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The Northeast Utilities System

Robert A. Bersak
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November 6, 2009

Lynn Fabrizio, Esq.
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New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, New Hampshire 03301-2429

Re: ***New Hampshire December 2008 Ice Storm Assessment Report (Draft dated October 30, 2009)***

Dear Attorney Fabrizio:

PSNH appreciates the further opportunity provided to review the draft report prepared by NEI Consulting concerning the response of the state's utilities to the December 2008 ice storm.

We recognize the tremendous effort that it has taken to prepare this report—we were there 24/7 throughout the storm itself. We also appreciate the difficulty of putting together all the facts regarding the emergency restoration process that took place nearly a year ago. This is an especially hard process for individuals who come from an area of the country that has less trees than New England and who did not experience the devastation of the storm first-hand.

Perhaps it is the lack of hands-on personal experience which has led the consultants to conclude that this record-setting storm was not that extraordinary and was similar to storms that "should occur on average once every 10 years." This once-every-10-years expectation is just plain wrong. New England's utilities have never before experienced the devastating damage that was caused by the Ice Storm of December 2008. In our initial comments, we noted that Central Vermont Public Service Company has stated that, ***"This storm was twice as bad as the prior worst-ever storm."*** In New Hampshire, this storm caused three times as many outages as PSNH's prior "worst storm of all time"—Snowstorm Bernice in 1996. The Ice Storm of December 2008 was bigger, more damaging, and more unique than the draft report indicates.

Because the report has understated the size, power, and rarity of the Ice Storm of December 2008, the report arrives at conclusions and recommendations that are inappropriate and which, if implemented, would be extremely expensive and result in significant increases in the cost of

electricity. PSNH is the first to recognize the desire for reliable electric service. But, that desire must be balanced against the costs that customers must ultimately bear.

In addition to understating the metrics for the storm itself, the draft report also fails to adequately deal with the root cause of the overwhelming majority of the December 2008 outages—trees. In our initial comments, PSNH noted that "we are dismayed by a report that apparently 'can't see the forest for the trees.'" The most recent draft fails to correct this significant oversight. The report notes that 86 percent of the troubles on PSNH's distribution system were caused by downed trees. Yet, the report glosses over the severe limitations placed on PSNH and the state's other utilities by laws which limit the ability to deal with this fundamental cause of power outages in New Hampshire. AMI initiatives, GIS systems, dedicated emergency operations centers, and so on are all things we could do if money was no object. But, not one of those measures deals with trees. The most sophisticated smart grid system still will not provide power or information during the extended outages which result when a utility is not allowed to adequately deal with trees along its circuits due to restrictive laws.

PSNH urges the Commission to direct the consultant to provide recommendations that treat the disease, not the symptoms. The disease that put the state's electric system out of commission is the lack of legal ability for utilities to deal with problem trees. Although even a very aggressive vegetation management program cannot stop all of the devastation caused by such a massive storm, it can help mitigate the level of damage caused. Unless and until the state's utilities have the right to perform necessary vegetation management, it is only a matter of time before the trees grows back, creating reliability problems in the future. PSNH strongly suggests that the consultant provide information on what other heavily forested states do to allow advanced vegetation management, and to provide recommendations to the Legislature on statutory reforms needed to give utilities the tools necessary to prevent widespread and prolonged storm-related outages from happening again.

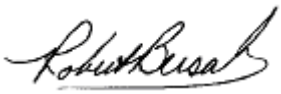
In our initial comments, PSNH provided well over 100 corrections to the initial draft report. As far as we can tell, only about 20 of those corrections were incorporated in the revised draft. We hope that the consultants will take the time to revisit the corrections that PSNH initially supplied, and incorporate them into a final version of the report. We are once again attaching our initial comments to this response.

We whole-heartedly agree with the consultants regarding one aspect of the revised draft report: "The NEI project team was not in agreement with the inclusion of the evaluation criteria matrices which as stated by the utilities are subjective. The NH PUC staff removed the criteria matrices in Chapter 8 due to their disagreement." PSNH applauds the NEI project team for their candor. We urge the consultant and staff to remove all the remaining matrices from the final report. All the matrices—not just the ones removed to date—suffer from the same ill of being subjective. They give the air of being objective facts, tantamount to the controlled laboratory tests of consumer goods done by Consumer Reports; but they are not. The report should set forth the facts, not subjective speculation.

In conclusion, PSNH and its employees—including me—know what this storm was, know the time and effort that was dedicated to the restoration effort, and know that we have never

experienced a storm like this before. We are proud of what we did and how we did it, throughout the worst that Mother Nature could throw at us. We are always ready to work side-by-side with our regulators, with municipalities, with first responders, and with our customers to improve understanding, communications, coordination, and readiness to prepare for the next challenge.

Sincerely,



Robert A. Bersak
Assistant Secretary and
Assistant General Counsel

Atch: PSNH's October 16, 2009 Comments to the Initial Draft Report

cc: T. Frantz (NHPUC)
R. Knepper (NHPUC)

NEW HAMPSHIRE DECEMBER 2008 ICE STORM

PSNH'S RESPONSE TO

NEI ELECTRIC POWER ENGINEERING'S ICE STORM ASSESSMENT REPORT Dated October 2, 2009

OCTOBER 16, 2009

Public Service of New Hampshire

The Northeast Utilities System

Public Service of New Hampshire
Response to NEI Electric Power Engineering's
New Hampshire December 2008 Ice Storm Assessment Report
Dated October 2, 2009

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I. Overview

Overview

In December of 2008, Public Service Company of New Hampshire's (PSNH) service territory was hit by the most devastating storm in the company's 82-year history. It is PSNH's desire to learn as much as possible from this unprecedented outage event, and we welcome the opportunity to review NEI Electric Power Engineering's report on the ice storm restoration effort, which will supplement our own "lessons learned" process within PSNH.

While there are many recommendations in the NEI report with which PSNH agrees, there are also many sections of the report that depart significantly from PSNH's perspective on the event.

The most fundamental area of divergence is related to the magnitude and rarity of the storm leading to the power outages. PSNH does not agree that the December 2008 ice storm was as routine an event as NEI assumes in its report, and we believe that this assumption negatively impacts the usefulness and quality of NEI's resultant recommendations.

In response to the December 2008 ice storm, President Bush issued an emergency declaration for the entire state of New Hampshire on December 13, 2008, and a major disaster declaration on January 2, 2009. No other natural disaster in New Hampshire has prompted the President to issue a statewide emergency declaration since the blizzard of March 1993 (the so-called "Storm of the Century").

For PSNH and the state of New Hampshire, this outage was far from routine. The damage from the December 2008 ice storm was more significant than PSNH's top four prior storms, combined. While New Hampshire certainly experiences its fair share of ice and snow storms, never before have so many exacerbating factors come together at the same time to create such a massive statewide power outage event.

At peak, more than 322,000 PSNH customers were without power in the December 2008 ice storm, dwarfing every other storm in PSNH's history. By way of comparison, the January 1998 ice storm (third largest storm in PSNH's history) left 55,000 PSNH customers without power at its peak, and the worst storm in PSNH history prior to the December 2008 ice storm—Snowstorm Bernice in 1996—left a total of 93,000 PSNH customers without power at its peak.

In the course of restoration, PSNH crews replaced more than 780 utility poles, installed more than 13,600 fuses and 1,300 transformers, and restrung 105 miles of power cable—the distance between Manchester and Littleton, NH, on I-93. At peak, 342 PSNH circuits were out (53 percent of the company's electric system), with 86 percent of the troubles caused by downed trees.

PSNH employees and retirees, colleagues from PSNH's sister utilities, and contractors from both near and far, working with local community and state officials, put forth nothing short of a heroic, unyielding effort to restore power to its

customers. Over the course of 13 days, this force of hundreds and hundreds was focused on one simple goal: restoring power to the majority of New Hampshire residents in time for the Christmas holiday. The company's incredible effort was recognized nationally by the Edison Electric Institute when it received the coveted Emergency Response award. PSNH has also received numerous recognition awards from southern New Hampshire communities for its exceptional response to this natural disaster.

By presuming that an outage of this magnitude and complexity is routine for New Hampshire, NEI has compiled many recommendations whose costs greatly outweigh their necessity or benefits for electricity customers in the Granite State.

Areas of Agreement

The chapters that follow this introduction outline in detail PSNH's response to the recommendations in the NEI report. Among these, one of the most significant areas of agreement relates to the need for better two-way communication among utilities, municipalities, and the State.

Roles in each of these organizations could be better clarified, and the process could be enhanced to ensure that the information utilities provide to communities is adequately dispersed to local officials and electricity customers. PSNH goes into greater detail regarding this recommendation in Chapter III of this response, titled "Communications."

Areas of Divergence

As noted above, PSNH does not agree with NEI's assessment of the magnitude and complexity of the December 2008 power outage. PSNH believes that, in addition to underestimating this storm in terms of sheer enormity of damage, NEI also fails to recognize the challenges and storm duration that utility crews faced during the 13-day restoration effort.

Fundamentally, restoring power requires workers to perform physical labor. PSNH's employees and the hundreds of contract crews that assisted in the restoration effort worked extremely long hours over many days. They faced exhaustion, two major snowstorms, and the added strain of being away from their families, many of whom lacked power at their own homes.

Employees were further stressed by the pressure to complete work before the holiday, and many contract crews left of their own volition—despite PSNH's requests—so that they could make it home in time for Christmas. PSNH believes that NEI's failure to take into account these fundamental "human" factors further skews their overall assessment of the event.

A second major area of disagreement relates to the focus of NEI's recommendations. Eighty-six percent of the troubles reported in the December 2008 ice storm were caused by trees falling on electrical infrastructure. Instead of focusing on this root cause of outages in New Hampshire, NEI recommends many expensive and often impractical technological and staffing solutions that serve only to manage an outage after it occurs.

PSNH believes that its customers' money would be better spent to help *prevent* outages, rather than to manage them differently in the rare circumstance of another event of this magnitude.

Additional Considerations

In addition to the areas addressed in NEI's report, PSNH believes there is a need for a more formal review among utilities, the State Office of Emergency Management, and municipalities following significant, statewide outage events like the December 2008 ice storm. Restoration efforts of this magnitude involve many organizations and individuals beyond the utilities and their staff, and these organizations should be included in a formal, collaborative "lessons learned" process that recognizes the integrated nature of statewide emergency response efforts. Such a process should be implemented soon after storm restoration is complete.

Given that trees continue to cause the vast majority of power outages in New Hampshire, PSNH is also in favor of initiating a collaborative process with the State, municipalities, and utilities to discuss how to approach vegetation management in New Hampshire to better guard against significant outages in the future. PSNH recognizes that our state will always be heavily forested; however, there are steps that can be taken at the policy level to greatly improve utilities' ability to prevent tree-related outages.

II. Comments on the NEI Report

PSNH provides the following comments on the NEI Report. Each comment is annotated to provide a reference to the item in question.

Assessment Team Members

The report lists Kathy Jones of CRREL as an NEI Team Member. It is PSNH's understanding that Ms. Jones is an employee of the federal government and not directly or indirectly a representative of NEI.

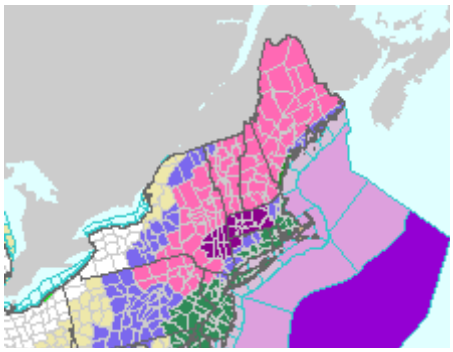
Executive Summary

Page i, Paragraph 5: The following statement is an incorrect conclusion that is not based on facts: "An ice storm of this magnitude should occur on average once every ten years based on research done by the Army Corps of Engineers Cold Regions Research Engineering Laboratory (CRREL). Past storms, such as the 1998 ice storm, were more severe than the 2008 ice storm in terms of ice accretion, but occurred farther north in less populated areas." This erroneous conclusion drives many of the costly recommendations found throughout the remainder of the report.

The CRREL report provides a partial historical perspective dating back to 1951. Unfortunately, the examples of past storms cited are only from newspaper reports and Storm Data (NOAA 1959 – present). The damage that New Hampshire utilities sustained relative to each of the referenced storms is incomplete or non-existent. To suggest that the "magnitude" of the December 2008 ice storm should occur once every ten years is an opinion not based on facts and not supported by the historical physical damage to the infrastructure of New Hampshire utilities. In fact, if one accepts the assumption that this type of storm should be anticipated to occur once every ten years, then the accrual amount for PSNH's Major Storm Cost Reserve is woefully inadequate. The accrual would have to be increased by $7 million to $10 million annually in order to recover the cost of such storms.

The statement also contradicts the following statement found on Page I-1: "This ice storm, one of the worst natural disasters to occur in New Hampshire within the last two decades, resulted in over sixty percent of New Hampshire electric customers losing power." "The restoration of power was a long and difficult process due to the record amount of damage to the power system."

Page ii, Bullet 1: The following statement is an opinion that is not based on fact and therefore should not be included in the report: "All of the utilities underestimated the severity of the storm and the extent of damage it would cause. Their response to the storm was generally slow." PSNH relies on multiple weather predictions before making decisions regarding the level of storm preparations. According to the National Weather Service, as of the morning of Thursday, December 11, 2008, the storm advisories shown in the illustration were in effect:



Note that the purple "Ice Storm Warning (ISW)" only covers a tiny portion of the area that was affected by ice. Most notably, as of the morning of the ice storm, the National Weather Service did not include any of northern New England within its "Ice Storm Warning" area; instead, the National Weather Service had issued a winter storm warning (pink) for northern New England, including New Hampshire

Also contradicting the statement that "response to the storm was generally slow", the report itself at Page II-37 & 38 states "Recognizing the magnitude of the storm, PSNH *immediately* requested help from other utilities and contract crews in New England." "As PSNH cast a wider net to solicit help from utilities along the East Coast, in the Midwest, and into Canada, local employees were mobilized to begin restoring power. Despite the efforts of over 400 PSNH crews working statewide by Day 2, Friday, December 12, the number of power outages continued to climb." Page II-52 states "At 6:00 a.m. on Day 2, Friday, December 12, PSNH initially deployed 141 in-house damage assessors to various locations throughout the state. This number increased as additional personnel became available." Clearly the opinions referenced above from the Executive Summary are inconsistent with the statements of fact made in the body of the report.

