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November 19, 2015

BY Overnight and E-MAIL

Debra A. Howland
Executive Director and Secretary
New Hampshire Public Utilities Commission
21 S. Fruit Street, Suite 10
Concord, NH 03301-2429

**Re: Unitil Energy Systems, Inc. Comments re NHPUC Staff After Action Report
Docket No. DE 15-047**

Dear Secretary Howland:

On behalf of Unitil Energy Systems, Inc. ("UES"), enclosed is Unitil Energy Systems, Inc.'s Comments in the above-captioned matter.

Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink that reads "Gary Epler".

Gary Epler
Attorney for Unitil Energy Systems, Inc.

Enclosure

Cc: Service list (by E-mail)

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Unitil Energy System, Inc. Comments

Regarding the New Hampshire Public Utilities Commission Staff's

After Action Report of November 26, 2014 Thanksgiving Snowstorm

Overview:

As provided for in the Secretarial Letter of October 20, 2015, Unitil Energy Systems, Inc. ("Unitil " or "the Company") submits the following comments on the New Hampshire Public Utilities Commission's Staff After Action Report on the November 26, 2015 Thanksgiving Snowstorm. Many of Staff's recommendations are helpful and the Company will take them under advisement. However, many of the recommendations are already institutionalized within the organization and documented within the Company's Emergency Response Plan (ERP). The summary below reflects the Company's position on each of the applicable recommendations.

There is one theme that Staff has highlighted throughout the report – the event occurred on a holiday, which slowed the Company's response. Unitil would like to expound on this issue and provide clarity as to the Company's approach to restoration, regardless of whether or not a holiday or any other constraint exists.

Unitil's storm response preparations are based on the weather forecast and the estimated impact the weather event will have on the Company's infrastructure and its customers. For this particular storm, the forecast fluctuated in the days prior to the event, and it wasn't until late in the day immediately prior to the event that the snow consistency and accumulation became clear. Once the Company had insight into the amount of snow accumulation (snow was forecasted days in advance but at much lesser levels than was received), it moved the appropriate number of resources into place.

The influence of the holiday was associated with some employees and contractors taking extended vacation time, many being out of state or generally unavailable. However, most employees cut their vacations short to staff their Storm Assignment Listing (SAL) positions, and the Company was largely satisfied with the response level. Staff's assessment rightly reflects that certain contingencies, such as a holiday, have some impact on the process. However, the conclusion underestimates the robustness of the Company's ERP, which takes such a contingency into consideration by ensuring we have adequate backup personnel for each SAL position, and that the Company retains a large pool of resources and mutual aid options for such conditions.

Section III.A. - Staff's General Findings

1. Staff makes the point that the storm fell on a holiday which delayed the response.

Unitil takes its obligation to provide safe, reliable electric service to its customers very seriously. Since this was a regional event (limited to a portion of New England), resources were generally available. Unitil escalated its response based on the forecast and anticipated impact to infrastructure and customers. The fact that it was a holiday had little influence over our preparation decisions. The fluctuating snow accumulation and lack of clarity being forecasted right up to the day of the event was the primary driver for the resource decisions.

2. Not Applicable
3. Not Applicable

4. Not Applicable
5. Staff indicates that there is no definitive report that quantifies the economic and social impact of wide scale storm events for the businesses and citizens of New Hampshire.

In relation to this topic, a number of studies can be referenced such as Berkeley’s National Laboratory (LBNL-58164) report and Updated Value of Service Reliability Estimates for Electric Utility Customers in the US (2015)¹– Cost of Power Interruptions to Electricity Consumers in the US, Estimates of the Value of Uninterrupted Service for The mid-West Independent System Operator by Paul Centolella, and IEEE Transactions Vol. PERS-6, 1508-1514. Both documents have looked at the cost per customer, by class, and have placed a dollar value on an hour of outage. Although the studies are more global in nature, they do provide a base line and may be of use to estimate the cost to a commercial or residential customer.

Section III.B. – Staff Findings and Corrective Actions Regarding Utility Emergency Planning and Preparedness

1. Not Applicable
2. Not Applicable
3. Staff makes the point that utilities should be using multiple weather forecasts when preparing for events.

Unutil consistently cross references the forecast from its primary weather provider (Schneider Electric) with additional forecasts services that are widely available on the web through various channels, including a weather modeling service (WeatherBELL Analytics). The Company *never* looks at just one source of information, when there is major storm pending. Regarding this topic, Unutil has requested our forecaster provide an overview of its interpretation of its forecast vs. other providers such as NOAA and the differences between different weather models (GFS vs. ECMWF). Schneider Electric is currently reviewing how they can satisfy our request. Unutil consistently challenges its forecaster to explain the discrepancy and confidence between competing weather models.

