

STATE OF NEW HAMPSHIRE

RF

DATE: July 25, 2018
AT (OFFICE): NHPUC

FROM: Kurt Demmer – Utility Analyst, Electric Division

SUBJECT: DE 17-174
Complaint by Ensconce Data Technologies, LLC against Eversource

TO: Chair Honingberg and Commissioners Bailey and Giaimo
Executive Director Howland

On November 7, 2017, Ensconce Data Technologies, LLC (EDT) filed a complaint to the Commission against Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource) for its refusal to negotiate in good faith in a property claim. EDT claims it suffered property loss on June 2, 2016, as a result of a transformer cutover. Staff reviewed the complaint pursuant to RSA 365:1, 365:2, and N.H. Code Admin Rules Puc 204. Based on Staff's review of the complaint and the responses received from Eversource and EDT, Staff recommends Eversource put in place a more formal procedure for planned outages and cutovers where similar outcomes may occur.

Background

EDT is a commercial customer located at 100 Market Street in Portsmouth. Prior to June 2, 2016, the building's electrical load was fed through a vault transformer located in the basement of the building. The building's main switch and service feeds 15 meters inside 100 Market Street including EDT, a tenant. As part of an upgrade to the area's electrical configuration, Eversource planned the elimination of the building vault transformer to provide better reliability if a transformer failure occurred. Eversource installed an outdoor padmounted transformer as part of a newly installed underground system. The service to 100 Market Street was reconfigured to be fed out of that outdoor padmounted transformer location once the cutover was completed.

On June 2, 2016, Eversource performed the cutover by deenergizing the existing building vault transformer. This was performed by opening the fuses on the pole that feeds the vault transformer. Once deenergized, Eversource disconnected 100 Market Street's existing service to the vault transformer and connected the new service to the recently installed outdoor padmounted transformer. Once connected, Eversource energized the new service by energizing the outdoor padmounted transformer. After the power to the building was restored, the building owners and tenants claimed to have experienced multiple equipment failures in the 100 Market Street building during the cutover process.

Since the cutover was executed on June 2, 2016, Eversource has negotiated with other customers in the building that had experienced equipment loss or damage. EDT's complaint that Eversource negotiated in bad faith arises from the lack of resolution of EDT's claim for its four single phase shredding machines, computer equipment, and server. These pieces of equipment are at the center of contention between Eversource and EDT.

Electric Division Staff, in consultation with legal, reviewed was asked to evaluate whether, in its view, Eversource followed good utility practice and applicable rules. Staff issued a set of data responses to both EDT and Eversource to further clarify the incident and conditions existing before and after June 2, 2016. Legal Division Staff makes procedural recommendations at the conclusion of this memorandum.

EDT's Position

EDT's position is that when Eversource performed the cutover, it did not take reasonable precautions to avoid abnormal service voltage during the cutover. EDT's contention is that Eversource did not open or direct 100 Market Street to open the building's 1000 Amp main breaker thereby subjecting the building, including EDT, to abnormal system voltages during the deenergizing and reenergizing of the building's power. EDT claims that Eversource should compensate EDT for the damage to its office equipment and shredding machines.

Prior to the cutover, Eversource's outage coordinator, Paul Tremblay, contacted the building landlord to arrange the day and duration of the outage. The landlord's building representative, Chad Gamester, communicated the outage date and time to the building tenants. Mr. Gamester spoke with Mr. Tremblay and was assured that no actions, or customer presence, including an electrician, were needed for the cutover. The building was deenergized, Eversource performed its work, and during the process of reenergizing the building, Mr. Gamester was on site to check on the status of the cutover.

After the incident, EDT contracted the service of a registered Professional Engineer (P.E.) to assist in analyzing the sequence of events during the deenergizing and reenergizing of the building by Eversource. The P.E. concluded that the individual opening of the riser fuses and individual closing of the underground cable terminations created a single phase condition. He calculated that the single phase condition would have produced an unbalanced source for the three phase motors in the building. EDT's consultant supported his conclusion citing the following documents: IEEE Standards¹ and electric utility manufacturer, Cooper Bussman².

The four DS200 Data Shredding Units are the largest pieces of equipment that EDT claims were damaged from the switching incident. The units, which are single phase pieces of equipment, are running at a reduced capacity according to EDT.

¹ Austin Bennett, The Impact that Voltage and Frequency Variations have on AC Induction Motor Performance and Life in Accordance with NEMA MG-1 Standards, IEEE, October 1998

² Cooper Bussman, The Single-Phase Dilemma: Fact or Fiction Motor Protection Against Single Phasing, Cooper Industries Inc., Bussman Division, May 1993

In order for the DS200 installers to investigate and evaluate the machines for causal or damage determination, EDT would incur approximately \$66,000. EDT stated that it didn't make financial sense to incur that amount of expense when the certainty of reimbursement or equipment replacement was low.

