Actual	Allison Island	\$414,802
Florida, 2007	Actual	County Road 30A	\$893,470
Florida, 2007	Actual	Sand Key	\$917,632
Virginia, 2005	Estimate	Average Cost	\$1,195,000
Oklahoma, 2006	Estimate	Average Cost	\$1,540,000
Florida, 2007	Actual	Pensacola Beach	\$1,588,275
Maryland, 1999	Estimate	Maximum Cost	\$2,000,000
EEL, 2006	Estimate	Maximum Cost	\$2,130,000
North Carolina, 2003	Estimate	Maximum Cost	\$3,000,000

Source: Out of Sight, Out of Mind Revisited - An Updated Study on the Undergrounding Of Overhead Power Lines produced by EEI, December 2009



UTC Power PureCell 400 kW
Capstone 100 kW
Bloom Energy 100 kW Energy Server
RedFlow Battery
ClearEdge Power 5 kW
Pentadyne Flywheel
CFL 2 kW
GreenSmith 6 kW Li-Ion
Source: EPRI.



Appendix – Key initiatives

Consider new design standards to address recent extreme weather conditions

- Re-evaluate design standards for all critical infrastructure assets.

Standards to be re-evaluated include at a minimum:

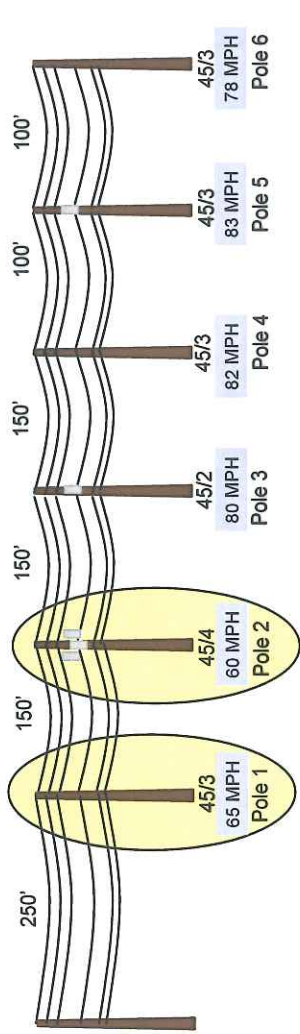
- Pole classes and alternative materials
- Cross arm material options
- Depth of poles depending on soil condition and pole class
- Structure loading
- guidelines/practices
- Spacing between poles
- Guying upgrades
- Break-away conductors/taps
- Others

- Determine like for unlike program replacements

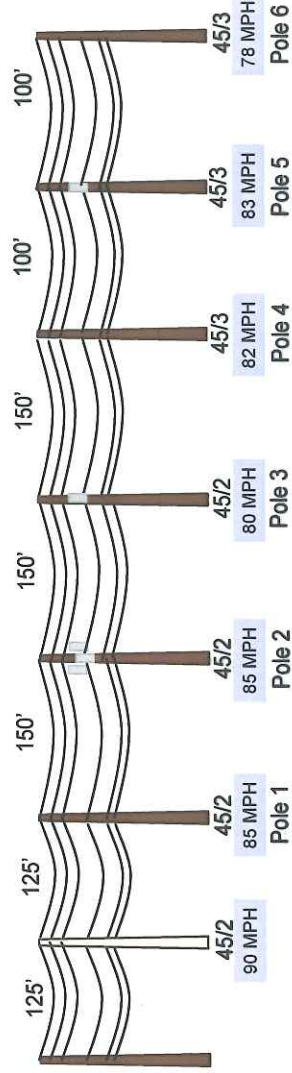
- Use new standards for any going forward construction during normal course of business replacement