Page ii, Bullet 2: The following statement is an opinion that is not based on fact and therefore should not be included in the report: "It was also determined that better communications between the power and telecommunications companies could have reduced the outage duration for both groups."

PSNH is not aware of any communication problems with telephone companies that delayed any PSNH restoration efforts. In addition, none of the responses from PSNH to the data requests included this statement. If this opinion was not applicable to all utilities then the report should so specify. See, "Chapter VIII: Telecommunications Companies" of this response.

Page ii, Bullet 5: The following statement from the Executive Summary is inconsistent with the findings in Appendix B of this report. "However, limited overhead to underground conversion on a case by case basis may be considered when costs are reasonable and reliability can be improved." Appendix B specifically states on page B-10 "Due to increased cost and complexity of retrofitting an overhead system to become an underground system, it is less reasonable to consider underground construction in an existing situation." Appendix B, Overhead to Underground Conversion, did not include the statement referenced above from the Executive Summary. This statement is an opinion not supported by fact.

Page iii, Bullet 1: "There is a growing concern that telephone communication companies may not be providing adequate pole inspection and vegetation management, and the electric utilities may be required to bear a greater burden of the maintenance costs." The telephone companies that have joint ownership in utility poles (ILEC's) are regulated by the New Hampshire Public Utilities

Commission and as such it is within the Commission's jurisdiction to assure that telephone companies maintain their facilities in accordance with good utility practices. It should not be inferred that electric utilities may be required to bear these additional costs.

Page iii, Bullet 2: "Based upon experience throughout the utility industry, a set of best practices was developed."

This statement contradicts statements made on Page VII-1: "There is no manual or reference that provides a list of best practices for the electric or telecommunications industries. The best practice for any process is developed on a case by case basis by a utility or group of utilities." Yet the report goes on to provide 21 "Best Practices" that are, in fact, opinions and should not be represented as "industry-accepted best practices".

Chapter I: Introduction

Page I-7, Paragraph 2: The report incorrectly states that PSNH serves 209 communities in New Hampshire. The correct number is 211. (See "ELECTRICITY DELIVERY SERVICE TARIFF - NHPUC NO. 6," paragraph 1.)

Page I-2, Figure I-1 (also repeated at Page D-8, Figure D-3): This figure purports to show the "Ice storm footprint; region with damage to trees, power lines, and communication towers." The figure is inaccurate and misrepresents the scope of the storm, and the resulting challenges that all utilities faced in obtaining manpower and supplies for restoration efforts.

As stated by NOAA's National Climatic Data Center: "Because of the breadth of this storm (from Pennsylvania to Maine), extra crews to reinstate power were harder to come by. Power crews from states as far away as South Carolina, as well as local National Guard teams, were called out to help with power restoration and clean up. < http://tinyurl.com/yldw56q >.

The map in this figure fails to note that utilities in both Pennsylvania and New Jersey also had outages due to the ice storm, and other areas in the northeast experienced outages due to wind, rain, flooding, and snow. For example, five days into the storm, New Jersey's Sussex Rural Electric Cooperative reported that "An estimated 370 homes in Sussex County remained without power this afternoon after an ice storm hit the area Thursday night."
< http://www.nj.com/news/index.ssf/2008/12/750_in_sussex_still_without_po.html >.
National Grid reported that it had 6,000 outages in Rhode Island - - none of which are depicted in the referenced figures.
< http://www.nationalgridus.com/narragansett/a3-1_news2.asp?document=3814 >.
The larger scope of the storm is significant, as it directly affected crew availability – regardless of whether customer outages were the result of ice, wind, rain, snow, or flooding, the same crews and materials are necessary for restoration. For example, crews from Pennsylvania's Adams Electric Cooperative were first sent to assist the Pennsylvania-based Sullivan County Rural Electric Cooperative with storm repair

work. When released from their work in Pennsylvania, these crews next went to help restore power in Sussex Rural Electric Cooperative's northern New Jersey service area. Upon completion of their work in New Jersey, these crews finally became available to provide assistance in New Hampshire. < http://www.pennlive.com/midstate/index.ssf/2008/12/2_gettysburg_crews_assist_new.html >

Chapter II: Storm Restoration Performance

Page II-2, Paragraph 2: The report incorrectly states that "one of the best indicators of the severity of a storm is the peak number of customers who simultaneously lose power as a result."

The number of customers who lose power is only one of several indicators that should be used to determine the severity of a storm. It clearly fails to consider rural versus urban areas. The total cost of repairs, the amount of physical plant that needed to be replaced, the number of trouble locations, and the miles of downed wire that needed to be restrung are some examples of data that was submitted by the utilities that should have been used in determining the severity of the storm. The analysis should also recognize that PSNH is the only utility that is responsible for service up to and including the meter socket which added a significant amount of work to PSNH's overall restoration effort[1] (refer to Data Request Set 1, Q-STAFF-018). The report should have also recognized that PSNH does not declare power restored to a customer until power had been restored to the load side of the meter socket. Other utilities report power restored when energized at the street or weather head even if the customer does not have power until they hire an electrician to repair the meter socket. The reason for the difference in reporting practices is that PSNH assumes responsibility for restoration up to the meter, while other utilities restore only to the point of attachment to the customer's premises.

The total number of customers out of service should never be relied on as the only variable of a storm's severity, as has been done in this analysis. To do so will result in incorrect conclusions and faulty recommendations. The physical damage done to an electrical distribution system by a storm is a far better indicator to measure storm severity. Using the data provided in Table II-2 and II-5 to calculate the average cost of restoration for the peak number of customers without power indicates a range of $44.08 per customer to $232.60 per customer. This is more representative of the severity of the storm and clearly points out the fact that some utilities' systems were more significantly damaged than others. This point is further supported by the statement made on Page II-8, paragraph 2 that states "NHEC's service area experienced less damage from the storm than that of PSNH, which is one reason it was able to restore more customers for each crew day worked." The analysis provided here is limited at best and all related conclusions and recommendations should be disregarded.

[1] While the report acknowledges elsewhere that PSNH is the only utility that is responsible for service to the meter, the analysis of the storm's severity on PSNH apparently disregards this fact, thus understating the impact of the storm on PSNH's restoration efforts.

Page II-8, Paragraph 1: The conclusions made in this section are opinions based on only one variable, the number of crews, and ignores the other important variables that each utility provided in response to the data requests. Comparing the restoration performance of one utility that sustained outages to 24,164 customers with a utility that sustained outages to 322,438 customers located in a different geographic region of the state using one variable is an invalid comparison and should be disregarded. It fails to take into account differences between urban and rural areas and damage occurring along a roadway or off-road, and the amount of time required for city and state highway crews to clear roads of ice and debris, all of which have material differences in tree-related damage, the difficulty of necessary repairs, and the number of customers that can be restored for each outage.

Page II-9, Paragraph 1: The statement that "…National Grid devoted more resources per outage; …" is technically incorrect and not supported by facts presented in the report. This analysis has only considered the number of customers without power and number of crews. The number of "outage(s)" has not been defined in Appendix A but is commonly known in the electric utility industry as the work effort required to restore power to a single or group of customers depending on where the outage is experienced on the circuit. The report would be more meaningful if it relied less on number of customers without power and more on the number of troubles that had to be repaired overall. One outage does not always equate to one customer. As such, we believe the statement should read "National Grid devoted more resources per customer without power."

Page II-9, Paragraph 1: The statement "This all indicates that National Grid devoted more resources to the restoration effort than did other utilities, likely because it had more resources at its disposal due to the size of the company" is speculation that is not supported by facts. In fact, PSNH devoted more resources to the restoration effort than any other utility in New Hampshire. This was simply due to the fact that PSNH has the largest system in New Hampshire and it sustained the most damage. PSNH utilized every crew resource available to it, and added more crews as they became available after finishing restoration in other parts of the Northeast.

Page II-9, Paragraph 2: This paragraph again compares the performance of PSNH's restoration efforts against National Grid's based on one variable, ratio of crews to customers without power. The report states that "PSNH averaged 204 customers restored per crew, which was far less than National Grid, but still sufficient so that each crew had to restore only 34 customers per day." At the end of the paragraph the report concludes that "had it been possible to acquire crews more rapidly, the total length of the outage would have been reduced." This is an opinion based on one variable of the restoration effort of one company that had only 24,164 customers without power. Moreover, it fails to acknowledge that PSNH restored 120,000 customers within the first two days of restoration. The opinion never takes into consideration the type of system damage, the geographical terrain, density, the logistics required to support a restoration effort and access to damaged facilities. Taking this report's analytical logic to the extreme, one would incorrectly conclude that if PSNH had 14,000 line crews on staff on December 11th, the storm restoration could have been completed in one day (322,000 customers without power / 23

customers restored per crew day = 14,000 crews). This type of limited analysis is not meaningful in analyzing a utility's storm restoration performance, because it does not consider the logistics of employing such a large number of crews, the lack of materials and supplies necessary to support the larger number of crews, the need to perform damage assessment prior to dispatching crews, and the inability to access many areas of the system due to impassable roads. Even if these barriers could have been overcome, the numerical example above demonstrates the meaninglessness of the conclusion, since it would not have been possible to utilize that many crews at once.

Page II-9, Paragraph 3: This paragraph makes the following statement: "NHEC had on average 235 customers restored per crew, nearly the same as PSNH, and it restored 86 customers for each crew day." The report then concludes that it may have been because NHEC's service territory was more lightly damaged. This analysis continues to be subjective and not based on facts provided by the responses to the data requests. But – at least it partially recognizes that other factors besides the incorrectly relied upon customer-to-crew ratio need to be examined when reviewing storm restoration efforts.

Page II-9, Paragraph 4: The report in analyzing UNITIL's performance in this paragraph now brings into consideration a new variable of service territory "density" which had not been discussed thus far in any of the report's analyses. Clearly this is an opinion that was not supported by facts in the report. Moreover, if the analysis relied on density, then that factor should have been applied to all utilities, not just one. Again, the report partially recognizes that other factors besides the incorrectly relied upon customer-to-crew ratio need to be examined when reviewing storm restoration efforts.

Page II-9, Paragraph 5: This paragraph incorrectly concludes that "It is reasonable to assume that if all the utilities could have supplied resources at the same rate and quantity as National Grid, all power would have been restored to the state approximately 4 days sooner than actually occurred." Making this conclusion without first comparing the extent, nature and location of the physical damage to each of the utility's electrical systems is overly simplistic and renders this conclusion invalid and meaningless.

Page II-14, Paragraph 4, 11:00 a.m.: The report incorrectly states that PSNH issued a Level I advisory at 11:00 a.m. In fact PSNH issued a Level I advisory at 8:34 a.m. as stated in the report in paragraph 3. Please refer to PSNH's response to Data Request Set 1, Q-STAFF-008 and to Page II-14. PSNH issued its advisory even though the National Weather Service's ice storm warning at the time did not include any of northern New England.

Page II-14, Paragraph 4, 11:00 a.m.: The report incorrectly states that PSNH opened its EOC at 11:00 a.m. on Thursday, December 11. In fact, PSNH opened its EOC at 11:00 p.m. on Thursday, December 11. Please refer to Page II-15 where it is accurately reported in paragraph 8.

Page II-20, Day 8, 12:00 p.m., 1:00 p.m. & 6:30 p.m.: It is important to differentiate that PSNH opened **"satellite"** emergency operations centers in New Ipswich, Peterborough and Fitzwilliam. It should not be implied that these are normal emergency operations centers. These areas are typically served by the Keene emergency operations center. Due to the tremendous amount of damage to the distribution system normally managed out of the Keene emergency operations center, three additional satellite emergency operations centers were created to provide the logistical support required. Refer to Page II-39 for consistency.

Page II-41, Paragraph 1: The report incorrectly assumes that "…PSNH began releasing crews slightly too quickly." In fact, the reason the number of crews decreased on or about December 22nd is that approximately 200 mutual aid crews made their own, unilateral decisions to leave New Hampshire to return home for the Christmas holiday. PSNH has no authority to involuntarily detain these non-NU crews. The first crews began leaving on December 18 and continued until the last of these crews left at 7:00 a.m. on December 23. PSNH worked closely with these companies, urging them to stay and successfully deferred their departure by several days. Hydro Quebec was the last company of this group to leave and PSNH was grateful they deferred their departure until 7:00 a.m. on December 23. In anticipation of these crews leaving, PSNH made every effort to backfill these crews with additional outside crews so as to minimize the impact on the overall restoration effort. PSNH was bringing in new crews up until December 22. PSNH did not begin releasing line crews until December 24, 2008 at the end of the restoration effort. Based on these facts, the conclusion reached in the report is wrong.

Page II-44, Paragraph 1: The report incorrectly states that National Grid was able "to allocate more assets per outage than any of the other utilities..." The analysis contained in the report only discusses the ratio of crews to customers without power, not the number of troubles or assets. The report should be corrected to state that National Grid was able "to allocate more crews per customer without power than any of the other utilities."