Eversource's Position

Mr. Tremblay informed the building representative that there was no need for opening the main switch. He made this statement after the building representative had expressed concern over the operation of the main switch due to infrequency of use. In response to Staff Request 1-028³, Eversource's witness Michael Busby states:

"Eversource's project coordinator (Paul Tremblay) told the customer they would not have to open the main and that we would de-energize the building via the fused cutouts. Since the building had been fed via single phase fuse for many years Paul assumed de-energizing the building via the existing fuse would not be an issue. He also was not concerned about single phasing the building for a very short duration because per Eversource's "Requirements for Electric Supply" the customer is responsible for the installation of protective devices to prevent damage during single phase scenarios. Also, it is common practice for Eversource to install single phase tripping devices (reclosers, & fuses) on many of our 3 phase circuits, thus making it critical that our customers have single phase protection for sensitive 3 phase equipment. Based on all of the above, Paul did not request a customer representative be present because Eversource already had access to the electrical vault where the work was being performed."

An Eversource publication "Information and Requirements for Electric Supply" recommends that three phase customers have motor protection. "All motors and motor driven equipment should be equipped with suitable protective devices. Among such devices to be considered are those to provide clearance at the beginning and end of interruptions to service against overloads, voltage and frequency variations, single phase operation of poly-phase motors, and reversal of rotation in poly-phase motors."⁴

Staff's Position

Staff issued data requests to EDT and Eversource in order to understand:

1. EDT's internal electrical configuration and service characteristics before the cutover.
2. Eversource's practice or operating standards during a lockout tag out procedure.
3. Eversource's practice or operating standard for planned outages.
4. Historical outage or power disturbance for 100 Market Street, Portsmouth.
5. EDT's extent of damages and subsequent claim determination.
6. Eversource's recount of the planned cutover incident details.

³ See Attachment KD-2 for Staff Request 1-028

⁴ Information and Requirements for Electric Supply, NH 2017 Edition, Eversource.

<https://www.eversource.com/content/default-source/pdfs/requirements-for-electric-service-connections.pdf>

In determining whether Eversource followed good utility practice, Staff sought to determine whether the utility followed either standard industry practice or an Eversource established practice or procedure. Staff utilized only the information obtained by the data requests in DE 17-174 and previous utility experience to develop its recommendation. Eversource has stated in Response to Staff 1-029⁵, "There is no specific procedure, it is usually discussed with the customer and is handled on a case-by-case basis." Mr. Tremblay did discuss the outage with Mr. Gamester. According to Response to Staff 1-028, "Since the building had been fed via a single phase fuse for many years Paul assumed de-energizing the building via the existing fuse would not be an issue. He also was not concerned about single phasing the building for a very short duration because per Eversource's "Requirements for Electric Supply" the customer is responsible for the installation of protective devices to prevent damage during single phase scenarios." Mr. Tremblay assumed a condition that was not consistent to what this building had experienced for outages and what the customers had for motor protection. According to Eversource's response to Staff 1-016⁶, "Based on the last 10 year outage history there were no outages which would have caused any of the 100T riser fuses to blow." The building had not experienced a single phase condition due to an open riser fuse. Mr. Tremblay discussed the opening of the main switch with the building representative. Eversource claims that the Mr. Gamester expressed concerns about operating the main switch, although Mr. Gamester denies having that conversation. Nonetheless, the discussion surrounding the main switch seems to have transpired. If Eversource allowed the building's main switch to remain closed, Eversource should have notified Mr. Gamester of the possible outcomes without protection or advising him to utilize an electrician knowledgeable in making a determination about the protection needed or the risk being assumed by 100 Market Street.

As a utility, Eversource representatives making those decisions are the subject matter experts. By not requiring the customer to open the main switch, the utility allows a potential abnormal voltage condition which may cause property damage. EDT produced a note dated June 10, 2016 written and signed by Mr. Gamester, stating that the Eversource Project Manager, Mike Busby, met with both him and Dan Casperson, EDT's representative, after the cutover. The note states that Mr. Busby stated that he would have done things differently.

In addition to the conversation between Mr. Tremblay and the customer, there are many reasons why utilities, as a good utility practice, require three phase customers to open their main switches when there is a planned cutover such as the cutover that occurred on June 2, 2016. Even though precautions are typically taken as part of pre-cutover activities, utilities will require that the three phase customer open their main(s) to prevent power quality issues from occurring. In the case of motors with the recommended protection, it does not subject that protection to abnormal voltages or phasing in a planned event. The following are common measurements and considerations that are taken typically prior to and after a cutover:

- Motor Phase Rotation: Prior to opening the main, the utility or the customer's electrician will take phase rotation at the main switch and note the rotation. Once the service is reenergized, the utility or electrician can check the rotation at the customer's main switch to ensure that the rotation is correct without energizing the motor load and subjecting it to reverse rotation.
- Service Voltage Checks: Once the service is reenergized, a voltage check is taken to ensure that the customer is being provided acceptable voltage. This is especially important with underground service cable where cable condition at the time of energization cannot be

⁵ See Attachment KD-3 for Staff Request 1-029

⁶ See Attachment KD-1 for Staff Request 1-016

visually checked. There may be instances where secondary cable has been installed on the transformer before checking voltage without secondaries attached and the transformer has been set on the wrong tap changer position or was set on an incorrect service voltage such as a dual primary voltage transformer. An open main protects these rare incidents from affecting the customer.