Illustrative

Before Incremental Hardening - Lateral



After Incremental Hardening - Lateral



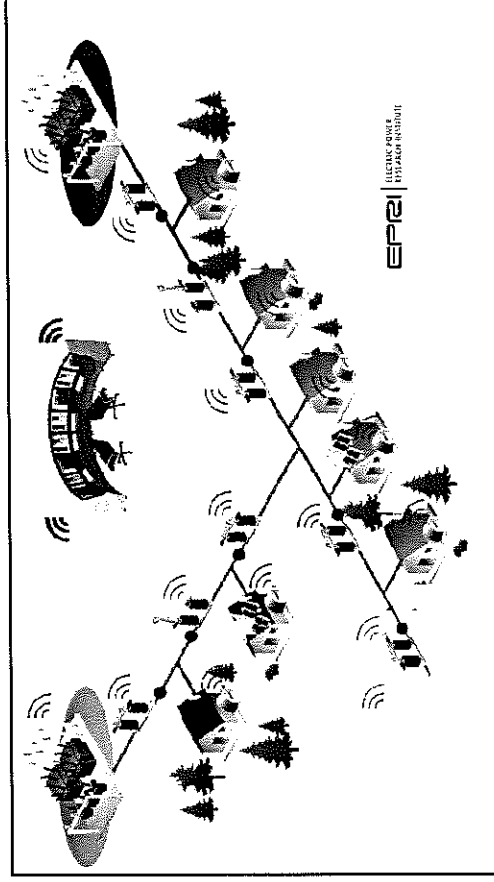


Appendix – Key initiatives

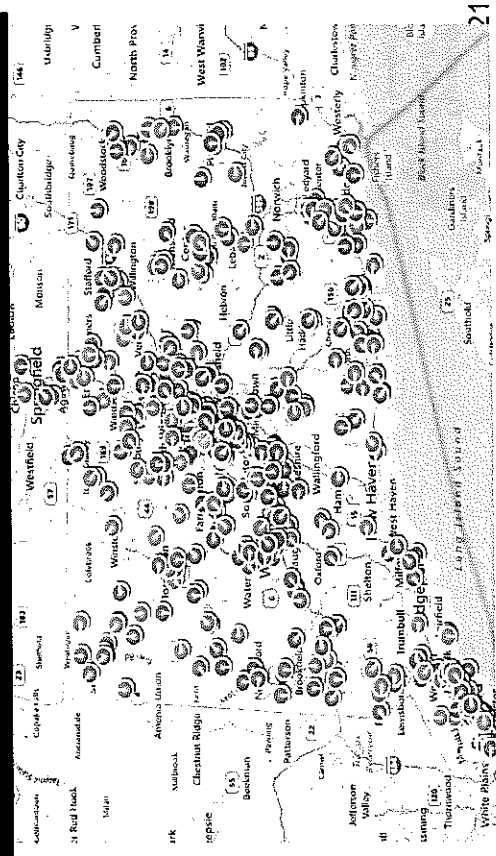
Expand distribution automation/smart grid capabilities to enhance real time monitoring and operations of the distribution system

- CL&P already is able to isolate faults and restore service automatically without operator intervention, representing one of the most automated systems in the country.
- CL&P is considering further automation of the system by launching a pilot to determine the operational implications, costs and benefits of the following next generation smart grid capabilities:
 - Moving from 500 to 250 customer segments through the installation of sectionalizing switches
 - Smart sensors to detect underground, direct buried cable and overhead faults
 - Smart meters to be used for outage detection

➤ Implement technology initiatives that will enhance CL&P's real time awareness of the system (i.e., trouble spots, internal and foreign crew location, work package status, town priority lists, restoration projections) as well as provide enhancements to information available to customers (i.e., web page, mobile applications).



Navtrak GPS Vehicles Statewide View





Testimony of The United Illuminating Company

to The Two Storm Panel

Regarding Electric Utility Infrastructure Hardening Alternatives and

Changes to Restoration Process

December 14, 2011

Introduction

Good afternoon Chairman McGee, Chairman Skiff and Members of the Panel. I am Joe Thomas, Vice President, Electric System Operations & Client Fulfillment of The United Illuminating Company. I appreciate the opportunity to appear before the panel today in order to address questions from the Panel regarding how the electric system can be hardened to withstand impacts from extreme weather events such as the two recent storms but also to withstand the impacts from a more severe event such as a Category 3 hurricane or a major ice storm. I would also like to address various ideas presented by Commissioner Esty during his December 7th testimony. While there has not been much time to consider the Commissioner's testimony, UI believes the Commissioner's strategy regarding resiliency investments will help address some of the vulnerabilities that exist currently in the electric system. UI has read with great interest the Commissioner's testimony on other topics such as distributed generation, smart grids and regulatory incentives and I will briefly share UI's perspective on those topics this afternoon.