Page II-44, Paragraph 4: The report incorrectly states "…it is also true that they allocated far more resources per outage to the restoration effort than the other utilities did." The analysis contained in the report only discusses the ratio of crews to customers without power, not the number of troubles or resources. The report should be corrected to state "… it is also true that they allocated more crews per customer without power to the restoration effort than the other utilities did." The measurement of the amount of resources compared to the number of customers out of power is not a meaningful measurement. Rather, the more meaningful measurement is the number of crews per trouble or outage, which is not the measurement utilized in the analysis discussed in the report.

Page II-51, Paragraph 1: The report incorrectly states as a conclusion that "initial damage assessments were slow or non-existent …". On Page II-52, paragraph 2 the report states "At 6:00 AM on Day 2, Friday, December 12, PSNH initially deployed 141 in-house damage assessors to various locations throughout the state." PSNH also used an algorithmic software program developed in-house to automatically calculate an estimate of the number of outages throughout its service territory (OAR

report). This tool positioned PSNH to put in a request to its parent company, NU, for 250 crews shortly after midnight on Day 2 (Friday). These documented efforts demonstrate that the conclusion "damage assessments were slow or non-existent" is factually incorrect and any recommendations resulting from this conclusion should be disregarded.

Page II-58, Paragraph 1: The report states that "NHEC began initial damage assessment at first light on Day 1, Friday, December 12." Throughout the report, Friday, December 12 has been referenced as Day 2. Therefore the day reference should be corrected as it is inconsistent with the remainder of the report. (Refer to Page II-15, II-16 and II-17.)

Page II-58, Recommendation No. 2, Bullet 1: The report makes an erroneous assumption that it is possible to provide accurate estimated times of restoration for 322,000 customers over a thirteen day period within 24 hours of the event. This recommendation is premised in large part on the faulty conclusion that initial damage assessment was slow or non-existent. We agree that every utility can improve the process used to provide ETR's. For a storm of this magnitude, the expectation outlined in this recommendation cannot be accomplished within 24 hours regardless of the number of resources dedicated. For example, numerous roads were impassable and required city and state highway crews to clear snow, ice, trees, etc., before any motor vehicle could pass. Estimates on road clearance were not available to PSNH in the first 24 hours. This is a major variable in estimating times of restoration. This is especially true for a winter restoration effort with limited daylight that encountered two additional snow events during its duration.

Page II-61, Paragraph 2: The report incorrectly concludes "the utilities relied too heavily upon local mutual aid agreements, which delayed the process of securing additional resources." PSNH did not rely exclusively on NEMAG mutual aid crews to supplement its work force. To the extent that they were available, PSNH secured hundreds of tree and line crews outside of the mutual aid process.

Page II-63, Paragraph 2: The report incorrectly states that "PSNH was fortunate that it had access to the resources of its affiliate utility, Connecticut Light & Power (CL&P)." The use of the word fortunate (definition: "lucky") is technically incorrect. Northeast Utilities owns three electric operating companies that support each other in restoration efforts. This support is recognized and relied on as part of our respective emergency restoration initiatives, and was considered as one of the "synergies" created by NU's bankruptcy reorganization plan for PSNH. We find it interesting that earlier in this report one utility was commended for pre-staging its own crews in New York State, yet PSNH is deemed to be "fortunate" to have received assistance from its affiliate in Connecticut. Applying this logic, one could incorrectly conclude that PSNH was "fortunate" that it had access to its own crews in the northern part of the state, which was largely unaffected by the storm. The need for differentiation is questionable and raises the impression of unequal treatment within the report.

Page II-63, Paragraph 5: The report incorrectly states "The graphs demonstrate that mutual aid crews that were requested were supplied in a timely manner, typically within twenty-four hours. The graphs also suggest that PSNH may have lost valuable restoration time by not ramping up restoration workforces until several days after the storm damage occurred." The data for Figure II-14 and Figure II-15 was taken from PSNH's response to Data Request Set 1, Q-STAFF-021. The table was not intended to represent when PSNH initially asked for additional crews. As documented on Page II-64, PSNH requested an additional 250 crews in the early morning hours of Day 2, December 12. PSNH requested an additional 250 crews later on Day 2. Figure II-14 and Figure II-15 simply demonstrate the relationship between when the outside companies committed to providing resources to PSNH and when they said they would arrive. As demonstrated by Figure II-15, it took several days to secure the crews requested on Day 2 due to the broad regional impact of the storm. Had additional crews been available earlier in the storm, PSNH would have taken them. The significant ramp-up at the end was only possible as crews were released by utilities in other states that had been hit by the storm earlier and with less damage than that suffered in New Hampshire.

Page II-72, Paragraph 2: The conclusion that "Communications with state and municipal government officials and emergency agencies were mostly ineffective. None of the utilities provided details or responded in a timely basis when specific inquiries were made" is inconsistent with this report's summary of PSNH's communications efforts which can be found on Page II-73. This latter reference correctly states, "To help facilitate communication with the State, PSNH employees were assigned to provide around-the-clock information to the Division of Homeland Security and Emergency Management and the NHPUC. PSNH officers and senior managers also participated in planning and reporting sessions with Governor Lynch, NHPUC Chairman Getz, and Safety Division Director Knepper. At the community level, PSNH employees provided regular updates to municipal officials and emergency response organizations. In the hardest-hit communities, PSNH placed employees in the municipal Emergency Operations Centers in order to meet the communities' need for more detailed, up-to-the-minute information.

Page II-73, Paragraph 5: The report fails to acknowledge several other "social media" communication tactics PSNH employed, besides "Twitter," to provide customers and officials with information regarding the restoration effort. Specifically, PSNH produced and posted to the Internet a total of six videos that outlined the extent of the damage and what the company was doing to restore power; a "podcast" was posted to the Internet, featuring a Plymouth State University professor of meteorology explaining why the storm was so devastating and how it differed from previous storms; and a "Flickr" group was created on the Internet, allowing the sharing of storm-related photographs by PSNH and customers. Throughout the storm event and the restoration process, PSNH utilized a secondary Internet website, psnhnews.com, to aggregate all available information, including links to the social media sites. Psnhnews.com was developed to facilitate the real time posting of information for customers by PSNH communication staff. A highly visible link to the psnhnews.com site was posted on the psnh.com homepage.

Page II-77, Paragraph 2: The following statement that refers to PSNH's Ice Storm Review is an opinion not based on any facts: "…however, many significant shortcomings are identified." The recommendations in the Ice Storm Review are not viewed as significant by PSNH. Several of the recommendations were simply a formalization of practices developed throughout the storm restoration effort, i.e., Satellite EOC's. To simply use an organization's self assessment to criticize that organization adds no value to this process.

Page II-78, Paragraph 4: The report incorrectly states that PSNH employs about 62 CSRs during normal weekday hours to handle all calls both within and outside of New Hampshire. The 62 CSRs referred to are NUSCO employees, not PSNH employees, and they support Connecticut and Massachusetts customers on normal weekdays. NU employs a total of 107 CSR's at the Manchester call center. As noted, approximately 62 CSR's routinely provide services to CL&P and WMECO customers and 45 CSR's routinely provide services to PSNH's customers. Moreover, as noted below, PSNH can also rely on resources available at NU's Windsor, Connecticut call center.

Page II-78, Paragraph 5: The report states that call center staffing was insufficient on Friday, December 12. This is an incorrect conclusion, not supported by the facts. The report fails to take into consideration extended shift lengths for all CSRs, the availability of NU's call center personnel in Windsor, Connecticut, our overflow call vendor, and the availability of our comprehensive voice response system. The report simply looks at the peak number of CSRs working in NU's Manchester call center on this day compared to our normal staffing levels. It does not take into account the fact that all employees' hours were extended from their normal shift to a 12-hour shift each day starting on Friday the 12th. This includes the approximately 40% of PSNH CSRs who normally work part-time hours. In addition, we overflowed calls on the 12th to our CSRs based in the Windsor, CT call center, and we overflowed calls to our outsourcer, 21st Century Communications. Call volume on Friday, December 12 exceeded a normal Friday's call volume by a factor of <u>more than 30 times</u> (total of 153,942 calls that day). **Despite the enormous call volume, only 6,042 callers received a busy signal and only 4.9% of the calls Abandoned (hung up) while waiting to speak to a CSR.** The Service Level on Friday the 12th evidences that 91% of the calls were answered in 20 seconds or less. Considering the magnitude of this event, this performance was a remarkable accomplishment.

Page II-78, Paragraph 5: The conclusion that the call center was inadequately staffed on Sunday, December 21 is incorrect and not supported by the facts. On that day, PSNH received 6,040 calls, and only 136 of those were not answered, for an Abandoned Call rate of only 2.3%. This abandoned call rate is better than a normal business day without storms. 83% of the calls on that day were answered in 20 seconds or less.

Page II-81, Paragraph 2: The report comments that National Grid used messages in their IVR to ask customers with routine business to either use the IVR or to call back after the storm. PSNH used similar messages in its IVR during much of the storm, yet there is no mention of this in discussion of PSNH's call center

performance. The report also concludes that because National Grid was able to answer nearly 100% of all calls during the storm, that their call center was staffed appropriately. What the report fails to point out is that Grid only had to handle 13,677 calls through the entire storm period. PSNH had over 425,000 calls offered and 96% of those were answered.

Page II–83, Recommendation No. 5: This recommendation contains three parts that appear to be directed broadly at all New Hampshire utilities. The report fails to recognize that PSNH already performs these functions. For example, the first recommendation asks the utilities to "recognize that customer expectations have changed and will continue to escalate…" PSNH has been a leader in utilizing automation and technology to allow customers to report power outages via the IVR or the web and to obtain either general or targeted information about their outage and the expected duration of it. For example, we know from past storms that over 90% of the callers at the beginning of a power outage simply want to report the outage, and are pleased to be able to do so via either the IVR or web, without having to speak with a CSR. It is later in an outage event that customers want and need to speak to a CSR. Because of our extensive use of technology, PSNH does not need to staff up with CSRs as quickly at the beginning of a storm as we did 10 or more years ago.

The third recommendation states that "utilities should develop and implement a procedure for rapidly increasing customer call center staffing levels…". PSNH's performance on December 12, 2008 demonstrates beyond a doubt that we have the ability to increase our call center staffing extremely quickly. We can do this via reassigning other CSRs in the Manchester center to take PSNH outage calls, by overflowing calls to CSRs in our Windsor, CT center, by overflowing to 21st Century Communications, and by the IVR and web options always available to our customers. We utilized all of these options during the Ice Storm, and on December 12, handled more than 1 month's worth of normal call volume in 1 day at a 91% Service Level and only 4.9% Abandoned call rate.

Chapter III: Emergency Planning and Preparedness

Page III-2, Paragraph 1: The generalized statement that it was the overall public's perception that utilities were not able to handle major events is opinion and there is no factual data referenced to support this opinion. Page III-5, last paragraph identifies communications as the number one issue with the storm restoration. Nowhere does this report cite any study or specific analysis to draw the conclusion that the general public perception was that all New Hampshire utilities were not capable of handling major events. The same paragraph cites "…comments from hundreds of citizens attending the statewide meetings and responding to the solicitation of comments by the NHPUC at a series of ten town hall meetings held to gather input from the public. Those comments point repeatedly to communications failures." The individuals who attended these forums are not a representative statistical sampling of the New Hampshire public. Statements in the report should be restricted to those that are supported by fact, not conjecture.

Page III-2, Paragraph 5: The statement that "New Hampshire utilities must look primarily south and west to obtain resources during a major outage" is an opinion that is not entirely correct. PSNH obtained crews from Hydro Quebec (i.e., from the north) early in the storm. Moreover, the crews from the south were not as well equipped to work in the harsh New Hampshire winter as the Canadian crews. Many of the crews from the south did not have tire chains or adequate clothing and were reluctant to work during the two snowstorms experienced during the restoration event. PSNH has been very fortunate to have the assistance of crews from Hydro Quebec!

Page III-2, Paragraph 5, Bullet 1: This statement references hypothetical delays that Hydro Quebec crews may face crossing the border into the United States. PSNH is unaware of any such delays impacting the availability of HQ crews. Moreover, PSNH's service territory abuts Quebec, minimizing the distance that crews needed to drive to arrive in New Hampshire.

Page III-2, Paragraph 5, Bullet 2: This statement is an incorrect conclusion from a fact stated in an interview. The fact that Hydro Quebec crews operate very large four-wheel drive bucket trucks was a major asset in the storm as they were able to gain access to areas other crews could not.

Page III-2, Paragraph 5, Bullet 3: The inference that language barriers negatively impacted the effectiveness of Hydro Quebec crews is an assumption not based on facts and is entirely incorrect. The crews from Hydro Quebec were among the most productive crews of all of the mutual aid and contract crews that assisted during the restoration event, and language differences did not create any negative impact.

Page III-5, Paragraph 6: The note that "comments from hundreds of citizens were solicited by the NHPUC after the storm at a series of ten town hall meetings" appears to be contradicted by the minutes of each meeting. According to those minutes, posted on the NHPUC website, a collective total of 65 public comments were received at the ten hearings. In fact, 7 of the 10 public hearings included fewer than seven members of the public; no members of the public appeared at three of the hearings. Chairman Getz did mention, at the final hearing, that the NHPUC had received "more than 150" comments via the commission's website.

Page III-9, Table III-1: The scorecard used to grade each utility is extremely subjective. The criteria are not objective measurements of performance; the criteria do not represent any industry standards; they are not weighted; and the grading is entirely subjective. This scorecard therefore does not provide any useful information, nor does it provide an objective assessment of the utility's performance.

Page III-9, Table III-1, Section 3, Line 2: It is factually incorrect to state that PSNH's emergency response facility is not maintained in a mode to allow for prompt activation. PSNH's dedicated emergency operations center is in a steady state of readiness, fully supplied with computers, telephones, conferencing capability, televisions, emergency power, and other needs, and it can be activated at a moment's notice.

