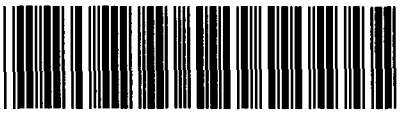

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SOAH DOCKET NO. 473-19-3864
PUC DOCKET NO. 49421

APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR AUTHORITY TO CHANGE RATES	**§ § § §**	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

CROSS-REBUTTAL TESTIMONY

OF

GEORGE W. PRESSES

ON BEHALF OF

H-E-B, LP

JUNE 19, 2019

SOAH DOCKET NO. 473-19-3864
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CROSS-REBUTTAL TESTIMONY OF GEORGE W. PRESSES

ON BEHALF OF H-E-B, LP

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is George W. Presses. My business address is 646 South Flores St., San Antonio, TX 78204.

Q. BY WHOM ARE YOU EMPLOYED?

A. I am employed by H-E-B, LP ("H-E-B").

Q. WHAT IS YOUR TITLE?

A. I am the Vice President of Fuel and Energy for H-E-B.

Q. ARE YOU THE SAME GEORGE W. PRESSES WHO PREVIOUSLY FILED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

II. PURPOSE OF CROSS-REBUTTAL TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My cross-rebuttal testimony responds to the intervenor direct testimony relating to CenterPoint's service quality, employee incentive programs, investments in reliability projects, CenterPoint's return on equity ("ROE"), CenterPoint's capital structure, and CenterPoint's Four Coincident Peak ("4CP") allocation.

III. QUALITY OF SERVICE

Q. WHICH INTERVENORS DIRECTLY ADDRESS CENTERPOINT'S QUALITY OF SERVICE IN THEIR TESTIMONY?

A. Mr. Scott Norwood, on behalf of City of Houston, and Mr. Nalepa, on behalf of the Office of Public Utility Council, discuss CenterPoint's System Average Interruption Duration Index ("SAIDI") and System Average Interruption Frequency Index ("SAIFI") performance. Mr. Norwood and Mr. Nalepa conclude that CenterPoint's SAIDI and SAIFI performance demonstrates that CenterPoint is providing reliable service to customers. Mr. Norwood also bases his determination on the ratio of customer complaints that CenterPoint has received.

Q. DO YOU AGREE WITH THEIR CONCLUSIONS?

A. No. I do not agree that SAIDI and SAIFI numbers and the number of formal complaints to the Public Utility Commission of Texas ("PUCT") should be the measure of whether CenterPoint is providing reliable service to its customers. While the SAIDI and SAIFI and PUCT formal customer complaint percentages identified by Mr. Norwood are useful data points, the aggregate numbers do not reflect the individual experience of CenterPoint's customers and should be examined in context with other evidence regarding CenterPoint's quality of service. Mr. Norwood states that there is no indication that CenterPoint's customers are dissatisfied with CenterPoint's service quality.[1] My testimony that includes the description of the issues that H-E-B has experienced is intended to provide such

[1] Direct Testimony of Scott Norwood at 9:13–9:16 (Jun. 6, 2019).

evidence and shed light on the reliability issues that are not captured in the aggregate measurements like SAIDI and SAIFI.

Although the SAIDI and SAIFI numbers reported by CenterPoint do not demonstrate poor service quality, that has not been H-E-B's experience.

H-E-B disagrees with the presumption that these are the sole metrics to be used when considering whether CenterPoint is providing reliable and adequate service to its customers. The frequency and duration of outages that H-E-B has experienced are not reflected in the data provided in CenterPoint's Application or in the data described in the direct testimony of Mr. Norwood or Mr. Nalepa. The discrepancy between the quality of service portrayed in CenterPoint's application and the quality of service that H-E-B has experienced is what led H-E-B to intervene in this proceeding.

Q. DO ALL CUSTOMERS MAKE FORMAL COMPLAINTS?

A. No. The number of formal complaints is not a good indication of customer satisfaction. In our experience, complaints to CenterPoint did not lead to any action to resolve the problems experienced by H-E-B. If customers do not see a response from initial complaints, they may conclude it is futile to pursue the complaint further.

Q. IS H-E-B'S EXPERIENCE AN OUTLIER OR ANOMALY?

A. No. H-E-B's stores and facilities are located throughout CenterPoint's service area. The outages experienced by H-E-B are not isolated to a certain geographic region. H-E-B has had problematic service at its stores across CenterPoint's service area. As described in my Direct Testimony, H-E-B has experienced frequent outages at both new and older H-E-B facilities.

Q. ARE YOU AWARE OF OTHER CENTERPOINT CUSTOMER'S THAT HAVE EXPERIENCED FREQUENT OUTAGES?

A. Yes. In response to H-E-B's discovery requests in this proceeding, CenterPoint provided internal communication records about other customer complaints related to on-going, reported reliability issues. The communication records demonstrate that, like H-E-B, other commercial customers have experienced frequent outages. Attached to my testimony is an excerpt of CenterPoint's discovery responses that shows customer complaints of power outages at customer facilities. Similar to H-E-B, these customer outages resulted in damage to customer facilities and equipment, caused customers to incur significant financial loss, and led to customer reliance on back-up generation.[2] The records also show a lack of responsiveness from CenterPoint, customer frustration with CenterPoint's inaction, and even show that CenterPoint acknowledged its own failure to adequately address a customer complaint.[3] A complete copy of the referenced discovery responses is also included with my testimony.[4]

Q. DOES INTERVENOR TESTIMONY SHOW THAT CENTERPOINT HAS USED INEFFECTIVE ANALYSIS TO ADDRESS SYSTEM RELIABILITY?

A. Yes. Mr. Norwood finds that CenterPoint's investments in reliability projects should have resulted in lower future Operation and Maintenance ("O&M") expenses.[5] However, that has not been the case. CenterPoint is seeking an *increase* in O&M expenses in its Application. It is not appropriate for ratepayers to bear an increased burden when

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[2] *See* Exhibit 1: Excerpt of CenterPoint's Response to H-E-B 01-03.
[3] *Id.*
[4] *See* Exhibit 2: CenterPoint's Response to H-E-B 01-03, Attachments 10 and 11.
[5] *Id.* at 12:13–12:22.

CenterPoint has not demonstrated that its investments are effective in meeting reliability needs.