The two historic weather events that Connecticut experience recently showed that the electric system has weaknesses. While each storm had slightly different characteristics – Irene had high winds, heavy rainfall and flooding while the October nor'easter had heavy wet snow and high winds – both caused extensive damage to the state's electric infrastructure. The damage was caused mainly by large scale damage to trees, either from entire tree failures or by failures of large limbs which, in turn, broke distribution poles and cross arms, and damaged conductors and transformers. It was the extensive amount of tree damage that impacted our infrastructure and caused the large number of customer outages. In addition to the impacts to the electric system, damage also occurred to overhead telecommunications

equipment, cable television equipment and to the equipment of companies that attach to our distribution poles. This widespread damage complicated the situation as work to restore service required coordination of many resources between utilities to replace and/or repair damaged equipment.

Background

Damage to the UI electric system from storms like Tropical Storm Irene happens in several ways – the wind impacts trees, the utility infrastructure itself (such as when salt water is thrown onto equipment) or damage is caused to the system when objects like roofing material, sheds and debris are picked up by the wind and thrown at the infrastructure. Also, the UI system can be impacted by storm surges that cause coastal and river flooding. Of course, as the October storm demonstrated, the system can also be impacted by ice and snow (with and without leaves) which can have the same impact on the trees as wind.

As required by Connecticut statutes, UI constructs its overhead distribution lines to comply with applicable National Electrical Safety Code (NESC) standards. Connecticut General Statute §16-244i(d) provides that UI is to maintain its distribution system in conformity with the NESC and other standards found applicable by the Public Utilities Regulatory Authority that are practiced by the electric distribution industry, in a manner sufficient to provide safe and reliable service.

The NESC provides minimum design criteria to ensure public safety. In general, the NESC requires distribution structures to meet the second highest construction standards except when crossing railroad tracks or limited access highways. It is the requirements of the NESC that drive the cost structure associated with the UI system. I should note here that UI's transmission also meets NERC standards. These standards incorporate design

considerations for moderate levels of weather. Also, it is important to note that UI's reliability based on industry benchmarks (national and regional) during 2009 shows that UI's reliability is first quartile for SAIDI and SAIFI. These are based on UI's reliability excluding major storm days (a common practice in the industry).

Hardening of the System

Allow me to now address the several areas where our system can be impacted by extreme weather events and the various hardening approaches that can be considered for each impact.

Selected Rebuild of the System

The first area to be explored to mitigate overhead system damage from storms is a selective rebuild of the system with equipment that is more capable of withstanding damage. However, while reducing damage to the overhead system from storms is possible through the use of equipment that is more capable of withstanding damage, stronger construction, by itself (without also dealing with trees), will not fix the problem. These changes will not prevent damage from fallen trees and tree limbs or from the impact from other wind-borne debris.

There are many strategic and tactical approaches to hardening the electric distribution system. Examples include:

1. Stronger components and support systems. By upgrading existing construction to stronger poles beyond those currently required by the NESC (i.e. larger class wood poles or wood pole alternatives such as steel or composite), extreme wind ratings can be increased. Adding guys to existing poles will transfer some

of the stress from wind forces from the poles, as will push braces. The addition of guys and push braces would negatively impact aesthetics.

2. Shorter Spans. Shorter spans directly result in higher extreme wind ratings; however, in much of the UI system, shorter spans would result in many closely-space poles and would negatively impact aesthetics.
3. Reduce attachments. Fewer attachments will result in higher extreme wind ratings. Removing or reducing the number of attachments is effective from an engineering perspective, but may not be feasible based on regulatory/legal guidelines.
4. Perform periodic audits of pole attachments. Since the late 1990's utilities have seen significant increase of 3rd party communication attachments on poles, thus increasing pole loading. The audits will review the number and types of attachments and determine if the pole meets NESC loading requirements.
5. Utilization of spacer cable in place of cross-arm utility construction. Spacer cable construction consists of the non-shielded, non-tensioned, insulated conductors supported in a close triangular configuration by insulating spacers from a high strength messenger/neural. Spacer cable takes up less space and therefore potentially reduces the space required for tree trimming. It also has disadvantages: it has higher initial cost, repairs that are required as a result of cable failure take longer and the high strength messenger requires greater force to break. This can result in transferring forces such as falling trees to the poles where the messenger is attached which may result in the pole breaking.
6. Alternatives to pole mounted equipment. Pad mount alternatives exist to minimize pole loading. Pad mounted installations are more costly and restoration times are greater for damaged underground facilities than equivalent

overhead installations. These installations may also require alternative supplies to avoid long duration outages.