Page III-9, Table III-1 Section 4, Line 2: The table indicates the lowest possible ranking to the criterion "The utility has a procedure to ensure that the content of all communication is reliable and consistent." In fact, PSNH has in place a protocol to ensure consistency. As the report acknowledges on Page II-73 paragraph one, a "Communications Chief" was stationed in the EOC at all times. The Communications Chief placement, and the chief's subsequent reporting to other communication staff members, ensures a reliable and consistent flow of information. The rating is not consistent with PSNH's response to Data Request Set 1, Q-STAFF-42.

Page III-14, Conclusion and subsequent Recommendation 1: The conclusion that post storm reviews are not part of PSNH's emergency restoration plan is incorrect. PSNH's Emergency Response Plan requires all key Incident Management System positions to conduct post storm critiques. This requirement is contained in the Incident Management Position Roles and Responsibilities. PSNH has a history of conducting post storm reviews and the data reviewed aligns closely with the recommendation. The lessons learned are prioritized and incorporated into the emergency plan. PSNH has assigned the oversight, scheduling of reviews, and implementation of the lessons learned to the Operations Support Supervisor and this is contained in the formal job description. The information obtained and follow-up action becomes part of an ongoing post storm review file.

Page III-15, Recommendation 2: This recommendation does not recognize the Business Continuity Plan developed by PSNH and submitted under Data Request NEI-007, Q-NEI-009. PSNH's Business Continuity Plan goes beyond health emergency planning which is covered in PSNH's Pandemic Plan, also submitted under Data Request NEI-007, Q-NEI-009, and contains other elements such as work force minimums, alternate work locations, minimum equipment requirements, etc. The NEI report recommends this information be included in the Emergency Response Plan. PSNH's Business Continuity Plan is intentionally a stand-alone document that is used in conjunction with the Emergency Response Plan.

Page III-15, Recommendation 3: This recommendation is inconsistent with statements made earlier in the report and does not take into consideration the demographics served by PSNH. Page III-5 states that a "one size fits all" approach will not work for New Hampshire. Page III-4 notes that the population in the municipalities range from over 100,000 to towns that have 32 people. The report continues to say that utilities' emergency plans must be designed to handle the tremendous variation that exists in their respective areas. This recommendation calls for a "one size fits all" approach. It does not take into consideration that PSNH serves 211 of the 234 municipalities in New Hampshire, many without full time emergency directors or personnel and some with varying accessibility to the people who serve in these roles. PSNH agrees with the initial conclusion in the report that a "one size fits all" approach will not work for New Hampshire and that PSNH should be allowed to design an approach to handle the tremendous variation that exists in its respective area.

Page III-16, Conclusion and Recommendation 4: The conclusion is incorrect and the resulting recommendation is not accurate. PSNH's Emergency Operations Plan had and continues to have a Utility Liaison position established to provide this information as well as other level liaison positions. The EOC Utility Liaison did have direct contact with telecommunication companies. Division Incident Commanders were also in contact with the telecommunications companies on a regular basis. The liaison position is designed to supply the telecommunications companies with outage and restoration information.

Page III-16, Paragraph 4: The conclusion that security was inadequate during the 2008 ice storm is incorrect and not based on fact. Utilities brought in security on an as-needed, where-needed basis. Such actions should not be construed to mean that security was inadequate.

Page III-17, Recommendation 5: This recommendation does not recognize that the items identified are already included in PSNH's Emergency Response Plan that was submitted under Data Request Set 1, Q-STAFF-001.

Page III-18, Recommendation 6: The statement that each utility should develop a method for collecting and archiving data following events infers that they currently do not. This is not accurate, as discussed in PSNH's response to Data Request Set 2, Q-STAFF-024. PSNH supports the review and analysis of weather events for the development of a predictive damage model for future use.

Page III-20, Conclusion: The conclusion "New Hampshire utilities have not totally implemented the Incident Command System" is not accurate and contradicts NEI's conclusion on Page III-13, where it is stated that "Both PSNH and National Grid had thorough Emergency Operations Plans and organizations during the ice storm…" PSNH has a fully functioning Incident Management System that worked extremely well during the 2008 December Ice Storm.

Page III-21, Recommendation 8: This recommendation fails to recognize that PSNH has already developed and implemented an Incident Management System. Contradictory to this recommendation, this system has always aligned the organizational structure of PSNH's EOC with the Area Work Center EOC's.
The report cites five specific PSNH recommendations for improvement to PSNH's Incident Management System. Each of the five recommendations was taken directly from the "PSNH Post Storm Review" provided to NEI in response to Data Request NEI-07, Q-NEI-006. Page VI-10 of NEI's report confirms acknowledgement of the review and PSNH's request for confidential treatment. The changes recommended from PSNH's Post Storm Review have been implemented.

Page III-22, Paragraph 1: The statement that PSNH has no dedicated facility set aside for use as an emergency operations center (EOC) is factually incorrect. PSNH's EOC has a back-up power supply, dedicated computer stations, extra computer terminals, wireless capabilities, pre-existing phone lines (including two dedicated wireless phone lines for the Area Commander) three overhead computer projectors for displaying information, fax capabilities, dedicated printer, a television monitor and kitchen facilities. PSNH's EOC also has an adjoining space that

provides dedicated support services, dedicated cubicles reserved for EOC use, shower facilities, etc. PSNH's EOC is immediately available for emergency operations, 24 hours/day, 365+ days/year.

Page III-22, Recommendation No. 9: This recommendation is subjective and factually incorrect. As noted above, PSNH already has a dedicated EOC that has a back up power supply, dedicated computer stations, extra computer terminals, wireless capabilities, pre-existing phone lines (including two dedicated wireless phone lines for the Area Commander) three overhead computer projectors for displaying information, fax capabilities, dedicated printer, a television monitor and kitchen facilities. PSNH'S EOC also has an adjoining room that provides dedicated support services and has three dedicated cubicles reserved for EOC use. The PSNH EOC is immediately available for emergency operations, 24 hours/day, 365+ days/year. If NEI is suggesting that the rooms be used for nothing but emergency operations, then the space would be of no value during the bulk of the time when there is no storm restoration operation. Implementing such a recommendation would be a waste of resources and would create additional costs to customers that are totally unnecessary.

Page III-22 & 23 Conclusion: The report concludes that PSNH did not operate an outage management system during the storm. This conclusion is inconsistent with the NEI statement made on Page V-11, sentence 1, under conclusion which states "PSNH has an OMS system which was developed over the years in-house." The conclusion incorrectly states that PSNH stopped using its outage management system. In the same conclusion it notes that some utilities internally develop their own systems as is the case with PSNH. PSNH internally developed a Trouble Analysis System and an Outage Assessment Reporting System. The Outage Assessment Report is an automated system that uses a set of algorithms to automatically calculate an estimate of the number of outages based upon the electrical address system utilized by PSNH. This information was provided in PSNH's response to Data Request Set 1, Q-STAFF-040.

Page III-24, Recommendation No. 10: PSNH would support the future purchase of a new OMS but only after the implementation of a robust GIS system. However, such capital expenditures must be balanced against the cost to customers and included as part of an overall rate strategy. NEI incorrectly identifies PSNH's current system as a manual system. PSNH has an automated system as described in the PSNH response to Data Request Set 1, Q-STAFF-040.

Page III-24, Conclusion: The conclusion that PSNH did not have enough damage assessment personnel is an opinion not based on fact. PSNH responded to this question in Data Request Set 1, Q-STAFF-027. It is also recognized on Page II-52, paragraph 2 of this report that PSNH initially deployed 141 in-house damage assessors. The report goes on to state that PSNH increased the number as additional personnel became available and the company called upon qualified retired employees with experience to do damage assessments.

Page III-24, Recommendation No. 11: This recommendation is general to all utilities and does not identify that PSNH's Emergency Response Plan has employees who are cross-trained and assigned as damage assessment personnel. The Emergency Plan also references the Emergency Response Assignment System which contains the names of the trained damage assessors. The Emergency Response Plan was submitted under Data Request Set 1, Q-STAFF-001. The fact that PSNH has an adequate number of damage assessment personnel is supported by this very report on Page II-52, paragraph 2 which acknowledges there were 141 damage assessors initially deployed. This recommendation fails to acknowledge that PSNH utilized damage assessment personnel from its affiliate companies and retirees (facts which were noted in other locations in the report). It also fails to recognize that many roads were not passable, particularly for the first 24 hours following the storm; therefore, damage assessment could not be performed in those areas. PSNH also has a concern with NEI's recommendation to activate personnel prior to the storm. For every hour the employee is activated before the storm it equally reduces the time available to perform damage assessment immediately following the storm event. Employees must rest after a set number of hours worked. Activating an emergency response organization involving hundreds of personnel based on potential weather events that often do not materialize would be a significant expense to customers and would necessitate regulatory changes to increase PSNH's storm reserve. Moreover, having storm assessment personnel working in hours of darkness is not particularly productive, and may result in the need to repeat such assessments over the same geographic area.

Page III-24, Recommendation No. 11, Bullet 1: As discussed earlier in this response, the recommendation that PSNH utilize a sufficient number of damage assessors to perform detailed damage assessment of the entire system within 24 hours is absurd. With a storm of this magnitude, it would require many thousands of damage assessors to immediately be deployed throughout the system to accomplish this goal. Such a recommendation is so impractical that it displays a significant lack of understanding of the scope of the storm and the effort required to conduct damage assessment.

Page III-26, Recommendation No. 13: This recommendation was clearly implemented by PSNH during the storm. PSNH brought in over 1,000 crews to assist in the storm restoration. PSNH used an extensive pool of resources that stretched across PSNH's affiliate companies, NEMAG mutual aid crews, the New Hampshire Electric Cooperative, crews from Canada, NSTAR crews, crews from the mid-west region and as far south as Tennessee and numerous contractor companies and electrician resources. This is supported by PSNH's response to Data Request Set 1, Q-STAFF-021 where the names of the outside resources used by PSNH can be seen.

Page III-27, Recommendation No. 14: The recommendation infers and is based on the incorrect opinion that the utilities did not work with the communities to provide contact phone numbers or have a process to receive information. PSNH's Emergency Operations Plan includes Community and Municipal Liaison positions to provide and collect this information. The Liaisons did have direct contact with communities. The position is designed to supply and collect outage and restoration

information with the communities. However, this effort must be reciprocal to work effectively. Many communities did not provide a single point of contact or have a full time Incident Commander. Some communities allowed every first responder -- police chief, fire chief, highway director etc. -- to contact the utility at will. A significant amount of information was provided by the utilities to communities. However, the information was not dispersed in many communities.

Page III-28, Recommendation No. 15: The recommendation does not acknowledge that PSNH proactively and reactively communicated with scores of media outlets during the restoration effort. It fails to acknowledge that PSNH produced and posted to the Internet six videos that explained the restoration effort and process. It does not acknowledge the stream of posts PSNH provided, via Twitter, that were followed by all major New Hampshire media outlets, as well as hundreds of customers. It does not note the audio podcast, posted on the Internet, with a Plymouth State University professor of meteorology who described the nature of the storm and why it was so devastating.

Page III-29, Recommendation No. 16: PSNH does enforce the use of its communications channels and has in place a protocol for the proper release of information.

Chapter IV: System Planning, Design, Construction, and Protection

Page IV-4, Paragraph 3: It is unclear whether the reference to the 44 kV system should actually refer to the 46 kV system in PSNH's territory.

Page IV-4, Paragraph 4: The discussion is not supported by fact. The lack of a neutral on a 34.5 kV sub-transmission line in a right-of-way does not preclude it from being used to service customers directly when an adjacent line has a neutral installed.

Page IV-4, Paragraph 4: The discussion of distribution vs. sub-transmission neglects to mention the fact that the sub-transmission has a higher BIL construction standard.

Page IV-6, Figure IV-4: The terminology (which is accurate in the description above the figure) does not correspond and agree with the Figure itself. The annotation "Energized Conductor" should be changed to "Primary Conductor" as it is the expectation that all wires are or may be energized. The annotation "Service Transformer" should be changed to "Distribution Transformer" and "Communications Circuitry" should be annotated as "telephone cables."

Page IV-6, Paragraph 2: The discussion of ROW pole placement for distribution lines is not factually complete. Distribution lines in New Hampshire are typically constructed along the edge of the municipal or state road right of way as allowed by license. Infrequently, where distribution poles occupy private property, occupancy is by specific easement.

Page IV-6, Paragraph 2: The report incorrectly compares trimming on transmission and sub-transmission lines with the clearance on roadside. Transmission and sub-transmission lines are in utility easements where rights are defined. Along the roadside, PSNH needs landowner consent to perform trimming.

Page IV-6, Paragraph 2, Last Sentence: The term ROW is not factually correct as used. This implies rights the utility does not have. As stated, PSNH occupies the municipal or state right-of-way by license.

Page IV-7, Figure IV-5: The photo in Figure IV-5 doesn't support the discussion. This picture was taken in April and the "brush" that is shown under the lines is actually vegetation from outside the trim zone that had been bent under the lines by the ice storm. There were also piles of storm debris under the lines. Therefore, the photo and discussion are misleading.

Page IV-7, Paragraph 1, Last Sentence: The term ROW is not factually correct as used. This implies rights the utility does not have. As stated earlier, PSNH generally occupies the municipal or state right-of-way by license, with no underlying property rights.

Page IV-8, Paragraph Following Graphic: The terminology is inconsistent with previous definition on page IV-7, and the statement "…equipment located inside the electric distribution substations was unaffected…" Incoming power lines to distribution substations affected by trees and limbs would be cleared remotely by breakers and protective schemes serving those lines, not at the distribution substation. The distribution substation would lose power based on the fact that supply lines were interrupted. Operation of devices within the substation would occur due to problems with outbound distribution lines or equipment problems inside the substation itself.

