

**Chapter IX – Recommendations, Priorities & Cost Estimates**

Table IX – 2 – summary of recommendations, priorities & costs

**II-2**

*“Each electric utility should improve the systems and processes it uses to develop damage assessments and communicate ETRs to customers during storm restoration efforts.”*

NHEC continually trains assigned field assessment personnel in damage assessment annually and the ETRs will now be communicated from the field personnel or the district supervisors to coincide with their storm plans. This information will be updated in the Outage Management System which will provide more current information to our members.

**II-3**

*“Each electric utility should adopt storm restoration procedures that require the process of procuring additional crews to begin at the first indication of an impending storm and include utilities and contractors beyond the local area”*

NHEC presently has the same resources (line contractors) available on a first come basis as the other utilities. There are other organizations of which NHEC can request crews from if available, Northeast Public Power (NEPPA), Northeast Association of Electric Co-ops, Northeast Mutual Aid Group (NEMAG), and over 600 Co-op’s nationally. The Co-ops or companies will not provide assistance until they verify that a) their own company does not have significant outages and b) there are known damages at the requesting utility. Prior to the ice storm damages NHEC had 5 contractor line crews on standby status with additional tree contractors.

**II-4**

*“Each electric utility should improve procedures for communications with state and municipal government officials and emergency response agencies during major storms.”*

NHEC is an active participant on the PUC Communications Team and key personnel are being trained at the Department of NH Homeland Security & Emergency Management on their software/processes for enhanced communications. NHEC is also sponsoring regional meetings with the municipals we serve to re-establish or enhance communication links during emergencies. In addition, we will be re-purposing personnel whose primary job will be to communicate to the municipals during major outages as part of NHEC’s Emergency Restoration Plan.

**II-5**

*“Each electric utility should modify emergency planning procedures in order to implement a more effective means of estimating resource requirements.”*

NHEC will be utilizing the ETR (estimated time to restore) function more aggressively within the OMS. This, along with the district outage plans, weather conditions, road conditions and number of reported outages will assist in the estimating process.

**III-1**

*“Each electric utility should include pos- storm critiques and lessons learned should be included in their emergency plans”.*

NHEC does accomplish a storm critique after every major storm with a lessons learned document as part of our standard practice. However, this will be added to the restoration plan. Key findings, if necessary, are added to NHEC’s Emergency Restoration Plan.

**III-2**

*“Each electric utility should include a contingency for coincidental emergencies in their Emergency Restoration Plan.”*

NHEC’s Business Continuity Plan addresses coincidental emergencies, i.e. where to move key personnel to establish emergency/temporary operations, communications and pandemic planning.

**III-3**

*“Each electric utility should have its representatives make contact in person with the emergency directors of each of the towns in its service territory to gather information on critical customers within those towns. This should be done within 60 days after the publication of this report.”*

NHEC has identified critical services in each town i.e. hospitals, police and fire departments. We will contact municipalities requesting that they provide a list of critical customers to NHEC so that we may match/update our current list.

**III-4**

*“Each electric utility should expand its emergency response plans to include procedures for communicating with telephone and cable companies so vital telecommunications can be restored quickly as possible.”*

NHEC does utilize the emergency contact numbers for cable and communication companies and will add these to NHEC’s Emergency Response Plan.

**III-5**

*“Each electric utility should arrange for security services as part of its emergency plan.”*

This has been researched and is being added to NHEC’s Emergency Response Plan.

**III-6**

*“Each electric utility should develop a method for collecting and archiving data following emergency events and use this data to develop a predictive damage model for use in future storm planning.”*

NHEC’s OMS archives all outages; a predictive model will be taken under consideration.

**III-7**

*“Each electric utility should expand emergency readiness drills beyond the individual companies.”*

NHEC will work this recommendation into NHEC’s Emergency Restoration Plan in the future.

**III-8**

*“Each electric utility should fully implement the Incident Command System (ICS) concept and Unittel should adopt the IMS as its new structure for emergency management.”*

NHEC will better formalize our outage process which does incorporate an ICS model type. NHEC’s current Business Continuity Plan already incorporates the ICS model.