Q. DOES H-E-B DISAGREE WITH ALL OF MR. NORWOOD'S CONCLUSIONS?

A. No, H-E-B supports Mr. Norwood's conclusion that CenterPoint should be required to provide justification for why its reliability investments have not produced the expected O&M cost reductions.

Q. HOW DOES THE TESTIMONY OF MR. NORWOOD ACTUALLY SUPPORT H-E-B'S EXPERIENCE THAT CENTERPOINT'S SERVICE IS NOT RELIABLE?

A. Mr. Norwood discusses CenterPoint's specific expenditures on the Underground Cable Assessment and Life Extension Program ("Project ABCA") and the Major Underground Rehabilitation Program ("Project CE1B") that are intended to improve distribution reliability.[6] He concludes that the "$111.5 million investment in the two projects is not justified by reliability or monetary benefits to customers."[7] Mr. Norwood further concludes that "it is questionable whether customers would even notice the reliability effects of the two underground projects." Mr. Norwood's analysis aligns with H-E-B's conclusions that CenterPoint has not efficiently or effectively invested in distribution system projects that improve system reliability for ratepayers.

Q. WHAT IMPACT HAVE CENTERPOINT'S IMPROVEMENT PROJECTS HAD FOR H-E-B?

A. None. H-E-B has received no indication that the reliability programs described in CenterPoint's Application were used to target the reliability outage problems identified by

[6] *Id.* at 15:17–15:21.
[7] *Id.* at 17:19–18:3.

H-E-B. If such programs were used to address H-E-B's frequent outages, it was not effective because there has been no discernible improvement in the quality of service. H-E-B supports Mr. Norwood's recommendation that CenterPoint be required to refund all costs for unnecessary and unjustified projects, as well as the recommendation that CenterPoint be required to demonstrate why its investment in reliability projects has not led to lower projected O&M costs.

Q. DOES THE INTERVENOR TESTIMONY IDENTIFY OTHER COSTS THAT SHOULD BE CORRELATED TO RELIABILITY?

A. Yes. Mr. Garrett's testimony discusses how employee incentive programs for which CenterPoint seeks recovery are not tied to the level of reliability of service CenterPoint customers receive.[8] Mr. Garrett discusses CenterPoint's short-term incentive ("STI") and long-term incentive ("LTI") employee benefits. He concludes that the STIs and LTIs should not be recoverable from ratepayers because they are based on financial performance measures, which directly benefit shareholders rather than ratepayers.[9] In contrast, Mr. Garrett suggests that operational performance incentives would directly benefit ratepayers and would create a positive correlation between the reliability received by customers and the level of compensation received by CenterPoint employees.[10]

[8] *See generally* Direct Testimony of Mark Garrett at 7:16–42:5 (Jun. 6, 2019).
[9] *Id.*
[10] *Id.* at 24:10–24:18.

Q. COULD H-E-B SUPPORT RELIABILITY BASED PERFORMANCE INCENTIVES?

A. H-E-B could support performance metrics that incentivize CenterPoint to address reliability, but the performance metrics would need to be tailored to address reliability problems such as the outages as described in my Direct Testimony, rather than only SAIDI, SAIFI and PUCT formal complaint numbers. H-E-B supports the recommendation of Mr. Garrett to disallow recovery of CenterPoint's STI and LTI expenses on the basis that the incentives are not tied to reliability performance or customer satisfaction.

IV. BENEFIT TO CUSTOMERS

Q. AFTER REVIEWING THE INTERVENOR TESTIMONY, HAS H-E-B CHANGED ITS POSITION ON A PER CUSTOMER INSTEAD OF A PER METER CHARGE?

A. No. No intervenor filed testimony that would change H-E-B's position on this issue. Ms. Pevoto expresses concern about CenterPoint's proposal to implement a customer charge on a per meter basis.[11] Ms. Pevoto notes that CenterPoint has not offered any evidence to support this change and that it will create additional costs for retail electricity providers.[12] As stated in my direct testimony, H-E-B agrees that a per meter charge is unnecessary and burdensome for customers with multiple meters. Because CenterPoint has not provided evidence to demonstrate that it proposed per meter charge will benefit customers, H-E-B recommends that CenterPoint's request to implement a per meter charge be denied.

[11] Direct Testimony of Kit Pevoto at 29:20–29:23 (Jun. 6, 2019).
[12] *Id.* at 30:3–30:13.

Q. HAS H-E-B CHANGED ITS POSITION ON HOW CENTERPOINT'S PROPOSED CHARGES WILL IMPACT OTHER CUSTOMER CLASSES?

A. No. H-E-B remains concerned about the significant cost increase that will be incurred by its customers and Partners if CenterPoint's proposed residential customer charge is approved. H-E-B recommends that there be no increase in CenterPoint's residential customer charge. However, if an increase is approved, H-E-B supports the recommendation of Ms. Pevoto to increase the customer charge to no more than $1.75.[13] H-E-B agrees with Ms. Pevoto that any such rate increase should be applied gradually and should reflect the actual cost to serve residential customers.[14]

V. RETURN ON EQUITY AND CAPITAL STRUCTURE

Q. IN YOUR DIRECT TESTIMONY, YOU RECOMMENDED SEVERAL CHANGES TO CENTERPOINT'S PROPOSAL? AFTER REVIEWING INTERVENOR TESTIMONIES, DO YOU STILL RECOMMEND CHANGES TO CENTERPOINT'S PROPOSAL?

A. Yes, I do.

Q. SPECIFICALLY, WHAT CHANGES TO CENTERPOINT'S PROPOSAL ARE YOU RECOMMENDING?

A. I continue to recommend changes to CenterPoint's ROE and to its distribution revenue requirement due to CenterPoint's poor service quality. I also support adopting a 60% debt to 40% capital structure for CenterPoint as recommended by some intervenors.

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[13] *Id.* at 29:7–29:9.
[14] *Id.* at 28:12–28:13; 29:15–29:17.