Page IV-10, Paragraph 2: The statement about covered wire is not factually correct. PSNH does not "commonly use" covered wire on sub-transmission and distribution lines. Covered wire is used infrequently on an application specific basis.

Page IV-10, Paragraph 2: The statement regarding repair of covered wire systems is not factually correct. PSNH has three conductor with messenger wire installed and has made repairs and installed these systems. The use of typical bucket trucks does not inhibit or prevent the use of this product.

Page IV-15, Table IV-1: The scorecard used to grade each utility is extremely subjective. The criteria are not objective measurements of performance; the criteria do not represent any industry standards; they are not weighted; and the grading is entirely subjective. This scorecard therefore does not provide any useful information, nor does it provide an objective assessment of the utility's system planning, design, construction and protection practices.

Page IV-15, Table IV-1, Section 1, Line 3: The finding of "Improvement needed" as stated in this table for "Aging equipment did not have an adverse impact on the system during the storm" is not supported by the previous or following findings and conclusions within this chapter and is also inconsistent with the finding on Page V-17 top of page which reads, "Conclusion: Aging poles and equipment did not contribute significantly to the storm damage or restoration effort."

Page IV-23, Table IV-7: Correction to "Note: PSNH indicated I135 115 kV line outage for 914 minutes and claimed the line is owned by National Grid. National Grid does not show this line outage." PSNH does not just claim the line is owned by National Grid; it is, in fact, owned by National Grid. The I135 is not tapped off the J136N. At the time of the storm, the I135 line was reconfigured and open between Flagg Pond and Monadnock substation for reconductoring. The I135 line was cleared by operation of the National Grid Breaker I135 at Bellows Falls and PSNH Breaker I1350 at Monadnock. Information on this outage, including relay targets was provided to NEI during the initial meetings for the storm report.

The J136N outage reported by National Grid affected 6,862 customers at PSNH. At the time of the storm, the system was reconfigured for a variety of construction projects as noted in the report. A mobile substation was installed directly tapped off the J136N and served the 382 sub-transmission line at Monadnock substation. When the outage occurred, the load served by this mobile substation was lost and transferred back to the Monadnock substation by supervisory control.

Page IV-25, Paragraph 1: The comment "Another possibility is that the static wire had been previously damaged" is conjecture and not supported by any facts. There was no evidence of previous damage to the 367 static wire prior to the ice storm. In addition, the report uses conjecture to reason the static sagged into the phase conductor. The structure construction does not allow this to happen. The sagging conductor will drop between the phase conductors, which also sag due to ice loads.

Page IV-25, Paragraph 1: The report described wind blowing. Prior references in the report describe little or no wind during the ice storm.

Page IV-25, Paragraph 3: The comment "…and were likely caused by either ice induced galloping of line jumping" is opinion and not supported by fact or discussion.

Page IV-27, Recommendation 1, Item 2: The static line is designed for a given set of criteria. It would be speculation to determine what would happen if the design criteria are exceeded for future events.

Page IV-27, Recommendation 1, Items 4 and 5: Northeast Utilities has an asset management program for static wires and a program to replace static wires. See prior references in report about static wire replacements in progress during the ice storm.

Page IV-29, Paragraph 2: The report does not correctly identify 34.5 kV as one of PSNH's typical distribution voltages. The report also does not clearly identify PSNH's sub-transmission 46 kV system.

Page IV-35, Paragraph 1: The Northeast Utilities transmission group has a program to replace electromechanical relays with numeric units. This information was provided to the consultant during interviews. PSNH (distribution) agrees in concept with the statement but the discussion is incomplete. PSNH has installed approximately 301 microprocessor based (numerical) relays at distribution substations to provide substation and feeder protection. These relays have event record capability which provides pre-fault and fault data. In addition, approximately 58 voltage disturbance monitors are installed at distribution substations and are used in conjunction with microprocessor relays to determine the proper operation of protection systems and locate faults on the sub-transmission and distribution electric systems. Since the "...protection devices operated correctly during the December Ice Storm and did not adversely affect the system" the recommendation to make wholesale changes is inconsistent with the conclusion.

Page IV-35, Recommendation 5: This recommendation totally ignores cost. PSNH - Energy Delivery would have to replace approximately 590 electromechanical relays within five years. Most of PSNH's 34.5 - 12.47 kV and 34.5 - 4.16 kV substations do not have existing SCADA capability. Additional department P&C engineers, P&C design/drafters and contractors at a cost of multiple millions of dollars would be required to meet such a deadline. Such capital expenditures must be balanced against the benefits to customers and included as part of an overall strategy.

Page IV-35, Conclusion 2: The conclusion that covered wire is used extensively is not supported by fact. As noted earlier, (Page IV-10, Paragraph 2) covered wire is not extensively used in PSNH's service territory. If other utilities do so, they should be specifically identified.

Page IV-36, Conclusion 2: The statement about maximum radial ice thickness is factual incorrect. The ice build up was more substantial than that stated in the report. According to a report entitled "Eastern United States Ice Storm of 11-12 December 2008" prepared by the National Weather Service, "western New Hampshire averaged 0.50 to 1.00 inches of ice accumulations." < http://nws.met.psu.edu/severe/2008/12Dec2008.pdf >. Similarly, as stated by NOAA's National Climatic Data Center: "The hardest hit areas in southern New England were the Monadnock region of southwest New Hampshire, the Worcester Hills in central Massachusetts, and the east slopes of the Berkshires in western Massachusetts. Anywhere from half an inch to an inch of ice accreted on many exposed surfaces." < http://tinyurl.com/yldw56q >

Page IV-36, Paragraph 4: The statement that only NHEC experienced significant damage in 1998 storm is factually incorrect. While the number of customers impacted was relatively small, Chocorua, Laconia, and Newport areas suffered heavy damage. PSNH's restoration effort lasted 9 days.

Chapter V: Operations, Maintenance, and Vegetation Management

Page V-2, Paragraph 4: The reference to the August 14, 2003 Northeast blackout is an incorrect comparison. The root cause of that blackout was poor vegetation management of transmission ROWs with trees growing into lines. The ice storm experienced trees falling onto lines from outside the ROW. Also, the report states vegetation management practices on ROWs were not a contributor to ice storm damage.

Page V-5, Paragraph 1: The following statement is misleading and requires clarification: "Better vegetation management techniques and shorter tree trimming cycles are needed in New Hampshire to prevent the next storm from causing damage similar in extent to that caused by the December 2008 Ice Storm." Trimming techniques and cycle time do not compensate for inadequate physical separation of electric lines from trees. In addition, such expenditures must be balanced against the benefits to customers and considered as part of an overall strategy.

Page V-7, Table V-1: The scorecard used to grade each utility is extremely subjective. The criteria are not objective measurements of performance; the criteria do not represent any industry standards; they are not weighted; and the grading is entirely subjective. This scorecard therefore does not provide any useful information, nor does it provide an objective assessment of the utility's operation, maintenance and vegetation management practices.

Page V-7, Table V-1, Section 1, Line 2: The text of the report does not include discussion about voltage. This rating has no basis.

Page V-7, Table V-1, Section 1, Line 3: The text of the report does not include discussion about system frequency. This rating has no basis.

Page V-7, Table V-1, Section 3: Combining of vegetation management (Transmission and Distribution) is not a valid approach. The two systems have very different maintenance practices, drivers and budgets. The table tries to broad brush the issue and is incorrect. The transmission system complies with all requirements.

Page V-7, Table V-1, Section 3, Line 1: PSNH has a cyclical plan with a very low cost/mile and an aggressive hazard tree component. This plan was a result of Docket No. DE 06-028. PSNH performs Enhanced Tree Trimming (ETT) on circuits identified as "opportunity for improvement." Therefore, the conclusion that improvement is required is not valid.

Page V-7, Table V-1, Section 3, Line 2: PSNH is on target for cycle trimming approved by the Commission Docket No. DE 06-028.

Page V-7, Table V-1, Section 3, Line 5: PSNH requires contractors to abide by ANSI Z-133 and any State and Local arboricultural ordinances. PSNH Arborists inspect 100% of work performed.

Page V-7, Table V-1, Section 3, Line 6: As approved by the Commission in Docket No. DE 06-028, PSNH's vegetation management plan requires 34.5 kV circuits (69% of our circuits) to be trimmed every 4 years, 12 kV circuits (24% of our circuits) to be trimmed every 5 years, and 5 kV circuits (7% of our circuits) trimmed every 6 years.

Page V-11, Conclusion , Paragraph 1: The statement that PSNH stopped using its OMS and that the system was of little value is not based in fact. During the ice storm PSNH's OMS system (called the Outage Analysis and Reporting System, or OARS) was never shut down, never overloaded and was in use throughout the event. The OARS system has proven to be very accurate and was highly utilized throughout this event. The predictive modeling component of the system is very specific and shows outages on the distribution system to the protective device detail.

Page V-11, Conclusion, Paragraph 2: It is an incorrect assessment that the information provided by the tool used by PSNH was too general and vague to be of such value to the utility during restoration. The information provided by the Outage Assessment Reporting system is detailed and specific to outage locations. The system is based on an electrical address system instead of GIS; however, it does provide outage and customer location information that was valuable during the restoration process.

Page V-11, Conclusion, Paragraph 2: It is not clear whether this paragraph is commenting on PSNH's OMS, its OARS, its TRS or its weather predicting tool. PSNH has a weather prediction tool developed through a partnership with Plymouth State University. The tool is general and gives a prediction of damage to PSNH's system for weather events for the system and not specific areas, towns or communities. It is part of our planning and preparation tools, and is not an OMS or part of an OMS.

Page V-11, End of Last Paragraph and Continuing to Page V-12: Discussion of AMI/AMR and meter readers is not suitable in the context of this report. Location or customer-specific communication during storms is available by adopting other less physically intrusive, time-consuming and costly means. Capital expenditures for AMR/AMI or OMS systems must be balanced against the benefits to customers and considered as part of an overall strategy.

Page V-13, Recommendation No. 1: The recommendation to abandon PSNH's existing OMS system is misguided and not supported by fact. The current OARS outage analysis algorithm has proven to be accurate and consistent with actual in-field observation and work identification during this and other storm events. It is more appropriate to incorporate the current OARS capability with a new GIS platform to gain electric network modeling and to enhance electric addressing.

Page V-14, Paragraph 1: The terminology is inconsistent and easily confused with "communication" used elsewhere in the report. The topic is "telecommunications" or "data communication."

Page V-14, Paragraph 3: Comments regarding restoration of communications to SCADA are not supported by fact. PSNH's SCADA is connected via a redundant communication network of private and joint electric utility-owned fiber and copper line, microwave, and radio. A few sites are served by leased fiber and copper line. The Electric System Control Center has the ability to remotely control the system offsite from two different locations. Consistent with comments earlier regarding AMI, the suggested widespread use of AMI/AMR and incorporation into an OMS introduces a common point of failure for electric service and communication. This conclusion is not supported by risk analysis and this discussion introduces a priority to internal systems rather than restoration of service to customers.

Page V-14, Paragraph 3: The statement "…none of the utilities had an OMS sufficient to use any information…" is technically incorrect and not based on fact. PSNH's automated OARS worked throughout the restoration event providing very valuable outage information from which to dispatch crews and to determine the overall need for resources.

Page V-16, Paragraph 1: The following statement is an opinion not supported by fact: "…the large number of poles and cross arms shown by PSNH can be attributed to their large service area in New Hampshire relative to the other three utilities." In fact, the large majority of poles and cross arms broken during the event were regionalized to the work centers in the southern portion of the state. If anything, this data indicates that PSNH's service territory was damaged more severely than other utilities, as stated by NOAA's National Climatic Data Center: "The hardest hit areas in southern New England were the Monadnock region of southwest New Hampshire, the Worcester Hills in central Massachusetts, and the east slopes of the Berkshires in western Massachusetts. Anywhere from half an inch to an inch of ice accreted on many exposed surfaces." < http://tinyurl.com/yldw56q >.

Page V-17, Recommendation 3, Bullet 2: The recommendation is inaccurate in that it implies that the electric utilities are responsible for ensuring pole inspections are completed in the telephone company's maintenance areas. Independent local exchange carrier telephone companies are regulated by the New Hampshire Public Utilities Commission. It should not be the responsibility of the electric companies to ensure compliance by the telephone companies. PSNH has an ongoing pole inspection program as well as a National Electric Safety Code inspection program. In addition, the recommendation regarding ground line inspection is inconsistent with conclusions stated above. There was no evidence ground line issues added to ice storm damage. The recommendation has no basis.

Page V-18, Paragraph 2: The following statement is technically incorrect: "Their analysis determined that the maximum radial thickness of ice seen in New Hampshire was ½ inch." The referenced report in fact stated on page D-12 that "The largest "modeled" ice thickness" was ½ inch in Manchester. The report also states that the model is based on the data collected from various weather stations located throughout New England. The analysis of the weather sites found on page D-11 clearly shows that all of the weather sites in southwestern NH and north/central Massachusetts were missing data due to power outages. On Page D-12, paragraph 1, the report states that the CRREL Ice Storm Team found 0.6 inch of

radial ice on a twig at Temple Mountain State Reservation a full two days after the ice storm. The damage sustained by New Hampshire utilities is clearly inconsistent with this finding. As noted earlier, NOAA's National Climatic Data Center stated: "The hardest hit areas in southern New England were the Monadnock region of southwest New Hampshire, the Worcester Hills in central Massachusetts, and the east slopes of the Berkshires in western Massachusetts. Anywhere from half an inch to an inch of ice accreted on many exposed surfaces." < http://tinyurl.com/yldw56q >.