**III-9**

*“...NHEC should explore options for building a dedicated EOC or obtaining a mobile command center.”*

NHEC will review this recommendation to see if it is necessary both from a financial and operational perspective.

**III-11**

*“Each electric utility should identify and train additional damage assessment personnel and have them activated prior to the storm.”*

NHEC does identify, train and re-train personnel for functions beyond their normal daily duties in preparedness for storm events. All employees are notified of pending outages, but not all of them are assigned until the severity of the storm has passed making it safer for these employees to travel and perform their assigned duties. Activation of personnel needs to be addressed not in a general basis but more from an event specific situation.

**III-12**

*“Each electric utility should develop a mechanism for quickly assessing global damage and providing restoration times in order to allow customers and government to take prompt appropriate actions.”*

The process of quickly assessing damages throughout the entire system will be addressed in the future in NHEC’s Emergency Response Plan. However, depending on the road conditions, weather and time of day, in many instances it is better to maintain location status of employees for safety reasons and then activate them after assessment of needs.

**III-13**

*“Each electric utility should expand its available resource pool to reach across the boundaries between cooperative and investor owned utilities (IOU), and consider using resources from other sources.”*

NHEC does have available resources outside our service area to assist when needed i.e. Northeast Public Power Association (NEPPA), Northeast Association of Electric Cooperatives (NEAEC), and Northeast Mutual Assistance Group (NEMAG), and over 600 Co-op's nationally. NHEC has also worked with its IOU counterparts to provide aide as appropriate.

**III-14**

*“Each electric utility should work with the community first responders to develop a process for “batching” wires down calls during a major emergency.”*

NHEC is currently conducting meetings with community emergency personnel to address the wire down issue along with other critical items, i.e. snow plows caught up in wires, road closure, bridge closures, etc.

**III-15**

*“Each electric utility needs to expand its communications program to better educate their customers about the restoration process.”*

NHEC provides outage information to our members periodically in the monthly newsletter and on the Co-op website. ([www.nhec.com](http://www.nhec.com)). During active storms, NHEC personnel provide members, media and community officials with information on the restoration process as well. NHEC is currently conducting meetings with communities to provide them with information on NHEC's restoration process. These meetings will be repeated periodically.

*\* Please see copy of New Hampshire Electric Co-op Today (our monthly newsletter included in each member's bill) on last page dated February 2009.*

**III-16**

*“Each electric utility should better define the methods it uses for communications with government officials during emergencies.”*

NHEC provides up to date outage information on its website ([www.nhec.com](http://www.nhec.com)) as well as answering PUC phone calls and participating in the Governor's conference calls. In addition, NHEC is part of the PUC Team that is developing better ways to communicate during such events. NHEC staff contacted community and government officials to provide up-to-date information during this storm. Staff also actively contacted community shelters.

**III-17**

*“Each electric utility should file their Emergency Operating Plans with the State Homeland Security and Emergency Management Office (state EOC) and work with the state to define thresholds which would trigger communications with the EOC”.*

NHEC does not plan on sharing its Emergency Response Plan with the EOC because of the sensitive nature of the information. There is also a defined process NHEC follows for when to contact the PUC for major outages, catastrophic equipment failures, electrical contacts and

vehicle accidents where a fatality occurs involving electrical plant. This process was established by the NHPUC.

#### **IV-2**

*“NHEC should upgrade their substation SCADA back-up power systems to provide reliable power for a minimum of eight hours.”*

During the initial SCADA Installation it was decided to allocate more of the available resources to Intelligent Electronic Devices and buss sensing PT’s than to the battery back-up system.

NHEC is currently in the process of evaluating the installation of backup generation at each substation as part of the Communications Infrastructure project. This additional infrastructure would enable the existing SCADA backup battery systems to perform adequately for any length outage.

#### **IV-3**

*“Each electric utility should perform a review of substations supplied by sub-transmission lines.”*

In 2003, NHEC completed a detailed review of all substations supplied by Sub-Transmission lines and identified possible alternatives for supplying these sites as part of our Long Range Planning activities. At the time construction of additional Transmission facilities was cost prohibitive.