A. CENTERPOINT'S ROE

Q. IN REVIEWING THE INTERVENOR TESTIMONY, HAS H-E-B DETERMINED HOW THE RETURN ON EQUITY SHOULD BE REDUCED?

A. Yes. CenterPoint's ROE should be reduced below its current ROE as recommended by other intervenors. H-E-B continues to urge the Commission to reduce CenterPoint's ROE to the lower end of the range the Commission finds to be reasonable. Several intervenors proposed ROE levels ranging from 9.0% to 9.25%. For example, TCUC witness Mr. Woolridge recommended an ROE of 9.00%, OPUC witness Ms. Winkler recommended an ROE of 9.15%, and TIEC witness Mr. Gorman recommended an ROE of 9.25%.[15] CenterPoint's ROE should be set consistent with the low end of the range the Commission finds to be reasonable due to CenterPoint's poor quality of service. CenterPoint has not demonstrated that it is providing reliable service to its customers and should not be rewarded for providing unreliable service.

B. CAPITAL STRUCTURE

Q. AFTER REVIEWING INTERVENOR TESTIMONIES, DO YOU STILL RECOMMEND CHANGES TO CENTERPOINT'S CAPITAL STRUCTURE PROPOSAL?

A. Yes. As noted by several intervenors and Commission Staff, CenterPoint's proposal to change its capital structure would significantly and unnecessarily increase costs to

[15] *See* Direct Testimony of J. Randall Woolridge at 4:6–4:7 (Jun. 6, 2019); Direct Testimony of Anjuli Winker at 4:14 (Jun. 6, 2019); Direct Testimony of Michael P. Gorman at 5:14–5:16 (Jun. 6, 2019).

customers.[16] Instead, H-E-B recommends the Commission adopt the capital structure of 60% debt to 40% equity proposed by TCUC witness Mr. Woolridge, TIEC witness Mr. Gorman, and Commission Staff witness Mr. Ordonez but for a different reason. CenterPoint has not demonstrated that it is providing reliable service to its customers. CenterPoint has also not demonstrated that its proposed increase in capital is warranted or will be applied to reliably serve customers. Therefore, the Commission should reject CenterPoint's request for a 50% debt to 50% equity capital structure because CenterPoint's proposed change to its capital structure will unnecessarily and unjustifiably increase costs to ratepayers.

Q. AFTER REVIEWING INTERVENOR TESTIMONIES, PLEASE DESCRIBE YOUR UNDERSTATING OF CENTERPOINT'S PROPOSAL TO INCREASE ITS CREDIT RATING BY CHANGING ITS CAPITAL STRUCTURE?

A. CenterPoint is requesting a higher amount of equity in its capital structure and a higher ROE based in part on CenterPoint's hope to return to, and maintain, a higher credit rating than its current credit rating. CenterPoint's credit rating was recently downgraded in February 2019. CenterPoint asserts that its proposal to increase its equity to achieve a higher credit rating is better for customers than having a lower equity component and lower credit rating.

[16] Direct Testimony of Anjuli Winker at 43:16–43:19 (Jun. 6, 2019); Direct Testimony of J. Randall Woolridge at 19:9–19:21 (Jun. 6, 2019); Direct Testimony of Michael P. Gorman at 6:1–6:3 (Jun. 6, 2019); Direct Testimony of Jorge Ordonez at 36:4–36:6 (Jun. 12, 2019).

Q. AFTER REVIEWING INTERVENOR TESTIMONIES, DO YOU AGREE WITH CENTERPOINT'S PROPOSAL TO INCREASE ITS CREDIT RATING BY CHANGING ITS CAPITAL STRUCTURE?

A. No, I do not. The intervenor testimony does not raise focus on H-E-B's key issue which is the lack of reliable service from CenterPoint. As noted by TIEC witness Mr. Griffey, CenterPoint has not attempted to quantify the costs and benefits to ratepayers of a higher credit rating compared to a lower rating.[17] It has not been H-E-B's experience that the benefits that should stem from the investments made by CenterPoint based on amounts being paid in current rates are benefitting customers through reliable service. In addition, as noted by intervenors, CenterPoint is able to raise capital based on its current capitalization,[18] however H-E-B has not seen that capital directed in a manner that results in reliable service. From H-E-B's perspective, the key issue with reliability and the lack of investment properly directed to support reliability is the issue that is missing from these intervenor testimonies. CenterPoint has not demonstrated that ratepayers will benefit by increased reliability with an increase in CenterPoint's credit rating.

Q. WHY IS CENTERPOINT'S CREDIT RATING IMPORTANT TO H-E-B?

A. CenterPoint's ratepayers, including H-E-B, our customers, and our Partners, should not bear the burden of CenterPoint's credit downgrade. H-E-B does not see the benefit of CenterPoint's investments. H-E-B wants to highlight these reliability issues to the Commission that are not addressed in intervenor testimony so that they are not overlooked in determining whether CenterPoint is properly investing in its system with the amounts

[17] Direct Testimony of Charles S. Griffey at 9:18–9:19 (Jun. 6, 2019).
[18] Direct Testimony of J. Randall Woolridge at 21:1–21:2 (Jun. 6, 2019).

they have before giving them additional capital that will also be used to support CenterPoint in ways that do not benefit customers. The Commission has in the past demonstrated its commitment to protecting customers from having to subsidize the poor financial decisions of a parent company. The PUCT did so in its previous decisions to establish and maintain ring-fencing requirements for a utility and its parent company and it should do so here, by protecting ratepayers from compensating CenterPoint for poor decisions made at the parent company level.

Q. HOW WILL CENTERPOINT'S REQUEST IMPACT RATEPAYERS?

If CenterPoint's request is approved, ratepayers will see an increase in costs without a corresponding increase in reliability or quality of service. Because an increase in CenterPoint's credit rating will not affect its ability to provide reliable service, it's current credit rating should not be increased and should be decreased because CenterPoint has not demonstrated that a change in its credit rating would improve service to, or benefit, customers.

VI. DISTRIBUTION REVENUE REQUIREMENT

Q. WHAT IS YOUR RESPONSE TO THE INTERVENOR RECOMMENDATIONS ON CENTERPOINT'S DISTRIBUTION REVENUE REQUIREMENT?

A. I recommend that CenterPoint's total distribution revenue requirement be reduced until CenterPoint provides reliable service. H-E-B supports the reductions to CenterPoint's distribution revenue requirement identified by GCCC witness Mr. Kollen. Specifically, H-E-B supports Mr. Kollen's recommendation to reduce CenterPoint's distribution revenue requirement by $32.894 million to reflect a 60% debt to 40% equity capital structure and a $26.604 million reduction in CenterPoint's distribution revenue

requirement to reflect a 9.0% ROE.[19] Intervenors do not properly tie these reductions to CenterPoint's failure to provide reliable service, which should be the primary aim of a transmission and distribution service provider.