4. Staff also highlights that the utilities don’t use a predictive modeling tool.

To the best of our knowledge, there are no commercially available predictive modeling tools. The only companies with tools available have had them custom built. This is because of the complexity of the algorithms and the need for utility and geographically specific data to build an accurate model.

5. Not Applicable
6. Not Applicable
7. Not Applicable
8. Not Applicable
9. Not Applicable

Staff Recommended Corrective Actions Regarding Utility Emergency Planning and Preparedness

¹ <https://emp.lbl.gov/sites/all/files/value-of-service-reliability-final.pdf.pdf>

1. Each utility shall ensure that the ERP Event Levels in their ERP Plan are consistent with the ERP Event Levels that the State of New Hampshire has established in the PUC 300 Rules for Electric Service (NH PUC 306.09(g)). Each ERP for all utilities shall clearly outline how Event Levels are derived from an impending forecast for potential wide-scale storm events.

Unitil is in compliance

2. At a minimum, each utility shall review the data available from the December 2008 Ice Storm, the February 2010 Wind Storm, the 2011 Tropical Storm Irene, the October 2011 Snowstorm, the 2012 Hurricane Sandy and the 2014 Thanksgiving Snowstorm, to develop indices that facilitate the prediction of potential impacts of wide-scale emergency related storms of varying magnitudes. For utilities already utilizing ERP Event Levels as a pre-planning tool, any potential updates to the indices based on the most recent storm event is required to be incorporated within the ERP. Impact indices to be incorporated into each utility's ERP shall be updated to reflect potential impacts and shall be filed with the Commission no later than December 31, 2015.

Unitil is in compliance

3. Each utility shall incorporate into its impact indices factors such as snow accumulations including moisture content variability, ice thickness, average wind speeds and gusts, foliage conditions, and weather forecast confidence levels that will allow utilities to estimate, by ERP Event Level, the number of predicted customer outages and predicted troubles¹⁰ that could result from a forecasted weather event. For utilities already utilizing ERP Event Levels as a pre-planning tool, any potential updates based on the 2014 Thanksgiving Snowstorm event are required. Any amendments made are to be incorporated into each utility's ERP and shall be filed with the Commission no later than December 31, 2015.

Unitil is in compliance

4. ERP Event Levels shall also include the predicted number of additional line crews required to restore power to the predicted percentage of potential customers without power as well as to repair the potential number of troubles, per ERP Event Level. Any changes required are to be incorporated into each utility's ERP and shall be filed with the Commission no later than December 31, 2015.

Unitil is in compliance

5. Not Applicable
6. Staff makes a recommendation that each utility develop a detailed plan on how the company will effectively pre-stage line crews as early as possible.

Unitil has multiple means to acquire crews and retains a database of over 80 different line contractors that can be used, depending on the size and duration of an event. In addition, Unitil is a member of the North Atlantic Mutual Assistance Group (NAMAG) and has the ability request a mutual aid call at any time, when there is impending weather. Unitil has within its ERP an outline of the process to pre-stage resources, including specific locations where the Company has coordinated with private property owners (such as Amoskeag Beverages) to pre-stage resources. Unitil also has a third-party logistical vendor to establish tents and other amenities at these sites. Although there is always competition for resources, Unitil has no further recommendations to improve the pre-stage process. Unitil will outline its plan and processes in report for December 31, 2015.

7. Unitil files its ERP annually with the department, to date there has been no requested changes to the plan from staff.

Unitil will make the appropriate changes in relation to this report and submit a revised version to the department no later than December 31, 2015.

Section III.C. - Staff Findings and Corrective Action Regarding Weather Forecasting

Staff Findings Regarding Weather Forecasting

1. Not Applicable
2. Not Applicable
3. Staff indicated that a comparison of weather forecasts between UES and PSNH differed throughout the forecasting period leading up to the storm even though they were received at exactly the same time and from the same weather service provider.

Unitil is generally satisfied with the format of its weather forecast; however, discussions are ongoing with its forecaster to determine if the methodology used can be enhanced. We have asked that additional models be discussed in the written component of the forecast, which will allow for a consensus view of the weather across forecasting firms in an attempt to mitigate the variability or at least understand why there is variability. Also, Unitil is not privy to the Eversource forecast, but we are aware that different contractual/delivery arrangements exist for the weather forecast between the two utilities, but those are negotiated with the weather provider and reflect business rather than weather considerations.