In 1995, the Co-op did construct a dedicated 115kV line in the Conway area that allows for dual transmission supplies to all the Conway area substations.

Additionally, in early 2008 the Co-op started work on a second dedicated 35kV source into the Lincoln/Woodstock area that will be in service in the summer of 2010. This second line will provide dual Sub-Transmission sources for all of our members in the Lincoln, Woodstock and Thornton areas.

At present we are in the process of updating our Long Range Plan which will revisit all possible alternatives for supplying our substations with reliable Sub-Transmission or Transmission sources.

#### **IV-5**

*“Each electric utility should replace existing electro-mechanical relays with microprocessor based relays that feature event reporting ability, within the next five years”.*

In 2001 NHEC completed a system wide retrofit of all the substation relays with Schweitzer 351R relays. These units are still state of the art micro-processor based units. This was done as part of the SCADA system installation. At the same time all the station voltage regulator

controls were upgraded to state of the art microprocessor based Beckwith controls. The Co-op presently has dial-up Engineering access to 99% of our substation protective devices. Additionally the Co-op has been using microprocessor based relays for virtually all of its field installed electronic reclosers. The only electro-mechanical relays still in service at the co-op are a few transformer differential relays and two or three neutral overcurrent devices which have never been problematic and are typically not queried as part of our storm restoration efforts.

**V-1**

*“...and NHEC should continue on with their plans for their OMS.”*

NHEC will continue to operate its OMS and to continue with training programs to maintain operator proficiency and system enhancements.

**V-2**

*“Each electric utility should include provisions for rapid restoration of communications in their disaster recovery plans.”*

NHEC accomplishes this as an operating practice when notified by the communications companies. This is addressed as part of NHEC’s Business Continuity Plan.

**V-3**

*“Each electric utility should ensure that all its poles, including joint use poles are being properly inspected.”*

NHEC’s inspection of overhead and underground facilities is five years. Presently the Co-op is in the third year of a complete line inspection and ground line testing program utilizing the Polux Pole Testing Equipment. The data is posted on the circuit maps with the percentages of strength left in the pole and the information is archived for future test periods. District personnel also collect overhead and underground line inspection information which is posted on our GIS mapping system. When an inspection produces evidence that changes need to be made in the field, service orders are submitted and repairs are completed in a timely manner.

**V-4**

*“Each electric utility should establish a more comprehensive vegetation management plan.”*

The fact that NHEC clears ROW ground to sky does have an impact on the management cycle as well as the financials. As you indicated in the report there needs to be a balance between financials and ROW clearing.

We feel the “industry standard” as outlined does not apply to NHEC. NHEC’s ROW Vegetation Management is unique, our ROW’s have written easements giving us the right to clear and maintain a 30 foot width and do the trimming we specify, ground to sky or as high as possible with the available equipment, with arboricultural trimming practices. Our ROW department has established a ROW area that can reasonably sustain electric reliability to our members in a

7 to 10 year cycle. Remember, the other electric utilities do not have the luxury of written easements, they have to get permissions; and their clearances are minimized for both ground cutting and overhead trimming, which sets the stage for lower cycle re-clearing and trimming practices. It is in this area where the NHEC can stretch the cycle time, with a budget that can balance between financials and maintaining a reliable electrical ROW Vegetation Management program.

We have incorporated a 3 year relearning cycle on 3 phases into our maintenance program concentrated on where most members are served. We will complete this program this year, and will implement these lines in our 2010, 2011, 2012 bids, which began in 2007, again covering the 3 year, 3 phase circuits to the majority of our members.

Also included in NHEC's Vegetation Management plan are Danger tree removals, at about 90% outside the row. We have had this practice in our ROW program for over 25 years. The old Rural Electrification Administration (REA) easements have the language to allow us to remove any dead, weak, leaning trees that are tall enough to strike the wires (outside the ROW) in falling. We now have this same language in our present easements.

With our ROW program we strive to storm proof our ROW while we maximize our reliability and minimizes all outages caused by trees. For the long term we must be cost effective, and use arboricultural utility re-clearing and trimming practices that we feel gives us the full use of our easements to maintain NHEC's ROW Vegetation Management program, which provides true member service reliability that is proven.