VII. CENTERPOINT'S 4CP ALLOCATION

Q. DO YOU AGREE WITH OTHER INTERVENORS' CHARACTERIZATION OF CENTERPOINT'S PROPOSED 4CP ALLOCATION METHODOLOGY?

A. Yes, I do. As noted by TIEC witness Mr. Pollack, the proposed "CenterPoint 4CP" methodology is a poor and flawed allocation methodology. CenterPoint proposes to use and allocate costs based on each customer class's demands coincident with CenterPoint's system peak 4CP demands during the summer months. However, CenterPoint's 4CP allocation methodology incorrectly calculates customer class costs and the methodology does not comport with cost-causation. Further, as noted by Mr. Pollack and as stated in my Direct Testimony, the Commission has not previously approved the use of an individual utility's 4CP instead of the ERCOT 4CP.[20]

Q. DOES H-E-B STILL OPPOSE CENTERPOINT'S PROPOSED 4CP ALLOCATION METHODOLOGY?

A. Yes, H-E-B strongly opposes the use of CenterPoint's proposed 4CP allocation methodology because CenterPoint's proposed 4CP allocation is based upon demands coincident with CenterPoint's system peaks. It is unclear how the CenterPoint 4CP will be calculated and it is not transparent. I continue to urge the Commission to reject

[19] Direct Testimony of Lane Kollen at 51:13–51:19; 52:3–52:8 (Jun. 6, 2019).
[20] *See* Direct Testimony of Jeffry Pollack at 7:23–7:27 (Jun. 6, 2019).

CenterPoint's proposed 4CP allocation methodology because CenterPoint's 4CP will infuse uncertainty into the ratemaking process.

Q. SHOULD TRANSMISSION COSTS BE ALLOCATED ON A COST-CAUSATION BASIS?

A. Yes. H-E-B agrees with TIEC witness Mr. Pollack that the allocation of costs should reflect cost-causation.[21] Indeed, this is why H-E-B proposes that all customers that use the grid should pay their share of transmission and distribution costs and that those costs should be allocated on a Non-Coincident Peak ("NCP") basis. As I stated in my Direct Testimony, H-E-B does not support shifting loads to either the CenterPoint 4CP or the ERCOT 4CP. Instead, H-E-B favors the NCP cost allocation because it more fairly allocates costs among those that use the electric grid and protects H-E-B's customers and Partners from future cost shifting to residential customers that results from 4CP customers avoiding paying 4CP charges. While H-E-B could economically benefit from the ERCOT 4CP and potentially the CenterPoint 4CP, H-E-B advocates that all customer classes should pay NCP to more fairly and accurately allocate costs among all loads.

VII. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

[21] *Id.* at 9:4–9:6.

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APPLICATION OF CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC FOR AUTHORITY TO CHANGE RATES	§ § § §	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

AFFIDAVIT OF GEORGE W. PRESSES

STATE OF TEXAS §
§
COUNTY OF BEXAR §

ON THIS DAY, before the undersigned authority, personally appeared George W. Presses, who, being first duly sworn, deposes and states:

1. My name is George W. Presses. I am the Vice President for Fuel and Energy for H-E-B, LP.

2. I am at least 21 years of age, fully competent, and authorized to make the statements herein and in the Cross-Rebuttal Testimony of George W. Presses filed in the above-styled proceeding.

3. Statements made by me in my Cross-Rebuttal Testimony, to which this Affidavit is attached, are true and correct to the best of my knowledge and belief, and the opinions stated therein are, based on my judgment and my professional experience, true and correct.

George W. Presses

Subscribed and sworn before me on this 19th day of June 2019.

ALYCE RHEA ROSENBERG
Notary Public, State of Texas
Comm. Expires 01-21-2020
Notary ID 1173786

Notary Public, State of Texas
My Commission Expires: 1/21/20

EXHIBIT 1 EXCERPT FROM CENTERPOINT RESPONSE H-E-B 01-03

(Emphasis added.)

EXTERNAL EMAIL

[redacted]

At about noon today, 6/28, we had a major power surge which caused our manufacturing equipment to lose control/processing capability. These have been happening on a more frequent basis, and when they do, they cause significant issues with our processes. On a monetary side, each time this occurs and we are running equipment, it costs either side of $20,000 with loss of materials. Each of our extrusion lines has to be stopped, cleaned and re-started, as well as loss of resin, which is a highly valuable commodity.

If we can identify the source of these issues, that would be great. A solution would be even better. Thanks for your time and looking forward to your response.

EXHIBIT 1 EXCERPT FROM CENTERPOINT RESPONSE H-E-B 01-03

(Emphasis added.)

[redacted] sent email below regarding increased frequency of outages at [redacted]. The last power outages happened on December 2nd from 7:38 – 7.53 and again on December 3rd from 11.05 – 11 28. Please have someone take a look at the outage history and maybe inspect this circuit and determine if anything we can improve. or trim trees, etc I told Kathy that I or someone else would get back with her to discuss further.

Appreciate your assistance as always. Thanks,

EXTERNAL EMAIL

Hi [redacted]

I was asked to reach out to you due to concerns relating to many power outages that have taken place here at the [redacted] facility. After reviewing our report that we were able to generate through [redacted] we are averaging at least (2) power outages per month over the last six months. With this being a [redacted] facility we are becoming concerned that there may be something wrong or perhaps a problem on CenterPoint Energy's side. The last power outages happened on December 2nd from 7:38 – 7:53 and again on December 3rd from 11:05 – 11:28. Is there a way you can assist us with determining what is causing power outage events to be taking place so frequently or could you direct me to whom might be able to assist with this concern? I appreciate you.

Thank you,

EXHIBIT 1 EXCERPT FROM CENTERPOINT RESPONSE H-E-B 01-03

(Emphasis added.)

From: [redacted]
Sent: Monday, August 08, 2016 12:05 PM
To: [redacted]
Subject: FW: Ongoing Voltage Unbalance Issues
Importance: High

Can someone, preferably [redacted] due to [redacted] technical expertise, appropriately respond to this customer and let them know everything that we're doing, why we're doing it, and provide a timeframe for getting it completed? I spoke with [redacted], and he is working on getting the 2 identified URD loops moved from C-phase to A-phase, but I agree with his opinion that it doesn't seem like moving a 60A fuse and a 40A fuse to a different phase is going to fix this issue. Unless I was left off of an email, I haven't seen the following questions answered:

1) What are we doing to identify the issue?
2) Do we suspect what might be the issue?
3) Are we sure it's a CNP issue?
4) If it is our issue, what is our blueprint for fixing it?