Please note that similar approaches are applicable to strengthening critical transmission facilities.

Mitigation of Impacts from Trees

The second area to be explored to mitigate overhead system damage from storms is a management of vegetation. Mitigation of the damage caused to the system by the impact of wind on trees is possible through the use of selective undergrounding, tree removal and tree trimming activities.

As the 13th most densely forested state and also one of the most densely populated, the challenges are significant. Over 20 years ago an analysis was performed of UI's vegetation management programs and it identified that at that time there were approximately 312,000 trees along streets or approximately 115 trees per mile of distribution line. More recently, a draft report by the Connecticut Department of Emergency Services and Public Protection indicates that there is a critical overgrowth of trees in Connecticut as a result of having no major wind events in the state since Hurricane Gloria in 1985.

Again, while UI's transmission and distribution system is in full compliance with the NESC, this results in a system that is safe and reliable under normal conditions but not necessarily one that can withstand extreme conditions such as damage from trees caused by hurricane winds, tree failure, or the damage caused by heavy snow and ice.

Undergrounding

One option to harden the infrastructure against damage to the overhead transmission and distribution lines is to rebuild the overhead system underground. In order to properly evaluate the impact and develop recommendations with respect to undergrounding overhead lines, UI would need to conduct a comprehensive cost/benefit analysis. The benefits include:

1. Improved reliability due to reduce frequency of outages – particularly those caused by storms;
2. Reduced maintenance costs associated with trimming and other vegetation management programs;
3. Reduced chances for vehicle to hit utility poles; and
4. Improved aesthetics.

However, there are disadvantages to underground electric infrastructure including:

1. Greater initial costs than overhead electric lines. Underground electric infrastructure costs can be several times more expensive than overhead costs and the costs for undergrounding transmission lines are much greater than for distribution lines.
2. Underground systems are susceptible to damage from flooding and storm surge. A storm surge will pick up sand and debris. The sand can bury and contaminate pad-mounted or underground equipment, and the debris can damage and dislodge equipment.
3. Increased complexity to identify and repairs faults on underground lines resulting in longer restoration times.

4. Less flexibility for expanding or reconfiguring the system.
5. When a storm surge floods coastal areas, salt water floods all pad mounted and underground equipment. Salt left on equipment when the flood recedes will contaminate equipment resulting in equipment failure risks.

Since most of UI's service territory is already developed, the primary focus of undergrounding electric lines (to harden against storms) would be to rebuild existing overhead lines underground. This is more costly than building new electric lines underground. There would also be costs for other companies that are attached to overhead pole lines such as telecommunication and cable companies and municipalities. Also, homeowners and businesses would incur costs to replace the service drop attachments from overhead to underground.

UI does not believe that rebuilding of the entire overhead system underground will be cost effective but we think there should be consideration of a requirement to build new residential lines underground that are not prone to flooding and targeted rebuilding of overhead transmission and distribution infrastructure to underground that serve critical loads. UI will need to perform a detailed cost benefit analysis before committing to a course of action.

Vegetation Management

UI's current tree trimming practices are designed to manage normal weather vegetation to levels that enable UI to maintain high reliability standards. UI's trimming practices include cycle trimming, reliability trimming, hazard tree removal and vine removal. Our vegetation management practices do differ for transmission lines as compared to distribution lines. For example, trimming for transmission lines is already blue sky so vegetation is not allowed to

grow over the lines and we utilize a four year cycle during which approximately 25% of the transmission system is maintained. Additionally, we conduct an annual inspection and hot spot trimming of any locations requiring mid-cycle remediation. These differences mean fewer vegetation related outages for transmission lines. However, additional actions are possible so tree related damage threats to UI's transmission and distribution overhead system can be further mitigated, such as;

1. Expansion of the zone in which potentially damaging vegetation is trimmed before it has the ability to fail and result in distribution infrastructure damage.
2. Expand the trim zone to include "blue sky" distribution trimming. This entails removing ALL tree growth that overhangs overhead distribution lines which in turn reduces the potential for the tree to fail and damage infrastructure. In cases where the blue sky trimming compromises the integrity of the tree reducing its ability to survive the entire tree will need to be removed.
3. Create a tree free border zone near all transmission circuits, substations and critical distribution circuits that would entail the removal of all trees for a set distance away from overhead infrastructure in order to eliminate the potential for trees to fall into overhead infrastructure.
4. UI recommends the development of a statewide task force comprised of all utilities and levels of government to develop a plan to address the issues of vegetation along roadways and adjacent to utility infrastructure to create a consistent statewide policy, promote effective working relationships and reduce the number of outages caused by tree impacts.
5. Adopt legislation to limit the planting of trees under and adjacent to overhead electric infrastructure. The appropriate tree species should be planted in the right place – low growing tree species that will not grow tall enough to interfere

with overhead infrastructure should only be allowed under and adjacent to overhead lines.