Page V-20, Conclusion: The data is taken out of context and discussion is incomplete: "Outages caused by trees generally take longer to restore than other outages due to other causes such as equipment failures, lightning, etc." The conclusion is also inconsistent with the report's findings regarding underground construction which can be found in Appendix B, Page B-7, paragraph 2 & 3. Specifically, it states "It may take up to 10 times longer to repair a problem on an underground line than it would on an overhead line."

The data includes a profile of troubles for tree-related outages and includes a portion of activities caused by Ice/Sleet/Snow, Wind and Patrolled - Nothing Found in addition to Trees and Limbs. The impact of adverse weather on trouble response and repairs is more prevalent for tree-related outages. Despite this, the longest CAIDI trouble type is Dig Ins, consistent with statements regarding underground repair times.

Page V-23, Paragraph 5: The report states "NHEC's trimming policy is superior to other utilities…" yet it also states that NHEC has 7 and 10 year cycles. The statement found on page V-30 states "for most utilities, including those in the Northeast a four-year vegetation management cycle has been found to be ideal." PSNH's trimming cycles are 4½ years on average, as discussed elsewhere in these comments. It is unclear how NHEC's trimming policy is superior.

Page V-23, Paragraph 5: Comments regarding trimming cycles are out of context and insufficient to indicate the value of a particular cycle. Physical clearance of electric conductors to trees is required to determine a suitable cycle. Techniques such as stump cut treatment or other herbicide applications are critical as well.

Page V-26, Figure V-12: The photo does not support its related discussion. The P-145 line was last cleared in 2007. The picture in Figure V-12 appears to show an area that is being managed as habitat for an endangered species, the Karner Blue Butterfly, in accordance with U.S. Fish and Wildlife Service and New Hampshire Fish & Game Department requirements.

Page V-27, Paragraph 1: Use of term "easement" is not factually correct as used. "It was observed that even freshly trimmed line easements along roads..." The majority of poles in PSNH territory along roads are placed within municipal or state road right of way as allowed by license. The term easement implies property rights utilities do not have. All trimming along municipal rights-of-way is subject to landowner permission.

Page V-27, Paragraph 1: "The trimming practices of PSNH… do not guarantee ground to sky clearances." This statement is not supported by facts. PSNH does achieve ground to sky clearances around power lines. PSNH has two specifications for roadside distribution line trimming. The Enhanced Tree Trimming (ETT) specification does provide for ground to sky clearance and it is implemented and maintained in targeted areas. PSNH is continuing to expand these targeted areas. This capital program began in 1999. The inability to achieve 100% conformance with either the standard or ETT specification does occur, however, because landowner permission is required.

Page V-30, Paragraph 1, and Page V-32, Recommendation No. 4: The statements ignore PSNH's current obligation under the Reliability Enhancement Program approved by the Commission in Docket No. DE 06-028. PSNH is maintaining a 4 year average cycle for 34.5 kV, 5 year for 15 kV, and 6 years for 5 kV. True easements for sub-transmission are managed at 4 years and are full floor clearing. The specifications also include an aggressive hazard tree takedown program for roadside and ROW lines, and mid-cycle trimming.

Page V-31, Figure V-16, Hydro One: The discussion is in conflict with the recommendation that utilities use a 4 year trimming cycle. NEI suggests a 4 year cycle for New Hampshire utilities but the study referenced for Hydro One shows a 6 year cycle is appropriate. See also references to NHEC's 7 and 10 year cycles.

Page V-32, Recommendation No. 4: While increased vegetation management may be beneficial, this recommendation fails to consider the additional cost of implementation. A methodology to mitigate hazards once identified in an inventory needs to be established. Such expenditures must be balanced against the benefits to customers and considered as part of an overall strategy.

Page V-33, Second to Last Paragraph: The following comment is opinion and not based in fact: "The revised RSA 231:172 will make it easier for utilities to perform their required trimming." There is no experience available as the law was just changed. Under the new law, customer permission is still required. It is expected that those customers who are sensitive to trimming and have not been forthcoming with permissions in the past will opt in to the new system and obstacles to comprehensive trimming will remain.

Page V-34, Paragraph 1: The report fails to mention that RSA 231:145 is still subject to the provisions of RSA 231:158 (Scenic Roads). It also fails to state that RSA 231:145 requires the utility to petition the municipal regulatory authority for permission to remove a hazardous tree and it is at the sole discretion of that authority to grant such permission.

Page V-34, Last Paragraph: "Figure V-15 is an example of an oak that should never have been planted so near a distribution line." This is an example of the types of trees that grow naturally throughout New Hampshire. It is unsupported conjecture that the tree was in fact "planted."

Chapter VI: Post Ice Storm Actions and Processes

Page VI-4, Table VI-1: The scorecard used to grade each utility is extremely subjective. The criteria are not objective measurements of performance; the criteria do not represent any industry standards; they are not weighted; and the grading is entirely subjective. This scorecard therefore does not provide any useful information, nor does it provide an objective assessment of the utility's post-storm actions and practices.

Page VI-9, Paragraph 1: The following statement is factually incorrect: "The New Hampshire electric utilities have not attempted to use past storm data to try to model the damage that may be caused by a future storm event." Several years ago, PSNH contracted with Dr. Eric Hoffman at Plymouth State University to develop a model to forecast damage to electrical systems based on past storm data. Five years of PSNH's historical storm data was entered into a data base along with the historical weather conditions. As a result, a web based Weather Decision tool was created for PSNH and is in use.

Page VI-10, Conclusion and subsequent Recommendation 2: The conclusion is factually incorrect and thus the recommendation is unfounded. The report cites that PSNH does not have a process for responding to the incident management system review. PSNH has a process in place and the execution of the process is formally assigned to the Operations Support Supervisor. The Operations Support Supervisor initiates, facilitates, documents lessons learned and has the responsibility to implement the approved lessons learned. This responsibility is included in the Operations Support Supervisor job description.

Following the December 2008 ice storm written comments were solicited by the Operations Support Supervisor from the EOC Chiefs prior to a formal review meeting. A meeting was held to review the written comments and suggestions and a brainstorming session was conducted to evaluate the restoration process. While the participants were IMS Chief Positions, they had previously received feedback and suggestions from employees in their organizations, including comments supplied by field personnel. After the lessons learned were reviewed, prioritized and identified they were assigned to the Operations Support Supervisor for implementation. This is a routine practice following significant storms.

This recommendation is based on PSNH's response to Data Request NEI-07, Q-NEI-006, in which NEI requested a copy of PSNH's Incident Management System review summary document. The submission of this single document was used as the basis for the recommendation. There was no other information requested regarding PSNH's past post storm practices, the assigned responsibilities or levels of employee participation. This report was unique in that PSNH conducted a specific IMS review because the IMS system was recently implemented and this was the first full application of the system. PSNH wanted a focused IMS review to identify any improvement areas needed for the new emergency plan. The implementation and changes that have been taken following the IMS review can be found later in this document under Section IV – Changes Implemented Since December 2008 Ice Storm.

Chapter VII: Best Practices for Electric Utilities

Page VII-1, Paragraph 1: The following statement brings into question the relevance of this entire chapter: "There is no manual or reference that provides a list of best practices for the electric or telecommunications industries. The best practice for any process is developed on a case by case basis by a utility or group of utilities. For this assessment, a list of 'best practices' was developed using information from the New Hampshire utilities, utilities across the country, and past experience."

Best practices in the electric utility industry are usually qualified as best practice only after they have been statistically evaluated using a common criteria and including a significant number of utilities in the sample. Appropriate criteria for this type of analysis should include System Average Restoration Time Index, Customer Average Interruption Duration Index, and System Average Interruption Duration Index and the impact of each recommended best practice in terms of minutes saved on each of these indices. In this particular case, there have been no standard criteria offered by which to analyze the proposed "best practices". The report states that this list of best practices was developed on the past experience of NEI, yet no past experiences have been offered to date. The 21 so-called "best practices" developed in this chapter are based solely on the opinion of NEI and are not based on any statistical analysis that supports their claims. As such, these best practices are incorrectly titled and should be considered opinions or recommendations.

Page VII-3, No. 3: The recommendation to pre-position its restoration work force at the first indication of a storm is not based on fact or sound analysis. The first indication of a storm could be several days in advance and weather reports are not always accurate. The recommendation does not take into consideration or balance the millions of dollars annually it would cost to pre-position resources based on weather reports and would require a significant increase in PSNH's storm reserve. The report offers no statistical evidence to support the conclusion that utilities should incur these significant expenses based on the accuracy of weather reports.

Page VII-3, No. 4: There is no supporting analysis or statements of fact to support this recommendation. This should be considered an opinion. Ramping up resources to treat every upcoming potential storm as if it was a repeat of the December 2008 Ice Storm would significantly increase costs to customers unnecessarily.

Page VII-4, No. 8: The discussion is incomplete and not supported with fact. There are no references to utilities that have adopted the practice of overbuilding their infrastructure and the results gained from doing so. Repeatedly throughout the report it is stated the system was subjected to damage caused by whole trees and limbs and vegetation debris falling onto electric lines. It is unproven that overbuilding the electric system for ice and wind loads due to a once in 50 years occurrence compensates for dynamic shock loads of multiple whole trees collapsing onto the line. The added costs of such a program would need to be taken into

account during the company's rate setting process. Northeast Utilities Distribution Standards Department is active in NESC working groups reviewing the proposed revisions put forth by the ASCE.

Page VII-5, No. 9: PSNH agrees in concept with the discussion but the recommendation fails to recognize the rural nature of New Hampshire and its geography. Many areas of the state are served by single radial line systems that are not in close proximity to an alternate source of supply. Constructing very long connections for alternate feeds or duplicating existing systems to allow loops is costly and in itself becomes subject to outages of all types. High speed source transfer is only possible where there is an alternate source to which load can be transferred. Many of PSNH's 12 kV and 4 kV substations do not tie to other substations. At 34.5 kV, most ties between 115 - 34.5 kV sources have automated ties which are SCADA controlled through the ESCC. The use of automated source transfers through "Smart Grid" technology is being evaluated.

Page VII-5, No. 9, Paragraph 2: PSNH agrees in concept but the discussion is incomplete or not supported by fact. At PSNH, most 34.5 kV sub-transmission is built recognizing alternate feeds and approximately 130 tie and isolating switches are remote radio controlled with many having unrestrained voltage or fault sensing operation. Other devices are also installed on the same lines and operate with independent voltage and fault sensing ability in conjunction with the remote control devices. The storm was widespread and damaged large geographic areas. The presence of these auto loop schemes would have been of minor value since both sides of the switch were without power.

Page VII-6, No. 10: PSNH agrees in concept but the discussion is incomplete. Typically electro-mechanical relays are installed as a package with the equipment they control (circuit breaker) or protect (substation transformer) and the communication systems to which they attach (telephone, microwave, fiber). All of the components are of similar vintage, 30 years old or more. This is an appropriate recommendation, but it needs to be incorporated into attrition plans and age-related system upgrades, and not an independent action. PSNH's history has shown that electromechanical relays have been reliable. Further, PSNH has had to return microprocessor-based relays for issues such as SRAM and internal power supply failures. Firmware upgrades, cyber security, communication and hundreds of settings per relay present challenges to the use of numerical relays.

Page VII-7, No. 12: The following statement is an opinion not supported by fact: "The PSNH OMS was the worst performing system of the four electric utilities." It is also contradictory with prior statements. On Page III-23, Paragraph 5, the report states "This leaves PSNH as the only New Hampshire utility without an OMS". Yet on Page V-11, Section D., PSNH, the report states "PSNH has an OMS system that was developed over the years in-house". This report has stated that PSNH does not have an OMS, that PSNH does have an OMS, that PSNH's OMS is manual and that PSNH's OMS did not work during the storm. Clearly the report demonstrates a lack of understanding of PSNH's storm management system as is shown throughout these comments.

Page VII-7, No. 13: Point of clarification – The recommendation is for a 2 year equivalent cycle.

Page VII-8, No. 15: Approximately 70% of PSNH's circuits are trimmed on a 4 year average cycle. PSNH's sub-transmission is transitioning to a 4 year cycle as well. The remainder of the system is trimmed in accordance with the requirements established in Docket No. DE 06-028.

Page VII-10, No. 16, Bullet 5: There are potential liability and cost issues associated with creating a "tree inventory." PSNH doesn't own trees; the property owners do. The cost of maintaining such an extensive inventory of trees in the second most forested state in the country would be extremely costly.

Page VII-12, Table VII-1: The scorecard used to grade each utility is extremely subjective. The criteria are not objective measurements of performance; the criteria do not represent any industry standards; they are not weighted; and the grading is entirely subjective. This scorecard therefore does not provide any useful information, nor does it provide an objective assessment of the utility's conformance with so-called best practices.

Page VII-12, Table VII-1, Section 2, Line 9: The rating is not supported by facts. (See the response to Page VII-5, No. 9.) At PSNH, most 34.5 kV sub-transmission is built recognizing alternate feeds and approximately 130 tie and isolating switches are remote radio controlled with many having unrestrained voltage or fault sensing operation. Other devices are also installed on the same lines and operate with independent voltage and fault sensing ability in conjunction with the remote control devices. The use of automated source transfers through "Smart Grid" technology is being evaluated.

Page VII-12, Table VII-1, Section 3, Line 13: Based upon performing NESC inspections on 64% of PSNH's overhead system to date, inspecting the entire system on a 2 year cycle is not warranted. The NU operating companies have adopted a 10 year cycle.

Page VII-12, Table VII-1, Section 3, Lines 15, 16: 70% of PSNH's circuits are cleared on a 4 year cycle. PSNH's contract requires adherence to arboricultural standards. PSNH's Arborists inspect 100% of work. Therefore, the subjective rating of "not implemented" is incorrect.

Chapter VIII: Telecommunication Companies

Page VIII-16, Paragraph 4: The following conclusion is incorrect: "There was no official coordination between the electric utilities and TDS during the storm restoration although unsuccessful attempts were made to contact PSNH by telephone."