I had [redacted] and am out of the office. Based on the fact that I am out of the office and out of the loop, I imagine that my perspective of Centerpoint's response to this issue mirrors this customers perspective, and unless I was left off of an email somewhere, our response has been sorely lacking detailed plans and timelines for addressing the issue. I have to agree with this customers claim that this issue doesn't appear to be a high priority for CNP. [redacted] email below informs the customer that we are placing a voltage meter at this customers location, but it doesn't give any information regarding what information that we're looking for or a timeframe that the meter will provide us with any usable information. I think a lot of this customers frustration is based on the lack of information that we're providing, and from where I'm sitting, I can't blame them.

EXHIBIT 1 EXCERPT FROM CENTERPOINT RESPONSE H-E-B 01-03

(Emphasis added.)

From: [redacted]
Sent: Monday, August 08, 2016 8:46 AM
To: [redacted]

EXTERNAL EMAIL

Good morning,

I am not certain what the meter can to expedite this issue, but we have not been able to run the facility between 3:00 pm and midnight for weeks now. Our on-call employee was out all weekend with the issue at [redacted]. We are running the generator for many hours a day in which is an added expense on top of all the overtime we are paying our employees. As noted last week, we also are still experiencing problems at our [redacted] facility that is the main source [redacted]. Furthermore, to remind you that both of these sites are [redacted].

From the previous e-mails it was [redacted] assumption that Centerpoint was already identifying areas to switch loads? What is the purpose of the monitor? It is already a known fact that there is a problem. This seems to be another

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delay. Last week [redacted] stated that a [redacted] is looking into this, and that some adjustments have been made to your system already. He also stated that orders have been issued additional modifications to the circuit, and that Centerpoint is awaiting confirmation from the field crews that they have been completed. Where does the additional modifications stand at this point? How long does it take to get confirmation from field crews that they have completed the work?

I am quite certain that Centerpoint, like [redacted] are always dealing with issues, although if we were having a service problem with one of our customers this would be moved up to a priority for us to rectify asap. We seriously need help here, and feel that we are getting nowhere. We cannot continue to try and run our facilities like this.

To add another note: The following comment is what we were told from [redacted] on 8.3.2016 **Just to update you, a crew has gone out today to identify areas where we can shift some load. This job will be sent out to be completed by a larger crew with the necessary equipment to do so. After this is completed, I will monitor your service to identify if the problem has been resolved.**

Thank you,

EXHIBIT 1 EXCERPT FROM CENTERPOINT RESPONSE H-E-B 01-03

(Emphasis added.)

To: [redacted]
Subject: RE: Ongoing Voltage Unbalance Issues

EXTERNAL EMAIL

Good day to All,
My name is [redacted], and I am [redacted] is one of the largest [redacted]. We have over [redacted] within our service area, including [redacted] We also provide [redacted] to several other utility districts in the [redacted]. Being a [redacted] provider we certainly understand that from time to time problems happen that are beyond our control that may result in outages and or service problem etc.. However, we take pride as I am sure Centerpoint Energy does, in being proactive and responsive to minimizing and correcting service problems to our customers.

We have been very patient in dealing with Centerpoint Energy on the issue of unbalanced voltage and current problems. These continues fluctuation problems are causing our electrical equipment to lockout our motors that pump the water provided to our customers. We have adjusted our electrical protection devices beyond the manufacture range, whereas to stay in operation. However, this is still not working and our personnel are going out almost every evening to manually manipulate our equipment in order to keep service to our customers. [redacted] **has communicated on numerous occasions our continued problems in writing and by phone to numerous people with in your organization**.

It is time to move this problem to a priority status! We have reached a point of frustration with this circumstance and expect Centerpoint Energy to solve the problems we are experiencing ASAP. We also expect a follow up communication as well as a meeting with Centerpoint Energy representatives to discuss this ongoing issue and a plan of action in moving forward. Should we not resolve this problem in the near future we will have no choice but to advance this problem to the regulatory agencies and the media for help to resolve this issues.

Regards,
[redacted]

EXHIBIT 1 EXCERPT FROM CENTERPOINT RESPONSE H-E-B 01-03

(Emphasis added.)

From: [redacted]
Sent: Thursday, August 04, 2016 9:55 AM
To: [redacted]
Subject: Ongoing Voltage Unbalance Issues

Good morning,

Yet again about 3:00 pm yesterday we experienced the unbalanced voltage issue at [redacted]. As you well know by now, this site is located at [redacted] Furthermore, at our facility located at [redacted]

[redacted] in which is the key source of [redacted] experienced the same issue around 3:00 pm yesterday afternoon as well. It was 11:00 pm before the imbalance was within range to enable us to run the facilities.

From what we have been told crews have gone out to identify areas where you can shift some load. I was also told that the job would be sent out and completed by a larger crew with the necessary equipment to do so. When completed I would be notified, at that point our service would be monitored to ensure the problem has been resolved. Additionally, I was told that this task would be accomplished during the week of July 25th.

We serve over [redacted] customers that depend on [redacted], not to mention the rules we are governed by t[redacted]. We have been requesting assistance in this matter for nearly a month now. At this time we would like to request a meeting, or possibly a conference call with someone that has the authority to make this happen. We do appreciate what efforts that have been dedicated thus far, but we are not seeing any beneficial results.

Thank you,

EXHIBIT 1 EXCERPT FROM CENTERPOINT RESPONSE H-E-B 01-03

(Emphasis added.)

Bill,

I left you a voice mail a short bit ago about the above referenced property. Over the last few business days we have experienced power outages lasting long enough to transfer power over to the generator and as soon as the generator ramps up, the power comes back online. We are losing our plant and everything else building equipment wise and it is a bit concerning as it is causing unnecessary wear and tear on our equipment.

These aren't blips because we historically haven't lost our plant when a blip occurs.

Today, one happened at 11:38 am, yesterday we had 2 during the day, we had one on Monday 10/1, and one last week. Our tenants are concerned and we need to figure out what is going on. Can you please look into this and let me know what might be causing this? Are they switching load from circuit to circuit? What can we do to minimize this type of disruption?