6. Additional identified vegetation changes might include shortening the trim cycle, expansion of the trim clearance distances and increasing the removal of hazard trees removal

Critical Telecommunication Facilities

Critical telecommunication facilities (e.g., fiber optic, phone line, cell towers) are also at risk for damage during extreme weather events since installation is on and power supply is provided by the distribution system. These include critical utility telecommunication circuits that are essential to the reliability and security of the electric transmission system and certain telecommunication systems needed to support UI's vision of mobile technology utilized during storm restoration and remote distribution automation. Alternatives include selective hardening of the distribution facilities critical to the reliability of these telecommunication facilities, or the relocation of telecommunications facilities to less vulnerable locations such as underground systems or transmission substation facilities.

Storm Surge and Tidal Flooding

As UI experienced at two of its substations during Tropical Storm Irene, damage affects associated with hurricanes include storm surge and tidal flooding. Given the numerous shoreline communities served by UI, a rising wall of water coming ashore with a landfalling hurricane has a significant impact on the UI system. In certain parts of UI's territory, the impact of salt water on infrastructure could destroy equipment and lead to the need to replace that equipment. In order to fully protect the system UI will need to research truly submersible systems and relocate some underground facilities to overhead structures and several

substations may need to be modified or otherwise protected in order to guard against rising water. Consideration needs to be given to possible changes to the substation design philosophy in order to allow for the offloading of distribution load to more inland stations.

Substations

As I just mentioned, during Tropical Storm Irene two of UI's substations experienced minor flooding. The flooding that occurred caused UI to take action to de-energize one of the substations as a proactive measure to prevent significant damage to energized equipment. Several of UI's 115kV/13.8kV substations are located close to Long Island Sound and other waterways. This creates the potential for these substations to experience flooding during periods of extreme weather. The potential exists for greater amounts of flooding during a major storm such as a Category 3 hurricane.

The effects of flooding at UI's substations would create significant challenges to maintain power. A power outage or the need to disrupt power to a substation could cause extended power outages to many thousands of customers.

UI will undertake an assessment to determine risk to its substations - including an evaluation of the worst case flooding risks at substations in order to understand the potential severity of flooding and impact to installed equipment. We will also assess substation equipment exposure based on information gathered during the flooding assessment and develop a list of "critical" substations – those that are necessary to bring transmission sources to key distribution load areas. This will enable us to identify mitigation measures to minimize potential damage and to evaluate and implement feasible alternatives for hardening, including the raising of low-level substation equipment and protecting against flood risks at

existing critical substations through the use of such things as flood barriers around the substation with pumping capabilities. Finally, consideration will be given to the relocation of substations and the construction of new in-land substations to enable the transfer of load from flooded stations to alternative stations through the use of distribution circuits.

Municipalities and State Agencies

UI suggests a hybrid approach to hardening of critical facilities to be identified by towns, municipalities and state agencies. As part of this effort, municipal and state agencies working collaboratively with utility personnel will prioritize critical facilities and work together utilizing the system hardening alternatives to design and construct hardened utility infrastructure. As this will be a large scale effort, it will be critical to utilize resources to address the areas most in need of hardening.

Most of the damage that occurred during the two storms was the result of tree damage to distribution overhead facilities. Therefore consideration should be given to changes to be made to management of the vegetation located adjacent to the overhead utility infrastructure. A group comprised of utility resources, municipal tree wardens and DEEP forestry resources should be formed to thoroughly examine the risks due to vegetation and to develop a consistent approach to vegetation management.

A combination of tree removal, rebuilding of critical overhead lines to a higher structural rating and undergrounding of line sections where practical is needed. This effort would necessitate a close coordination with municipalities to help identify critical areas in each town where these reliability enhancements could be applied.