- If the building has a generator, opening the main switch allows the utility to verify a visible open to prevent possible backfeed to the utility grid and exposing utility workers to an unexpected voltage source. Although there are specific requirements with generator isolation, the open main adds an additional layer of protection. It also allows the utility to place a lockout tag or an additional locking device to prevent inadvertent closing of the switch. 100 Market Street had a building generator for essential/critical load.

Three phase motor protection or sensitive equipment protection is recommended by Eversource for customers receiving three phase service. However, there is a fundamental difference between a planned outage and an emergency/unplanned outage. In the case of the latter, the utility de-energizes customers utilizing protective devices in order to prevent injury to persons or property; when directed or requested to do so by police, fire, or other public safety officials; or to isolate the distribution grid from unacceptable levels of current or voltage. The utility does not have the time to ensure that three phase customers have this protection or communicate the customer to open their main switches. A planned outage such as the June 2 cutover was not requiring emergency action by the utility, therefore precautionary measures and detailed communications could have taken place between the customer and the utility.

Conclusion

The planned outage should have taken into account the building's sensitive load and other good utility procedure prior to executing this cutover. Unlike an unplanned or emergency outage, the utility has the ability to discuss with the customer the best approach to minimize both the customer's exposure to abnormal switching voltages and the utility's necessary precautions if the planned work does not produce the expected outcome. The utility should communicate to the customer or its designate, the recommendation to open the main switch and the possible scenarios that may be mitigated by this such as improper voltage, incorrect phase rotation, or the absence of recommended protection that the customer may not be aware of. If a customer is unsure about the condition of the main switch, the utility should be advising the customer to consult with a qualified electrician before proceeding with the cutover. If the main switch is not operable, the customer should address this prior to the cutover. The question of operability should be addressed before allowing planned switching and any possible unforeseen outcomes of that switching creating an adverse condition at the customer's main.

Recommendation

Staff recommends that Eversource establish a written procedure for small planned outages or cutovers. The procedure should be scalable to small or larger planned outages or cutovers. Establishing a procedure would ensure a consistent approach to each planned outage or cutover.

An outage plan can still be developed on a case-by-case basis with the established procedure as a guidance document. Enacting this procedure would ensure that Eversource is incorporating a consistent good utility practice into their planned outage or cutover switching procedures.

Procedural Recommendation.

EDT requests that the Commission require Eversource to negotiate in good faith concerning its damaged equipment. The requested remedy falls outside Commission's scope of authority.

However, the facts of this case raise serious concerns about Eversource's planned outage process and procedures. The Commission's general supervisory authority (RSA 374:3) and its duty to keep informed as to utility matters (RSA 374:4) warrants that the Commission investigate Eversource's planned outage process and procedures in more depth.

Accordingly, Staff recommends that the Commission advise EDT that the requested remedy cannot be granted and that this docket be closed. Further, Staff recommends that the Commission open an investigation into Eversource's process and procedures for small planned outages to help ensure that Eversource uses good utility practices in such matters.

Public Service of New Hampshire d/b/a Eversource Energy
Docket No. DE 17-174

Date Request Received: 01/08/2018

Date of Response: 01/19/2018

Request No. STAFF 1-016

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Request from: New Hampshire Public Utilities Commission Staff

Witness: Michael J. Busby

Request:

Have there been any recent (5 years or newer) outages in the area that would have created a single phase condition for the vault transformer? If so, please detail any resulting customer property claims or complaints?

Response:

Based on the last 10 year outage history there were no outages which would have caused any of the 100T riser fuses to blow.

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Request No. STAFF 1-028

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Request from: New Hampshire Public Utilities Commission Staff

Witness: Michael J. Busby

Request:

Was there a building/customer representative present during the cutover (before/during/after)?

Response:

During discussions with the customer concerning the cutover, the building maintenance person (Chad Gamester) expressed concern about opening the customer's main as it had not been operated since it's installation. Eversource's project coordinator (Paul Tremblay) told the customer they would not have to open the main and that we would de-energize the building via the fused cutouts. Since the building had been fed via single phase fuse for many years Paul assumed de-energizing the building via the existing fuse would not be an issue. He also was not concerned about single phasing the building for a very short duration because per Eversource's "Requirements for Electric Supply" the customer is responsible for the installation of protective devices to prevent damage during single phase scenarios. Also, it is common practice for Eversource to install single phase tripping devices (reclosers, & fuses) on many of our 3 phase circuits, thus making it critical that our customers have single phase protection for sensitive 3 phase equipment. Based on all of the above, Paul did not request a customer representative be present because Eversource already had access to the electrical vault where the work was being performed.

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Page 1 of 1

Request from: New Hampshire Public Utilities Commission Staff

Witness: Michael J. Busby

Request:

When Eversource NH does a planned outage involving a three phase customer or transformer, what is the procedure or present practice in deenergizing the customer or transformer for customer work or transformer replacement?

Response:

There is no single specific procedure, it is usually discussed with the customer and is handled on a case-by-case basis