Best regards,

4847-7265-1930 v.2

Good afternoon,

[redacted] mentioned you had some power quality concerns with the buildings listed below. I have looked into our recorded outage history and your experienced outages; below is what I found.

9/3/17- your circuit experienced an outage between 11:24-11:48 AM for repairs due to Hurricane Harvey
9/2/17 – a momentary circuit operation was experienced at 2:29PM
7/16/17- a momentary circuit operation was experienced at 12:44AM
6/24/17- outage due to pole leaning in trees and causing a fire. Outage occurred at 8:17AM and was restored at 1:50PM
6/12/17-Nothing found
5/28/17- Nothing found

From the information received, it seems the concerns may be with some of the momentary outages experienced. A momentary operation is a complete loss of voltage for about 8ms to 3 seconds. This occurs when our breaker operates after sensing abnormal current on our power lines in order to avoid an extended outage. CenterPoint makes reasonable provisions but cannot guarantee against fluctuations or interruptions- the customer is responsible for installing the necessary protective equipment to limit the effects of these.

Most customers may see a flickering of lights but certain customers with sensitive equipment may perceive these as outages, depending on their load. What type of mitigation equipment has been installed in the buildings? Surge suppressors, UPS, sag correctors? What type of equipment is being affected? All of these buildings seem to be served from the same circuit, which leads me to believe there may be some type of mitigation equipment in a couple of the buildings, otherwise all would be affected.

If this is not what you have been experiencing, please let me know so that I may further investigate. Being that most of the events experienced were correlated to those recorded, I do not find it necessary to install a monitor. If you could provide a log of other events not mentioned, I could cross reference those with our records. If you would like to discuss further or may have some questions on this, feel free to contact me. I have also attached our power quality brochure with some more information.

EXTERNAL EMAIL

[redacted]
One of our clients is in need of power quality monitoring on their electrical services. They have had many surge issues related to damaged equipment and would like to verify the cause, which they believe is from CenterPoint, related to surges on their electrical service. [redacted] forwarded the below e-mail to you on September 8th. I realize CNP has been busy with Harvey but would hope that you could contact the property manager below to have recording equipment installed on their electrical service so we can isolate or eliminate CNP as a possible source of their problems.

[redacted]

[redacted]

EXTERNAL EMAIL

[redacted]
I realize everyone at CNP is very busy with recovery efforts from Harvey and I hope you have fared well.

Our customer, [redacted], has been having power quality issues at campus located on [redacted] since 2014. The sags/surges have been increasing in severity and frequency. The specific buildings are [redacted]. They are reporting surges/sags causing tripped circuit breakers and fuses several time each month. Have you had any history of reported problems from other customers in the area, or any other issues related to the electrical distribution in this area?

We are requesting that CNP verify the power quality, preferably with a data logger, at either or both of these building depending on typical CNP switching in the area and if/if not these buildings are on the same distribution circuit.

[redacted]

If you need any other information, please let us know.

Good afternoon,

Do you know how often his lights dim? Does it occur on a daily basis, or randomly? Do the lights go out completely or just dim for an instant? Do all his lights dim or just some in particular?

Reason for all these questions is that from the customer's outage information and call logs, it seems their complaint could be about internal issues or momentary operations. One call in particular states that their lights flicker when their AC turns on- which is normal depending on the type of AC they have and the high inrush current they produce. Another call stated partial outage, in which the crews found good voltage at the meter but found one of their individual 15A breakers had low voltage.

YTD, the customer would have experienced (5) momentary operations. The way I typically explain these is that "operations" are an instantaneous reclosing of our protective devices to avoid an extended outage during abnormal conditions when a fault may be present on the power lines. This could be due to multiple things like weather, vegetation, animals, or other external

causes. The actual operation lasts approximately 6-15 cycles after detecting a fault and is mostly unnoticeable to a residential customer but will cause lights to dim or flicker instantaneously. I have attached a brochure in this email which could be provided to the customer to help them understand a bit more.

The operations recorded YTD are on:
7/9 (1) operation
6/22 (1) operation
4/26 (1) operation
4/16 (1) operation
4/11 (1) operation

Let's get a little more information from the customer on the frequency of these outages and get an idea of any patterns - meanwhile, I will ask to have the transformer infrared since his neighbor and him are served from the same bank. If nothing abnormal is found and the customer's issues are not what I detailed above, I will contact him to walk through some troubleshooting.

Thanks,
[redacted]

From: [redacted]
To: [redacted]

[redacted]

I have a customer at [redacted] that is experiencing power quality issues for some time now. CenterPoint has gone out to this address on three separate occasions and concluded "good" voltage every time. On one of the trips, the lineman even switched out the clamps and upgraded the bussing. After these changes, the customer still complains about their lights dimming to a high degree. I went out there myself to see if there were any visible issues with the transformer, pole, wires, and connections and everything seems to be fine. The transformer is not being overloaded and they do not have a history of outages. This customer and their neighbor [redacted] claim they have been having this problem for about 2 years.

In response, I was going to switch out the transformer to fix the problem. Before we take this action, I was told to ask you to monitor this location and follow up with your guidance. Please let me know if you require any additional information.

Thank you,

Good Afternoon [redacted]

I had an opportunity to inspect the electrical distribution lines at [redacted]. Unfortunately, I was not able to find any physical damage that may be causing reliability issues. Per our outage report, the outage history does not seem to be out of the norm and shows that weather events are the most common reason for outages. To determine the root cause of the outages you have experience at the business park I would suggest to begin a log of the events. Another resource that may be of assistance would [redacted]. If there the is any special equipment running large loads or large horse power motors that are highly sensitive to our system this may be something you may want to discuss with [redacted]. Please see [redacted] contact information below. Let me know if you have any questions or concerns.