Commissioner Esty's December 7, 2011 Testimony

Having summarized the challenges presented by weather events like Tropical Storm Irene and the October snow storm and potential mitigation measures to address the impact of the wind, snow, ice and water on trees and utility infrastructure, I'd like to address a few of Commissioner Esty's observations and suggestions. I should note that given the short time that has passed between the Commissioner's testimony and mine, UI has not fully evaluated the Commissioner's ideas but as a general matter we commend him for his leadership on this matter and hope that we can work together to implement various initiatives. UI stands ready to serve as a resource for DEEP and will gladly assist the Department in developing the State's resiliency agenda.

The Commissioner provides several observations and suggestions concerning our response to the storms. The following are my thoughts on several of the Commissioner's December 7th comments:

1. The variety of rules across the region governing the movement of skilled line crews needs to be re-thought

UI is not currently aware of any contractual issues that impede the ability to secure mutual assistance crews.

2. Resource deployment was not optimized in advance of and during storm response

UI's paper process did not limit the ability to fully utilize internal and external restoration crews to perform necessary repairs. The paper process does limit timely flow of information on restoration work status.

3. Pairing trained lineman with local electricians or retired linemen

While UI does utilize local electricians during storm restoration to repair and replace damaged customer service drops, UI does not agree with the suggestion to expand the high voltage workforce through the use of local electricians and or retired lineworkers. Local electricians are not properly trained to work or to assist in the utility high voltage conditions. However, UI agrees that the use of retired lineworkers can be utilized to expand the management capabilities to oversee restoration activities. UI recognizes the need to quickly ramp up with qualified lineworkers, however, the availability of necessary equipment (bucket trucks, digger/derricks) must also be available for these resources to be effectively utilized.

4. Greater use of trained firemen and DPW

Unqualified state and municipal workers should not be allowed to test and move downed lines because those lines can become energized at any instant and from many miles away. State and municipal workers will not have access to utility communication channels to know when a line is being energized. UI workers are trained and have the proper high voltage equipment. Our workers continuously work on high voltage lines and their equipment is tested regularly to ensure working proper working condition. However, UI suggests that state and municipal workers can be effectively utilized to perform storm assessment and wires standby with the appropriate training and mobile technologies.

5. Real Time Data

Currently, UI utilizes Auto Vehicle Locator (AVL) equipment on all UI vehicles and we are working with our contractors to install AVL equipment on their vehicles and will be interfacing with UI's Outage Management System (OMS) and Graphical Information System (GIS). UI

agrees there is need for additional real time data and we have identified these improvements in the RFI for Restoration Process Improvement. The RFI identified the following needs to support the restoration process:

- *Outage Reporting and Detection* – The ability to proactively detect outages as well as receive outage notifications from internal and external stakeholders via multiple channels such as the web, mobile text, and various social media is critical. This coupled with advanced metering capability can enable real time system status updates.
- *Scalability* – The restoration process and systems must have the scalability to handle significant storm events and be able to process the associated volume of transactions. The current process requires switching to a paper based damage assessment and construction work packet system after a large volume of work is reached. The use of mobile technology for damage assessment and construction management coupled with trained resources (and provided by towns) can support the goal of quicker storm assessment.
- *Information & Reporting* – Tropical Storm Irene produced a new level of information and reporting requirements for all stakeholders (customers, regulators, UI executives, etc.). It is clear that the current process and systems could not produce the timely information and reports required to meet their expectations during a large scale event.
- *Communications* – The ability to communicate with all stakeholders (customers, regulators, UI operations, municipalities, etc.) and meet their pre-defined and ad hoc communication requirements is vital to an effective restoration process.

6. Community relations and communications can be improved

UI agrees and has identified these improvements in its RFI for Restoration Process Improvement.

UI read with great interest the Commissioner's thoughts on ways to develop a strategy for Connecticut's future resiliency investments. Several of the items the Commissioner addressed I have already covered. Two of the opportunities the Commissioner discussed the use of distributed generation and the smart grid – deserve further comment.

Distributed Generation

Distributed Generation - small scale independent power sources to provide power when transmission or distribution fails - may be an alternative to hardening the electric system by providing the ability to generate power locally during system disturbances.

There are several ways of implementing distributed generation on a power system.