TDS owns multiple small communications companies throughout southern and western New Hampshire. During the ice storm PSNH's Area Work Center Emergency Operations Centers stayed in contact with TDS throughout the restoration to coordinate efforts. On October 9, 2009, PSNH's representatives spoke with their TDS contacts and confirmed there were no communication problems during the storm restoration effort. In fact, they stated exactly the opposite -- that the communications and cooperation between the utilities were excellent. TDS representatives in the Hollis area, John Jowders and Don Hamon, confirmed that neither of them was aware of any communication issues locally. Mike Motta, Incident Commander for the Milford EOC reported that John indicated that the restoration went "extremely" well, and the communication between PSNH and TDS was "exceptional." PSNH's Marc Gagnon was in contact with John throughout the storm. Both John and Don reiterated that the communications locally were exceptional. PSNH also confirmed with TDS representative Bill Nager out of the Hopkinton office and Dave White out of the Weare office that both were very pleased with the open lines of communication specific to our Newport EOC. They specifically stated that they never had a problem with PSNH. With regard to PSNH's Hillsborough EOC, Incident Commander Kevin Chamberlain reports that the TDS office in Contoocook had contact information for the Restoration room in Hillsborough as well as his cell phone and pager number. Chamberlain reported that he talked at least a couple of times a day with his TDS counterpart to keep each other updated on priority and non-priority issues in our joint service area. There is an obvious dispute of facts relative to this conclusion.

Page VIII-17, Recommendation 3, Bullet 3: The recommendation states that TDS should be present in PSNH's EOC. For operational efficiency, PSNH allows only PSNH/NU employees in its EOC. All others are assigned a specific liaison. PSNH will continue to coordinate with TDS to provide appropriate and timely information.

Page VIII-31, **Paragraph 4:** "Communications between the FairPoint construction team and the electric utilities were handled at the local levels. Although there were no formal regularly scheduled calls between FairPoint and the electric utilities, there were multiple daily communications between the companies to pass information, prioritize work, and communicate work plans for the following day. However, there were still situations encountered where SSTs were turned away from an area by the electric companies. This resulted in lost time since the telecommunications technicians had to be rerouted and then return at a later date."

This statement is internally inconsistent and factually incorrect. Multiple daily communications resulted in information being shared, work prioritized and work plans communicated for the following day. There is no quantification of "situations."

Page VIII-32, Recommendation 7: The recommendation states that FairPoint should be present in PSNH's EOC. For operational efficiency, PSNH allows only PSNH/NU employees in its EOC. All others are assigned a specific liaison. PSNH will continue to coordinate with FairPoint to provide appropriate and timely information.

Chapter VIII, General: Despite acknowledgment in the Executive Summary on page iii that telecommunications companies may not be providing adequate vegetation management, there are no recommendations related to the telephone companies' responsibility for tree trimming.

Chapter IX: Recommendations

Chapter IX is incomplete in the draft report. Recommendations from Chapters VII and VIII were omitted.

Page IX-5, Table IX-2: Table IX-2 includes 38 specific recommendations and assigns a value of Benefit, Priority and Cost to each of the recommendations. Of these 38 only four of the recommendations are related to trees. Of these recommendations two are rated by NEI as medium cost and two as low cost. Yet on page IX-3, bottom paragraph, the report concludes the following: "From this analysis it may be seen that most of the money spent by utilities to prevent ice storm damage should be spent on vegetation management. This conclusion is consistent with many of the other conclusions and recommendations in this report." To implement all of the recommendations in this section would cost PSNH in excess of $200 million yet only a very small percentage of this is dedicated to improvements in vegetation management. The recommendations are therefore inconsistent with the findings of the report.

Page IX-5, Table IX-2, II-3: The cost as recommended is factually incorrect. To implement this recommendation and administer it accordingly would require significant annual expenses in the range of High (> $2.5 million) annually and would necessitate a significant increase in PSNH's storm reserve.

Page IX-7, Recommendation IV-3: The recommendation is inconsistent with the conclusion on page IV-29, "Except for two minor exceptions, none of the outages appear to have been the result of inadequate planning, design, construction or protection of the distribution substations."

Page IX-8, Recommendation IV-5: The wholesale replacement of electromechanical relays is not appropriate and needs to be managed within capital constraints and reasonable attrition of attendant equipment. (See earlier comments in Chapter IV.)

Page IX-8, Recommendation V-1: The recommendation for PSNH to abandon its OMS system is unfounded and not supported by fact. (See various comments in Chapter V.) PSNH believes a GIS platform is a reasonable recommendation to incorporate into its OMS.

Page IX-8, Recommendation V-3: PSNH already has an established pole inspection and treatment program for all solely owned, and jointly owned poles within its maintenance territory. This includes sub-transmission and transmission poles.

Page IX-8, Recommendation V-4: PSNH has a comprehensive vegetation management plan as approved in the last rate case (Docket No. DE 06-028). 70% of PSNH's roadside circuits are cleared on a 4 year average cycle, as are sub-transmission circuits. PSNH eliminates hazard trees during its maintenance trimming cycle, and performs mid-cycle trimming. PSNH will use Enhanced Tree Trimming specifications (ETT, ground to sky) on 45 miles of line under capital accounts in 2009. ETT has been utilized for nine years.

Page IX-8, Recommendation V-5: PSNH fully supports this recommendation and believes it has the most significant impact on reliability of the distribution system.

Page IX-8, Recommendation V-6: PSNH has 6 certified Arborists on the vegetation management staff. Degrees in Arboriculture, Forestry and related fields are held by staff, along with decades of practical and field experience.

Page IX-8, Recommendation V-7: PSNH agrees in concept with the use of stump cut treatment. More information and evaluation of notification requirements and permitting will be needed to pursue. The use of herbicides for vegetation management has not been favored by the public in New Hampshire. PSNH would need to evaluate this practice in the context of its environmental management strategies.

III. Communications

Communications
Throughout the December Ice Storm and in the ensuing days and weeks following this natural disaster, PSNH focused intently on the critical role of communicating with state and local officials, PSNH's customers, media, PSNH's employees, and other important audiences, as it fully executed the responsibilities outlined in its Incident Management Plan.

The NEI assessment references "communications" in several areas of its report, and often uses the term in a broad, general sense. PSNH believes the report is inadequate in its assessment of the comprehensive communications approach used by PSNH throughout this natural disaster. Therefore, we are including a summary of the communications effort that was implemented, PSNH's assessment of where its performance met or exceeded reasonable expectations given the unprecedented impact of the natural disaster, and areas where improvements to our plan are currently being implemented, in the unlikely event that an ice storm disaster of this magnitude strikes New Hampshire again.

Organizational Structure and Dedicated Resources
As part of PSNH's Emergency Response Plan, which was developed based on the National Incident Management System, a Communications Chief, reporting directly to the Area Commander, was in place 24/7 for the 13-day restoration effort. Four PSNH managers or directors served in this capacity, directing the efforts of more than 28 employees serving in formal communication, community outreach, and support roles.

PSNH's Communications organization had resources dedicated to communications with key stakeholders, including: regulators and state officials; local, regional, and national media; municipal officials; business customers; and employees.

The structure of the organization allowed us to increase resources in key roles, including adding increased municipal official resources in the hardest hit areas, including the communities of New Ipswich, Fitzwilliam, and Peterborough, where three satellite operations centers were located.

Overarching Communications Goals
From the very start of the restoration effort, PSNH was focused on two goals:
- Providing accurate and timely information to state emergency management personnel, community emergency response officials, and the media to ensure efficient and effective coordination and information flow throughout the restoration effort, so that PSNH's customers would be as informed as possible.
- Initiating prompt problem-solving and targeted communications/outreach to respond to unforeseen issues as they emerged.

PSNH worked hard to ensure that we communicated accurate information. The damage was too significant to our system, the weather was too unsettled, and customers' expectations were too important to not be thoughtful and thorough in the information that was communicated.

Throughout the event, PSNH was proactive in its communications with state regulators and officials, the media, and other key audiences using an email update as its centerpiece document for current outage information, overall progress of the restoration, and to address important safety issues. To ensure accuracy, every email was personally reviewed and approved by the Area Commander. This email was then used by PSNH's employees charged with a formal communications role in the storm. Where known or available, localized information could be added to the email update by the respective communications personnel as it was distributed to various audiences.

This email update proved to be an excellent tool. Media and key constituents did not have to continually call to seek information; they received it without prompting and appreciated its frequency and predictability.

Fifty-four of these updates were issued beginning at 4:30 a.m. on December 12, through 5:00 p.m. on December 23. Each update was posted to PSNHnews.com

In addition, at the request of the NHPUC, PSNH began to issue a "95% Complete" report by town. This was another effective tool in providing an assessment of the overall restoration progress.

Range of Mediums and Communications Tools Employed
Throughout the course of the restoration effort, PSNH responded to media inquires 24 hours a day, accommodating hundreds of media interviews and arranging for footage to be taken at dozens of locations in the field. PSNH's President, Gary Long, hosted update sessions with media to augment the proactive email updates being issued.

Beyond media relations, PSNH employed a variety of communications tools to reach as many customers as possible. PSNH made use of social media outlets to share storm-related news and information. Throughout the restoration process, PSNH produced six videos and a podcast to help explain the restoration process and the unique weather conditions that caused the mass power outages. Posted on YouTube and promoted in PSNH's storm email updates, these videos were viewed more than 17,000 times during the course of the restoration.

A separate webpage was developed on the psnhnews.com Internet site, which was populated with links to all updates, reports, videos, podcasts, photos, and other storm-related information.

Twitter was used by PSNH to send and receive short bursts of information via the Internet and cell phones. Within days of the storm, the number of subscribers following PSNH's Twitter posts increased from 100 to 1,900.

Responding to Emerging Issues
One of the key roles of PSNH's communications efforts during the storm restoration was to support the safety of the public and utility personnel. When two major snowstorms hit New Hampshire in the heart of the restoration work, PSNH used its established communications outlets to urge motorists to stay off the roads if possible, and to slow down when driving past crews working alongside roadways. PSNH also worked with the State Fire Marshall to develop and distribute a Public Safety Announcement to share basic generator safety information and to prevent carbon monoxide poisonings. Notices were also issued to remind the public to stay away from downed wires and electrical equipment, and to call PSNH if they found damaged equipment on their property.

Employee Communications
With so many customers left without power, PSNH's employees were asked to work extremely long hours in a high-stress environment. The primary internal communications goal was to keep these exhausted employees focused, motivated, and informed.

To reach employees in the field, PSNH published a printed employee newsletter every other day throughout the restoration effort. The newsletter was distributed at work locations, where employees and mutual aid workers could catch up on what was happening and how much progress had been made.

As thank-you letters and cards poured in from grateful customers, excerpts were published in the newsletter, as well as photos from the field, high-level overviews of the restoration effort, and targeted safety reminders.

Impact of PSNH's Communications and Restoration Approach
PSNH's strong restoration efforts and communications elicited hundreds of thank-you emails, notes, and cards from customers, and helped earn the company several awards in 2009, including the Distinguished Corporate Citizen of the Year award from the Daniel Webster Council of the Boy Scouts of America, the Greater Nashua Chamber of Commerce's Business of the Year Award and the Souhegan Valley Chamber of Commerce's Business of the Year Award.

In addition to local recognition, PSNH and its parent, Northeast Utilities, received an award earlier this year from the Edison Electric Institute for the company's restoration performance, and PSNH anticipates receiving a national award for utility outage communications later this year for its communications efforts during the December Ice Storm.

Areas for Improvement Being Addressed
Based on lessons learned during the December Ice Storm, PSNH is currently implementing changes to its emergency response plan to improve efficiency of information disbursement at the community level.

PSNH services 211 communities in a state whose history and constitution are based on having a strong sense of local control. During the Ice Storm restoration, PSNH was challenged by the sheer number of inquiries coming from municipal and local

officials, and the lack of efficient information disbursement within some communities. This situation often resulted in numerous calls from a variety of individuals in the same community seeking the same information. While PSNH increased the number of community relations resources to provide information to local communities as the restoration process progressed, the need for more employees trained and ready to be dedicated to this function was clearly a lesson the company learned.

In addition to increasing its available resources, PSNH is also in the process of confirming the primary and secondary emergency response directors and their contact information for each town, and will contact these local officials to ensure that the process of how information will be exchanged between the company and the communities it serves in the event of an emergency is understood by all parties.

In conclusion, PSNH believes, as others have recognized, that PSNH managed its communications efforts very well during the December Ice Storm, and that the perspective noted by NEI that communications were "ineffective," is simply not correct.

Because the December Ice Storm was unprecedented in the damage it did to PSNH's system and in the amount of time and effort required to restore power to customers, it is understandable that customers' frustration levels ran high. Municipal officials and customers wanted one question answered: When would their power be back on? In cases where PSNH was unable to provide an estimated restoration time, their impatience understandably grew.

These frustrations, however, were not caused by inadequate or ineffective *communications* on PSNH's part (e.g. responding to calls and inquiries, proactively issuing updates); but rather because PSNH did not have the specific *information* they wanted at the time they wanted it. Instead of speculating or providing "best guess" information, PSNH focused on being accurate and forthright, even when PSNH's employees were met with frustration and anger. In the end, PSNH believes it acted appropriately in its commitment to providing accurate and timely information.

IV. Changes Implemented Since December 2008 Ice Storm

An Incident Management System (IMS) Post Storm review was conducted on February 5, 2009, to discuss recommendations previously gathered from the Emergency Operations Center (EOC) Chiefs.