4. Staff noted that although UES and PSNH have geographic service territories, zones or regions which overlap in some areas of New Hampshire, weather forecasts of nearly the same general geographical area for each utility are not consistent with the level of confidence stated for EII levels predicted at very nearly the same time of day for each forecast.

Weather forecasting is not an exact science, and as such, there will be variability or instances where the forecast differ. However, as previously indicated, Unitil works closely with its vendor to ensure the best professional judgement by region is available as each model run is produced. This is done approximately three times per day, which works to reduce the variability in the forecast.

5. Not Applicable
6. Not Applicable
7. Not Applicable
8. Not Applicable

Staff Recommended Corrective Action Regarding Weather Forecasting:

1. Not Applicable
2. Not Applicable
3. Not Applicable
4. Not Applicable

Section III.D. – Staff Findings and Corrective Action Regarding Emergency Response

Staff Findings Regarding Emergency Response

1. Staff indicated that although PSNH and UES held internal conference calls and internal emergency response planning meetings throughout the day on Tuesday, November 25, each utility was unable to identify the ultimate magnitude and effects of the 2014 Thanksgiving Snowstorm, and did not obtain a sufficient amount of additional external (from out-of-state) line crews early enough, thereby delaying restoration by at least a day in some communities.

Unitil prepared its response based on the forecast. The forecast had changed a number of times over a two-day period with ever increasing snow accumulation and liquid equivalency ratios. As a result, the initial number of resources acquired was augmented once the full storm impact was understood. Unitil did avail itself of the NAMAG mutual aid process and brought in additional crews, as needed. Unitil disagrees with Staff that this delayed restoration by “at least a day” as identified in the report. As indicated previously, weather forecasting is not an exact science with ranges and confidence levels the norm. There is always an element of judgement when preparing for events. While observational data post-storm impacts are useful, they do not exist before and during the storm’s impact. The Staff’s retrospective review of the storm severity is overlooking the information that was available to the utilities hours and days prior to the storm. For information we had at the time, we believe the decisions made were the right choices. Additionally, on a per customer impacted basis, Unitil restored the majority of its customer in 77 hours from the time of peak impact, which is noteworthy given the amount and type of damage reported.

2. Staff indicated that although PSNH and UES did pre-stage additional NH-based contractor line crews for the morning of Wednesday, November 26, additional external line crews from outside the state should have been requested, committed and pre-staged to the largest extent possible.

As stated above, the Staff is overlooking the amount of information that the utilities had the morning of Wednesday, November 26. As Staff indicates, Unitil did pre-stage resources based on the anticipated impact and the varying nature of the storm. By Thursday evening, Unitil had 80% of the committed resources on property for this event. Although we had not committed with specific contractors until we had a better understanding of the snow totals, we were in contact with an array of contractors so as to ensure they would move quickly when called, as the observational data indicated. The latter acquired resources (the additional 20%) were gathered through the NAMAG mutual aid process.

3. Not Applicable
4. Not Applicable
5. Staff indicates that the company does not leverage the municipal workers knowledge during a storm specifically in the area of damage assessment.

Unitil consistently initiates coordination procedures with municipal officials during all major events, which are outlined in detail in the company’s ERP (Section VI-G). Unitil has a dedicated group of individuals available 24/7 during a restoration effort to work with the municipal officials, discussing any and all issues that a municipal may have including damage locations the municipal may have encountered. In addition, Unitil hosts twice daily municipal conference calls (one in the morning and one in the afternoon) to ensure that the Regional Incident Commander has a direct conversation with the municipals and provides them with the most up to date information. Unitil feels that its communication protocols with municipals are robust and effective.

If Staff is suggesting that a formal process of damage assessment be developed with the municipals, then Unitil has some concern with this approach including the following:

- A major concern is the safety of the individual. Having municipal workers assessing downed wires and being in proximity to a potentially energized conductor is extremely hazardous.
- A formal process of damage assessment cannot be developed because of the intermittent commitment from municipal workers. Their first priority is to the town which means the utility cannot rely on this resource when most needed.
- To train the municipal worker to identify equipment and trouble conditions would be an ongoing and daunting task not to mention the liability insurance and indemnification that the company would need if such an approach was taken.

6. Not Applicable

7. Not Applicable

8. Staff indicated that major holiday periods are not addressed in any of the four utilities ERP.

Unitil recognizes that holidays may limit some types of support resource availability; however, this was not a limiting factor in acquiring crews. The solution is to ensure you have a large pool of resources to draw from so as to mitigate the impact of the few contractors, who may not be available. Though the company's ERP is not explicit on this topic, it is implied throughout the Logistics Section of the ERP that whether dealing with resources or hotels etc., you must maximize the pool of options to offset contingency issues. Unitil also takes additional measures to ensure a coordinated response to an emergency during holiday events such as preparing 24/7 coverage scheduling for extended holiday periods.