1. Local standby emergency generation which is limited to inside a customer's facility.
2. Parallel operation (DG with the utility system) without export capability to the utility system.
3. Parallel operation (DG with the utility system) with export capability to the utility system. This supplies power to the grid during normal operation but isolates it during disturbances.
4. Parallel operation with micro-grid capability. This is the ability to isolate and serve designated portion of electric system during system disturbances.

Using distributed resources as a tool in mitigating the impact on customers from system outages may provide greater individual choice on the cost impacts of hardening. Where the costs of system hardening may need to be distributed across all customers, the local nature of DG may allow the cost choices to be targeted to individual customers based upon their ability to sustain long term outages.

Each of the first three ways of implementing DG listed above has been implemented successfully on UI's system. The microgrid concept has not been implemented and creates challenges in the areas of system protection, voltage control, and managing the hazards to

utility employees and the public if the grid assets are not under direct control of the utility dispatch authority. Much further study would be necessary to ensure no degradation of reliability during normal and emergency conditions and ensuring the safety of the public employees. Additional evaluation must be performed to ensure the utilities' franchise and the utilities' customers within the franchise will not be adversely impacted by the installation of the facilities.

Smarter Grid

UI agrees with several of the Commissioner's thoughts regarding the use of a smart grid system to do things such as determining when lines are down and providing alternative routes for power to travel. Distributed automation provides the ability for monitoring and control of distribution system equipment status and the ability to manually or automatically reconfigure the system. Utilization of advanced meters that communicate robust usage information, power status and power quality information provides the ability for accurate real time information that both the customer and the utilities can utilize during normal conditions and outage conditions. UI currently has technologies such as advance metering, outage management, call center and GIS which support the restoration process. However, the need for deeper integration and the extension of these systems into the field will eliminate the need for paper and improve the information flow.

Conclusion

Thank you again for the opportunity to testify this afternoon. UI continues to appreciate the effort this Panel and others are putting into ensuring proper preparations and responses are made to future extreme weather events. UI see opportunities for improvements in electric system design, construction and maintenance practices such as aggressive tree trimming, rebuilding the overhead system with stronger materials, and undergrounding the overhead system. Many of these alternatives appear to be costly and time consuming to implement but a cost/benefits analysis will need to be completed in order to make such a determination.

As you know, many of the ideas for hardening the electric system being discussed here today are expensive. Ultimately the determination as to how much money to spend, and what projects and actions those dollars should be spent on, should be made by state and federal regulatory authorities, with appropriate input from the utilities, because these costs will be paid for by customers. If funded through utility investment, these costs will be recovered from customers as reasonable and necessary operating and capital costs of the utilities, including a return on invested capital. If the state were to change from the long-standing private investment in utility infrastructure, and the state determined to fund the investment through state bonds or the general fund, customers will pay through their taxes. We look forward to further discussion and work on these important issues.



UIL HOLDINGS CORPORATION



UIL Holdings Corporation System Hardening and Restoration Improvements

December 14, 2011

Presentation Topics

- Existing Design Standards
- Infrastructure Hardening
 - Threats to Infrastructure to be hardened against
 - Hardening Approaches for each impact
- Restoration Process
 - Recent accomplishments
 - Improvement areas
 - ▶ Staffing
 - ▶ Restoration Management and Communications Technology
- Additional recommendations

Existing System Design Standards and Performance

➤ T&D System designed to National Electric Safety Code Standards

1. Fundamental design assumption for all infrastructure
2. Drives the cost structure
3. Responsible for the existing safe and reliable system
4. UI historically has very good reliability
5. A practical standard not intended for extreme events (e.g. Category 3 hurricane)

Threats to the Infrastructure

1. Wind loading on Electric Infrastructure
2. Wind loading on Trees
3. Wind loading on other structures
 - > Homes
 - > Bill Boards
 - > Sheds
4. Ice and Snow
 - > On the Infrastructure
 - > On the trees (with and without leaves)
5. Storm Surge (coastal and river flooding)

Mitigation of Wind Loading on the Infrastructure

1. Increase the strength of overhead construction
 - > Stronger components and support systems
 - ▶ Poles, towers, guying, wire, hardware
 - > Reduce pole spans
 - > Reduce attachments
 - > Accelerate installation of tree wire (UI's system has 89% tree wire)
2. Selective Undergrounding
 - > Supply path to critical loads (hospitals, schools, water treatment, sub-stations)
 - > All new developments
 - > Avoid distribution undergrounding in storm surge areas
3. Evaluate substation control buildings for Category 3 wind speeds