Thank you,
[redacted]

Good afternoon,

[redacted] mentioned you have concerns on the recent outages. Here is what has been recorded in our system for your location YTD:

1/21/17- operation
4/09/17- 16 minute outage due to
4/11/17-operation
5/23/17-operation
6/28/17- operation

The "operations" are an instantaneous reclosing of our protective devices to avoid an extended outage during abnormal conditions when a fault may be present on the power lines. This could be due to multiple things like weather, vegetation, animals, or other external causes. The actual operation lasts approximately 6-15 cycles after detecting a fault and is almost invisible to a residential customer but to a commercial customer with sensitive equipment, this may bring issues. Depending on the type of equipment your facility has, the machines may react to an operation rather quickly, thinking of the operation as an extended outage, and therefore shut down. In cases like these, customers often purchase UPS' to help with these unavoidable voltage sags or operations caused by outside sources. I have attached a brochure in this email which could help understand a bit more. We encourage customers to solicit advice from a qualified power quality consultant to evaluate the various solutions available for their facilities.

If the operations stated above are not what you have been experiencing, please let me know and we can discuss what you could be experiencing.

Thank you,
[redacted]

EXTERNAL EMAIL

[redacted]

At about noon today, 6/28, we had a major power surge which caused our manufacturing equipment to lose control/processing capability. These have been happening on a more frequent basis, and when they do, they cause significant issues with our processes. On a monetary side, each time this occurs and we are running equipment, it costs either side of $20,000 with loss of materials. Each of our extrusion lines has to be stopped, cleaned and re-started, as well as loss of resin, which is a highly valuable commodity.

If we can identify the source of these issues, that would be great. A solution would be even better. Thanks for your time and looking forward to your response.

Good morning,

[redacted] mentioned you have concerns on the recent outages. Here is what has been recorded in our system for your location YTD:

1/2/17- operation
4/16/17- operation
4/21/17-operation
4/26/17-operation
5/22/17- operation
6/22/17- extended outage due to possible fault
6/22/17- operation

The "operations" are an instantaneous reclosing of our protective devices to avoid an extended outage during abnormal conditions when a fault may be present on the power lines. This could be due to multiple things like weather, vegetation, animals, or other external causes. The actual operation lasts approximately 6-15 cycles after detecting a fault and is mostly unnoticeable to a residential customer but to a commercial customer with sensitive equipment, this may bring issues. Depending on the type of equipment your facility has, the machines may react to an operation rather quickly, thinking of the operation as an extended outage, and therefore shut down. In cases like these, customers often purchase UPS' to help with these unavoidable voltage sags or operations caused by outside sources. I have attached a brochure in this email which could help understand a bit more. We encourage customers to solicit advice from a qualified power quality consultant to evaluate the various solutions available for their facilities.

If the operations stated above are not what you have been experiencing, please let me know and we can discuss what could be experiencing.

Good afternoon,

Do you have approximate dates of when these outages have occurred? Industrial and commercial customers may experience equipment trip offs if proper protection is not installed. Our power lines are exposed to many faults due to weather, wildlife, and vegetation. At our substation we have breakers operating anytime abnormal conditions are experienced in our power lines. These operations are instantaneous (occur for a few milliseconds) but depending on your equipment, these operations may be interpreted as a permanent fault on your equipment and cause them to shut down. If you have a log of events, it can help me trace any events recorded in our system to understand what is affecting your facility. YTD, below are the outages we have recorded for your location:

7/9/17 @ 9:05 PM- instantaneous operation
3/24/17 @ 10:40 PM- instantaneous operation
3/24/17 @ 3:24 PM- 10 minute outage
2/11/17 @ 1:42PM - instantaneous operation

Do you currently have any protection installed at your facility? (ex: voltage surge suppressors, UPS', etc..). I have attached a brochure with more information which could help understand what you may be experiencing. If the outages stated above do not correlate with what you have experienced, please provide me any information on past outages so I may investigate more on what you may be experiencing.

Thank you,

EXTERNAL EMAIL

Good Morning [redacted],
Over the past several months we have been experiencing frequent power failures that are having severe effects on our manufacturing facility. These momentary failures are enough to shut down our large [redacted] machining equipment that can and have resulted in catastrophic failure of the part in the machine. Many of the failures do not appear to be weather related, although some definitely were.

I would like to request Center Point does a study of incoming power to our plant and a check of all equipment and connections. The plant was built in 2014 and we did install a pad mounted transformer at the time, 1200amps of 480V power.

This situation is causing real concern and I am hoping you can help to bring some resolve. I look forward to your reply.
Thank you,

[redacted],

I have contacted the customer and concluded the following:

I will be sending someone to infrared their service and drops and installing a monitor. Nothing needed on your end on this. I will stay in contact with the customer and provide him the information of results.

However, he did mention that they had a previous issue with a bee hive in their weatherhead a few years ago and wanted to make sure this was not an issue again. Since it is our equipment, his electrician is not able to check for this and he is requesting a crew to take a look inside his weatherhead. Is this something you can send a ticket out for? If so, please add on the notes that the entrance to the building is actually through [redacted]. and they can contact him for access [redacted] Let me know if this is possible. Thank you!

[redacted]

From: [redacted]
To: [redacted]

[redacted],

I have a customer at [redacted] he has been having issues with his voltage and compressors at his site burning up. His electrician has requested that cnp installs the devices that monitor the voltage for a month to see if this issue is one that is originating from cnp or with something on the customers side. Could you assist me in knowing what is the procedure for getting these monitors installed for this customer?

Thank You,

All,

Thank you for your assistance in addressing this inquiry. As discussed, the following items will need to happen:

- [redacted] reached out to [redacted] and left message to find more detail about what they are experiencing and where
- [redacted] to reach out to MUG and have their relay crew check the rollover device and scheme to ensure there are no issues with it
- [redacted] to look at both circuits that feed [redacted] for any standout items that may need to be addressed ([redacted], I can assist as needed as well on this one).

I will follow up once I speak with [redacted] and find out more about what exactly they are experiencing and where.

If you have any questions, please let me know.

Thank you,

[redacted]

From: [redacted]
Sent: Wednesday, December 06, 2017 7:24 AM
To:
Subject: [redacted]

[redacted],

Good plan. I will be available between 12:30PM -2:30PM today if you want to have a conference call with [redacted].

FYI, on the main service to [redacted], we have an automatic rollover arrangement between [redacted] circuits in a vault that feeds the PMT transformers for [redacted]. See attached one line for MUG service. That said, we can have Major Underground check the rollover scheme to make sure it is working. Otherwise, they may just be concerned about the momentary circuit operations they are seeing.