9. Not Applicable

10. Not Applicable

11. Staff implies that there was a Holiday "effect" that slowed restoration.

Unitil's plans for restoration are designed to be autonomous to the "effects" of contingency events such as – holidays, gas and electric combined events, weekend events, business continuity (such as a loss of facility) - just to name a few. Unitil believes the uncertain nature of the forecast, which had escalating levels of snow right up to the event, was the largest influence on restoration plans and not the holiday.

12. Staff indicated that Unitil was not at full internal crew compliment until 27 hours into the event.

Unitil has detailed that some of its employees were already on multiday vacation periods prior to the holiday. It was necessary to call them in from extended vacation, and as the data show, most employees interrupted their scheduled vacation to support our customers. To imply that people weren't available because of the holiday is an over simplification of the situation and fails to reflect the travel time needed to recall employees. Additionally, of the 6 internal line-workers that were initially unavailable all 6 returned either before at the 2PM shift on Thanksgiving Day.

Staff Recommended Corrective Actions Regarding Emergency Response:

1. Not Applicable

2. Unitil will specifically discuss holidays in its ERP; however, the Company feels strongly that the procedures already outlined within the ERP account for such conditions. These changes will be submitted by December 31st.

Section III.E. – Staff Findings and Corrective Action Regarding Restoration Response

Staff Findings Regarding Restoration Response

1. Staff indicates that Unitil reached its peak number of resources 57 hours form the onset of the event.

If Staff were to review other restoration efforts for Unitil, it will see that this approach to resource acquisition is common. It's not until some level of damage assessment is performed that the Company will "firm up" the staffing level needed for the event. This approach usually aligns with a plan that already has the next wave of resources identified or in transit. The assessment is the necessary trigger to adjust resources, this storm was no exception and restoration progressed effectively based on the resource plan.

2. Not Applicable
3. Not Applicable
4. Not Applicable
5. Not Applicable

Staff Recommended Corrective Action Regarding Utility Restoration Response:

1. Staff recommends that utilities with parent companies document the decisions made by the parent company concerning response and recovery actions.

Unitil Service Corp. is the parent company of UES and as such makes many of the logistical arrangements, including the acquisition of resources. Historically, it's been Unitil Service Corp. not UES that has issued the After Action Report. As a result, decisions made by the parent company have been documented in the After Action Report. The Company feels that the process we use today complies with Staff's recommendation.

2. Staff suggests that each utility shall include provision for pre-staging resources in its ERP.
 - a. Provide a methodology for determining how many crew resources will be needed based on forecasts.
 - b. Pre-establish an available pool of resources.
 - c. Factor in travel times.
 - d. Incorporate its own historical restoration data as well as relevant data from other utilities from detailed reviews of the most recent wide-scale storms.
 - e. Provide for the cancellation of employee vacations as needed for major storm events.

Unitil's ERP addresses each of these suggestions today. Unitil will review its ERP to ensure the discussion on the issues identified is clear and concise for the reader.

3. Not Applicable

Section III.F – Staff Findings and Corrective Actions Regarding Utility Communications

Staff Findings Regarding Utility Communication

1. Not Applicable
2. Unitil issued a PSA on Thursday the 27th at 6:17 PM with a global ETR identifying the majority of customers will be restored Friday evening.

Unitil's process for developing ETR's and disseminating the information is detailed in its ERP (Section VI.A).

3. Not Applicable

Staff recommended Corrective Actions Regarding Utility Communications

1. Staff recommends that utilities provide customer service representatives with customer specific ETR information. Additionally, websites should provide real-time mapping and show outage locations with number of customers affected at each location, as well as ETR's for each location.

Unitil has in place procedures that provide ETR information expeditiously and use multiple channels to disseminate the information to its customers. The Company strives to produce a global ETR within 24 hours, and town by town ETRs within 48 to 72 hours from the time restoration begins. This information is provided by the Incident Commander to the Chief Information Officer who in turn disseminates it to – Customer Operations & Social Media Team, Municipal Team, Liaison Team, Media Relations and Messaging team (internal employees).

2. Not Applicable
3. Not Applicable
4. All utilities will staff their call centers to be able to receive customer calls in real time during major outages.

Unitil has staff assigned to the call center 24/7 during all major events. The process for escalating the call center capability is detailed in the company's ERP. Unitil is in compliance with Staff's request.

- End of Document -