The IMS review was held after providing the EOC Chiefs adequate time to solicit input from their teams, including field personnel. Recommendations were then summarized for implementation, as appropriate. The changes implemented to date as a result of the Post Storm review completed for the December 2008 Ice Storm are as follows:

IMS Organization

- Emergency Operations Center:
  - ✓ Created a Human Resource Chief position reporting to the Area Commander
  - ✓ Created a Financial Analyst position reporting to the Planning Chief
  - ✓ Created a Legislative Liaison position reporting to the Communications Chief
  - ✓ Created a Security Coordinator position reporting to the Safety and Environmental Chief
  - ✓ Representation from the New Hampshire Transmission group has been added to the EOC staff.
- Division Operations Center:
  - ✓ Created a Division Communications Liaison position to interact with the AWC Communications Liaison and reporting to the EOC Communications Chief
  - ✓ Created a Division Planning Chief to interact with the EOC and AWC Planning Chiefs
  - ✓ Created a Division Logistics Chief to interact with the EOC and AWC Logistic Chiefs

  (Note: The two added positions above resulted in the removal of the Division Resource Planning position.)
- AWC Restoration Center:
  - ✓ Created an AWC Communications Liaison position reporting to the Division Communications Liaison
- Satellite Restoration Center:
  - ✓ Created a Satellite Operations procedure, including an organization chart to be referred to during major restoration efforts

Emergency Response Plan

- Storm Conference Call Database:
  - ✓ Developed a database for AWC significant storm updates, allowing for more efficient and consistent reporting
- Field Resources and Process Improvements:
  - ✓ Bulk stocked supplies for 50 additional Wires Down kits at Central Warehouse
  - ✓ Bulk stocked supplies for 50 additional Detailed Damage Assessment kits at Central Warehouse
  - ✓ Osmose Utility Services purchase order established to ensure additional damage assessment resources during significant storm events
- Trouble Reporting System (TRS) Status Screen Changes:
  - ✓ Revising several status screens to provide more specifics with regard to outage type and crew type. Screen changes will allow for improved communications with customers and state officials. Screen changes have been submitted to IT for development and implementation.
- PSNH Shared Forms:
  - ✓ Revising various shared forms to provide improved tools to aid with tracking crew arrival times and tracking of actual resources received. Form changes have been submitted to IT for development and implementation.

Settlement in NHPUC Docket No. DE 06-028

- Ongoing actions improving reliability as agreed to in the settlement of the last PSNH distribution rate case. The ***Reliability Enhancement Program*** (REP) was established beginning July 1 2007. Detailed program descriptions are included in annual reports to the Commission. Specific examples of activity include:
  - ✓ Vegetation management actions including reducing cycle to 4.5 years average from current 5 years. Includes added takedowns of hazard trees, mid-cycle trimming, reduced sub-transmission ROW clearing cycle to 4 years from 5, and full completed work inspections.
  - ✓ Perform distribution system inspections of the overhead and underground system and perform repairs and upgrades as necessary. NESC Code inspections, Pole inspections and treatment, Aerial Thermovision inspections, adding fault indicators to underground systems.
  - ✓ Perform distribution maintenance and repairs for in service equipment such as manual and automatic switches, line reclosers, eliminate maintenance backlogs.
  - ✓ Perform system upgrades due to age, product and condition issues such as Porcelain line component change outs, Replacing air break switches, Replacing older problematic Circuit Breakers, Adding fuses and sectionalizing equipment on long or unprotected laterals, and upgrading SCADA communication components.

Current Distribution Rate Case, NHPUC Docket No. DE 09-035

- Specific activities have been included in our current rate case proceeding. Examples of requested items that specifically relate to Storm performance:
  - ✓ Request to maintain majority of equipment maintenance and inspection practices including line patrols, pole inspection, and NESC code reviews. This is a continuation of the established REP based programs to be performed within future base rates
  - ✓ Request to maintain current maintenance practices for vegetation management including an average 4.5 year cycle, takedowns, mid-cycle trimming, ROW clearing cycle reduction to 4 years and contractor work inspection. This is a continuation of the REP-based programs included in future base rates
  - ✓ Request to augment vegetation management by $500,000 for expected added costs to manage latent storm related problems found during on cycle work within base rates.
  - ✓ Request to add a specific program to clear distribution (sub-transmission) Rights of Way to legal edge, within a new REP portfolio
  - ✓ Request to add a specific program to augment vegetation management takedown funds and increase mid cycle work due to latent storm related problems in those areas not scheduled for cycle maintenance and affected by the Ice Storm, within a new REP portfolio
  - ✓ Request to begin a capital program to implement a GIS system at PSNH over a 5 year period including integration with its OMS system
  - ✓ Request to begin a capital program to change out non-standard small wire primary voltage lines, and relocate distribution laterals from narrow Rights of Way.
  - ✓ Request to maintain capital support for various inspection programs such as pole inspections, and NESC code inspections, switch replacements and other capital support for reliability improvements.

Federal Stimulus Grant

- PSNH and the Northeast Utilities electric companies have submitted a proposal for Federal Stimulus Grant Funding, subject to NHPUC review and authorized recovery. Programs that improve the Reliability of the system during routine times and storm events. Requested programs for stimulus funds include:
  - ✓ Pilot Smart Grid installation for advanced distribution automation on as many as 100 isolating and monitoring devices to facilitate self healing and fault identification on up to 6 circuits
  - ✓ Smart Meter Pilot for as many as 5000 meters to test two way communication, data management, and demand strategy's
  - ✓ Smart Grid pilot for in home customer information methods to facilitate customer involvement

Transmission

- Breaker Operation:
  - ✓ All operations of transmission circuit breakers were reviewed shortly after the storm. Corrective actions were taken to address any deficiencies found during the review.
  - ✓ The no-reclose of the K1650 breaker was traced to a problem in the setting for reclosing logic. New settings were developed and applied to the circuit breaker controls.
  - ✓ The issue with the Q171 overtrip was traced to settings on the fiber optic channel. The channel time delay was set too short to allow full blocking signals to be sent, resulting in the breaker operating. New settings were generated and applied to the Q171 line.
- Transmission Line Design:
  - ✓ Personnel in the Northeast Utilities Transmission group are members of several transmission groups and committees (EPRI, EEI, IEEE, CEATI, etc) involved in line design. Transmission structure design criteria are periodically reviewed based on the findings of these committees.
- Other maintenance and system upgrades:
  - ✓ The Northeast Utilities Transmission group has a program to perform ground line pole inspection and treatment. The program is a 10 year cycle and is on schedule.
  - ✓ Northeast Utilities Transmission has programs in place to replace all electromechanical protective relays on transmission circuits. In NH, the 345 kV relay replacement program will be complete by December 2010. The 115 kV relay program is planned to be complete by 2015.
  - ✓ All transmission lines involved in the ice storm were air patrolled once the storm had subsided. Problems or potential problems were noted and scheduled for repair as required.
  - ✓ Northeast Utilities has a specific project to replace the static wire on the 367 line (Amherst to Fitzwilliam) with OPGW.
  - ✓ Northeast Utilities has approved a 5 year program to expand its fiber optic network in NH through the replacement of existing static wire with OPGW.

Vegetation Management

- Roadside Distribution Trimming
  - ✓ During January, 2009, 100% of roadside tree crews patrolled circuits and addressed any vegetation issues that were found. This process was continued in February with 25% of the roadside tree crews.

- ROW Clearing
  - ✓ For 3 months, a skidder bucket performed unscheduled clearing in ROWs in the Keene and Monadnock areas.

V. Closing Summary

PSNH is very proud of its proactive response to the tremendous devastation caused by the December 2008 ice storm. The Company's efforts received national recognition when the Edison Electric Institute selected Northeast Utilities to receive the prestigious EEI Emergency Response Award for its ice storm response. PSNH also received recognition awards from southern New Hampshire communities for PSNH's exceptional response to the record breaking ice storm. Every employee of PSNH and every New Hampshire-based employee of Northeast Utilities Service Company, played a role in this tremendous effort. Co-workers from PSNH's sister companies in Connecticut and Massachusetts, with the help of many Company retirees also assisted tremendously in this record-breaking emergency response. Finally, the effort could not have progressed as successfully as it did without the assistance provided by many utilities and contractors, from both near and far.

Many portions of the NEI report are helpful and accurate. However, the Company is dismayed by the report's overarching fundamental inaccuracies that cloud the conclusions and recommendations throughout.

First and foremost, the report understates the size and severity and overstates the frequency of the storm that hit the northeast United States in December 2008. This storm was tremendously large, creating power outages over an area extending from Pennsylvania and New Jersey up through Maine. Every state in New England, in addition to New York, New Jersey and Pennsylvania was impacted by this storm, severely limiting the near-term availability of assistance from outside crews.

The report minimizes the storm's severity by indicating that the geographic area affected by significant electric system damage was much smaller than what actually occurred; that the amount of icing that took place was less than what actually happened; by ignoring the fact that PSNH is responsible for restoration up to the meter; by failing to recognize that more customers were impacted by this storm than by any other storm in PSNH's history; and by ignoring the magnitude of the storm's destruction at its epicenter in the Monadnock region and adjoining areas of north-central Massachusetts.

Moreover, the report indicates that a storm of similar magnitude can reasonably be expected to occur once every 10 years. During PSNH's 82-year history, no such similar storm event had ever been experienced. Central Vermont Public Service Company has stated that, "This storm was twice as bad as the prior worst-ever storm." If this conclusion from the report was accepted, there would need to be significant increases to storm reserve accruals to ensure that there were sufficient funds to deal with the resulting once-a-decade disaster.

The report takes a one-size-fits-all approach to what went right or wrong, ignoring differences in terrain, extent of damage, and density of population as well as differences in definitions regarding statistical data, nomenclature, and restoration. For example, when data is provided for "outages", is that information the number of customer meters not spinning, or is it the number of troubles a company has

identified? Is a customer's service restored when lines are connected at the street, or when all necessary work has been completed and the lights are actually on? This is a significant issue in that PSNH has accepted responsibility for restoring electric service all the way to the customer's meter, which is not the case for all New Hampshire electric utilities. Unfortunately, the report makes many apples-to-oranges comparisons, ignoring these significant differences.

Most regrettably, the report constantly ignores the tremendous effort and results produced by the Company's employees, affiliates, contractors and retirees. We are extremely proud of the fact that at the height of the storm our customer call center operations received 153,942 calls in a single day and were able to answer 91% of all those calls within TWENTY SECONDS! Instead of recognizing this tremendous achievement, the report concludes that "Staffing levels at the customer call centers for Unitil, NHEC and PSNH were inadequate to manage all CSR offered calls during the December 2008 ice storm." This conclusion cannot be accepted, as it is just plain wrong, and would be demoralizing to the dedicated CSRs that accomplished this tremendous feat. It ignores the law of diminishing returns, and ignores good performance in its quest for unattainable "perfection".

Similarly, the report fails to recognize the army of personnel that immediately moved into pre-assigned storm duty jobs. Before the sun had risen the morning after the storm hit, PSNH had 141 employees deployed throughout the service area to provide an assessment of the damages to the Company's system. These employees were out and about in the morning darkness, travelling treacherous ice-covered roads that in many cases were not passable with any vehicle. These employees worked 12 to 16 hour days, most leaving their families in cold and dark homes. Instead of recognizing this remarkable storm response, the report concludes, "Following the December 2008 ice storm, it took the utilities many days to provide initial damage assessments." The fact that the Company's damage assessment teams immediately provided information on more areas of damage than there were crews available to respond was apparently of no consequence to the drafters. Instead, notwithstanding the immense cost of such a recommendation, the report finds "Each electric utility should use the December 2008 ice storm as a model and determine the number of damage assessors that would be required to perform a detailed damage assessment within 24 hours." PSNH serves nearly ½ million customer accounts. During the December ice storm, over 320,000 of these customers were without power. We have 12,000 miles of line. The number of damage assessors that would be required to meet the reports recommendation of completing "a detailed damage assessment within 24 hours" would be staggering – multiple thousands of damage assessors would be required to accomplish that task; undoubtedly more people than PSNH currently employees (including all distribution, generation, customer service, transmission functions.) This recommendation, like many others in the report, creates an unrealistic expectation far detached from the reality of a major storm restoration.

The report fails to acknowledge the personnel staffing levels the report's recommendations would require, or the extensive costs associated with the recommendations. Chapter IX of the report begins by recommending annual increases in spending by PSNH of $7.3 million for vegetation management and

$1.6 million for system infrastructure costs. The report then goes on to recommend additional hundreds of millions of dollars in system infrastructure upgrades. The report's suggestion that PSNH should install new AMR/AMI, GIS, and OMS systems, should have a new facility dedicated solely to EOC operations 24 hours/day, 365 days/year, should install nearly 600 electromechanical relays, should reconfigure its system into a loop feed arrangement, should overbuild its facilities beyond that required by national codes, should engage in universal ground-to-sky tree trimming, etc. might create a system that is less-impacted by storms – but would most certainly create a system that many of our customers cannot afford.

Despite the report's many inaccuracies, it does provide a starting point for a collaborative effort of stakeholders to suggest realistic recommendations to mitigate the impacts of future large storms. Such an effort should include representatives from the state's electric utilities, telecommunications and cable companies, municipal utility providers, municipal governments, first responders, National Guard, radio/television/media, and appropriate state and federal agencies. Procedures, processes, costs, and needs of each stakeholder should be discussed; relationships and networking should be developed; plans and exercises should be put into place. Only after a collaborative and cooperative effort to understand each other's needs, resources and limitations will all stakeholders have learned the lessons that should be learned from this record-setting storm.

PSNH is proud of its record-breaking storm restoration effort. It is proud of the award that was presented to Northeast Utilities by its peers from EEI. But, we are dismayed by a report that apparently "can't see the forest for the trees."

We stand ready and willing to work with all stakeholders, as described above, to learn from this experience and institute changes that will tend to mitigate the impact of any future disasters of this type while balancing the financial impact to our customers.