Mitigation of Wind Loading on trees

1. Selective Undergrounding
2. Removal of all trees that could fall into lines
 - > Targeted to all transmission lines and critical distribution circuits
 - > Aggressive hazardous tree removal on all other circuits
3. Increase trimming cycles and trimming specifications
 - > Expand the right of way and right to remove trees
 - ▶ Including trees outside of ROW
 - > Remove overhead tree canopy
 - > Remove saplings
4. Implement State and Local tree planting policies
 - > Right tree, right place

Wind Impacting other Structures (material that can blow into electric infrastructure)

- 1. Examine buildings codes in relation to category 3
wind speeds**
- 2. State and local policies regarding unsecured
structures, materials and debris**

Ice and Snow

- Same mitigation strategies as previously
discussed**

Storm Surge (coastal and river flooding)

1. Research submersible distribution systems
2. Relocate underground facilities to the overhead
3. Raise customer equipment above flood levels
4. Relocate or raise substation assets
5. Construct substation flood barriers and pumping systems
6. Allow for offloading of distribution substations
 - > Requires changes to design philosophy regarding distribution capacity

Restoration Process – Highlight Accomplishments

- 1. Completion of latest Emergency Preparedness Plan**
 - › Firmly establishes the Incident Command Structure
 - › Dedicated road clearing crews to towns
 - › Defines advance timing guidelines for preparations
 - › Incorporated lessons learned from Irene and October storm
- 2. Development of restoration vision**
 - › Creation of dedicated project team
- 3. Outage map upgrade (web enhancements)**
- 4. Trained additional UI resources to perform service work (collaborative effort between UI management and Union)**

Restoration Process Staffing Recommendations

- 1. Mutual Assistance**
 - › Leading improvements to Mutual Assistance (EEI meeting in DC)
 - › Identified a number of improvements to be discussed
- 2. Continue leveraging local electricians**
 - › Low voltage service work
- 3. Pairing of external and internal line workers**
- 4. Utilize retirees for management and supervisory roles**
- 5. Investment in stand-by trucks**
- 6. Incorporation of storm response into contractor agreements**
- 7. Incorporate state and local municipal employees into the damage assessment process**

Restoration Process-Management and Communication Technology Recommendations

Implement the UI Restoration Vision

- 1. Outage Reporting and Detection** – The ability to proactively detect outages as well as receive outage notifications from internal and external stakeholders via multiple channels such as the web, mobile text, and various social media is critical. This coupled with advanced metering capability can enable real time system status updates.
- 2. Scalability** – The restoration process and systems must have the scalability to handle significant storm events and be able to process the associated volume of transactions. The current process requires switching to a paper based damage assessment and construction work packet system after a large volume of work is reached. The use of mobile technology for damage assessment and construction management coupled with trained resources internal (and provided by towns) can support the goal of quicker storm assessment.
- 3. Information & Reporting** – Tropical Storm Irene produced a new level of information and reporting requirements for all stakeholders (customers, regulators, UI executives, etc.). It is clear that the current process and systems could not produce the timely information and reports required to meet their expectations during a large scale event.
- 4. Communications** – The ability to communicate with all stakeholders (customers, regulators, UI operations, municipalities, etc.) and meet their pre-defined and ad hoc communication requirements is vital to an effective restoration process.

Additional Recommendations

1. Increased distributed and emergency generation
 - UI has experience interconnecting DG
 - Requires careful evaluation
 - Public and Worker Safety
 - Effects to local infrastructure reliability
 - Cost considerations
 - Critical town facilities
 - Residential emergency generation (e.g. inexpensive interconnection devices)
2. Communications hardening
 - Hardening of Utility Communications
 - Deployment of advanced meter infrastructure
 - Relocation of cell towers to less vulnerable locations
 - Adjacent to UI substations, placed on the mainline, UG facilities
 - Emergency generation for public communications networks

Where is the balance point between reliability and cost?

- NESC defines a balance point
- Wide range of alternatives to address risks as a result of these storms
 - Large range of costs
- Need to clearly define expectations around frequency and length of outages Vs. cost to mitigate
 - How much risk are we willing to take?
- Balance the cost/benefit of each project
 - Where the benefit is defined by all stakeholders