Our ROW Vegetation Management works very well at this time, and the 3, 7 and 10 cycle re-clearing is a reliable member service practice for NHEC. In the future as budgets allow, some cycle reduction will be achieved.

#### **V-5**

*"State and local governments should extend laws regarding vegetation management for roads and highways to include electric and communication corridors. Utilities should be assisted by local and state government to streamline the property owner permission process."*

NHEC continues support this type of legislation. New Hampshire SB 195 (May 20, 2009) addressing the modification of procedures for the trimming, cutting, or removal of trees by utilities was approved on July 16, 2009. This was in direct response to the issues from the December 2008 Ice Storm.

#### **V-6**

*"Each electric utility should be required to employ at least one system forester or arborist in their New Hampshire service area."*

NHEC does meet these criteria, and actually exceeds it. NHEC has three arborists on staff in our ROW department; our Utility Arborist Supervisor is certified as both an Arborist and a degreed

Forester, and of the two Utility Foresters under him one is a degreed Arborist, one is a degreed Forester. We also have a degreed arborist on staff who works in the capacity of a Operations Supervisor.

**V-7**

*“Each electric utility should expand its vegetation management program to include the judicious use of herbicides for stump treatment.”*

NHEC does have an aggressive stump treatment program; this has been a practice here at NHEC for many years.

**VI-1**

*“Each electric utility should gather and analyze weather and damage information during and immediately following weather events and develop models to predict damage.”*

Developing a predictive model will be taken into consideration.

**VI-4**

*“NHEC should make post storm critiques a part of its Emergency Operations Plan.”*

NHEC provided the answer to this question, in Question III-1 “Each electric utility should include post storm critiques and lessons learned should be included in their emergency plans.”

NHEC does accomplish a storm critique after every major storm with a lessons learned document as a standard practice. This will be added to NHEC’s Emergency Restoration Plan.

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FEBRUARY 2009

Your Electric Co-op's Newsletter

## FEATURE ARTICLE: How Is Power Restored?

Restoring power after December's ice storm was a big job that involved much more than throwing a switch or removing a tree from a line. Our main goal was to restore power safely to the greatest number of members in the shortest time possible. To help members understand what we're facing during a major storm and how we go about restoring power, we've prepared the following guide:

### STEP 1

Co-op line workers begin a system-wide assessment of the damage as soon as it is safe to do so. Within the first 48 hours of a major storm, it is often impossible to provide estimated restoration times for all areas affected by the storm. Power to the Co-op's substations is provided by wires owned by other electric companies, so we communicate frequently to make sure high voltage transmission lines are up and running. Tens of thousands of people could be served by one high voltage transmission line, so if there is damage here, it gets attention first.

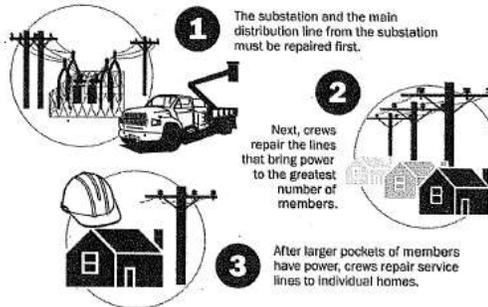
### STEP 2

NHEC has about 40 substations and metering points, each serving thousands of members. When a major outage occurs, these substations are checked first. If the problem can be corrected at the substation level, power may be quickly restored to a large number of people.

### STEP 3

Main distribution lines are checked next. These lines carry power from the substations to large numbers of members, such as entire towns or communities. These lines also serve other critical infrastructure like hospitals, waste water treat-

ment plants and communications systems. In large storms with widespread damage, these lines may be segmented so that power is restored one section at a time, from the substation outward.



### STEP 5

Sometimes, damage will occur on the service line between your house and the transformer on the nearby pole. This can explain why you have no power when your neighbor does. After major repairs are completed, line workers will spend the remainder of the restoration effort repairing service lines that serve one or two members. Please note that members themselves (not the Co-op) are responsible for damage to the service installation on the building. Your Co-op can't fix this. Call a licensed electrician.

To Report an Outage: 1-800-343-6432