Thanks

From: [redacted]
Sent: Wednesday, December 06, 2017 7:10 AM
To: [redacted]
Cc: [redacted]
Subject: [redacted]

[redacted],

I will partner with [redacted] to review the outage history and develop a game plan to address the issues we find. I'd like to reach out to the customer later today along with you after we have reviewed and let the customer know we are looking into this and set up a follow up time to review our action items with them.

At first glance, there appear to be a lot of unknown's. This is a [redacted] circuit – [redacted]

[redacted],

[redacted] sent email below regarding increased frequency of outages at [redacted]. The last power outages happened on December 2nd from 7:38 – 7:53 and again on December 3rd from 11:05 – 11:28. Please have someone take a look at the outage history and maybe inspect this circuit and determine if anything we can improve, or trim trees, etc. I told Kathy that I or someone else would get back with her to discuss further.

Appreciate your assistance as always. Thanks,

EXTERNAL EMAIL

Hi [redacted]

I was asked to reach out to you due to concerns relating to many power outages that have taken place here at the [redacted] facility. After reviewing our report that we were able to generate through [redacted] we are averaging at least (2) power outages per month over the last six months. With this being a [redacted] facility we are becoming concerned that there may be something wrong or perhaps a problem on CenterPoint Energy's side. The last power outages happened on December 2nd from 7:38 – 7:53 and again on December 3rd from 11:05 – 11:28. Is there a way you can assist us with determining what is causing power outage events to be taking place so frequently or could you direct me to whom might be able to assist with this concern? I appreciate you.

Thank you,

[redacted]

I'm sorry I didn't have time to look at this earlier today but I see from LOH that there have been many issues with fuse [redacted]- I will check this fuse and make sure it is coordinated properly. I will create a lightning map on the dates below to identify if lightning was an issue so that we can present to the customer as well. In your e-mail, customer mentions there is wildlife protection- is this the case? If there are any steel arm poles, birds may be getting electrocuted and causing the interruptions as you mentioned to the customer. If I do not find any issues with the fuse coordination, I will look further into why the fuse keeps blowing. For now, I don't think there is a need for any monitors to be placed in the location. I will provide you with the results of my coordination and the lightning maps tomorrow as well as look into today's outage. Let me know if there is anything else I can do meanwhile.

-----Original Message-----
From: [redacted]
Sent: Tuesday, January 20, 2015 5:08 PM
To: [redacted]

Subject: FW: [redacted]

Hi [redacted]

The customers at [redacted] have had several outages since 11/01/2014, the most recent being yesterday. The LOH says that it was likely weather or bird related however, the customer is not entirely convinced and would like further investigation. Apparently, it has caused large expenses for one tenant, [redacted]. Are you able to look into this and see if you can identify any issues?

Thank you,
[redacted]

[redacted],

I spoke to [redacted] today and she explained that the issues began after the replacement of their transformer, but looking at the notes, I think she may have meant meter. Their meter was replaced on December and I'm thinking there could be a lose connection somewhere. Could you send someone out to check the voltage at the transformer? I will get [redacted] to check out the voltage at the meter after confirmation on transformer voltage so that I can compare.

Thank you,

I've cross referenced the outages you provided with that of our system. It seems your equipment is sensing the slight voltage drops that occur in neighboring circuits. Most of the outages I was able to correlate occurred on another circuit, not the ones directly feeding your load.

5/14- operation due to lightning at 15:45
6/12- momentary operation due to lightning on adjacent circuit @ 15:05
6/20- momentary operation due to lightning on adjacent circuit @ 18:31
Operation on adjacent circuit @ 18:53
Operation on adjacent circuit due to tree limb @ 19:40
6/21- Outages on adjacent circuit at 2:07 and 6:58
7/3- no outages found around your experienced outage time
7/5- no outages found around your experienced outage time

I have inquired about available monitors and will update you once I receive a response. Please be aware that a monitor installation will require a check deposit of $954 which will not be cashed until the data is evaluated. If the data determines that there is a problem with the company's equipment or system, the check will not be cashed and returned to you.

DC.9	**Voltage Monitoring** Applicable to requests by Retail Customer or Retail Customer's Competitive Retailer to install voltage monitoring equipment at Retail Customer's Point of Service for evaluation and reporting of data. 1. Data determines a problem with Company's equipment or system 2. Data determines no problem with Company's equipment or system.	No Charge $ 954.00

Most power outages and disturbances can be attributed to factors beyond the control of a utility. CenterPoint Energy's system is exposed to environmental influences and normal operational conditions, which can create both power quality and reliability disturbances. In terms of reliability and power quality, two sections in Chapter 5 of the PUCT-approved CenterPoint Energy Tariff are especially important. Section 5.2.1 (Liability Between Company and Retail Customers) states that CenterPoint Energy will make reasonable provisions to supply steady and continuous delivery service, but does not guarantee against fluctuations or interruptions. Section 5.5.3 (Equipment Sensitive to Voltage and Waveforms) states that customers with equipment that may be adversely impacted by voltage fluctuations are responsible for installing the necessary protective equipment to limit the effect of those events. Historically, the best values for resolution are achieved through installing power conditioners or other power quality solutions to meet the customer's equipment needs and requirements.

From: [redacted]
Sent: Wednesday, July 06, 2016 11:37 AM
To: [redacted]
Subject: FW: Meeting with Center Point Energy

[redacted]:
I copy you on this e-mail to show you how big is the impact of the power-outages in the [redacted] plant, do you have any update of the issues that we review in our meeting.
The trees touching the wires, and the possibility to have an equipment to measure the quality of our energy.
Please let me know.
Thanks.

From: [redacted]
Sent: Tuesday, July 05, 2016 10:24 PM
To: [redacted]
Subject: RE: Meeting with Center Point Energy

[redacted],
FYI, attached is a copy of the power outage log that I mentioned I would share. This afternoon we had a blackout and it took 75 minutes to recover…

On Jun 6, 2016, at 9:13 AM, [redacted] wrote:

[redacted]:
I appreciate the time that you already spent in our facility and the support that you has done to us, in order to finalize our action plan to correct the problems in this facility, we want to have a meeting and obtain your comments and feedback, could you call me back and set a meeting in the [redacted] plant, we want to have a fully understanding of the condition of our plant energy problem.
Thanks.

Good afternoon,

I just spoke to the customer on the phone and I have addressed his questions/ concerns as well as updated him on the ongoing efforts to find a solution. My process into pinpointing the issue was to first concentrate the issue at the customer level- an infrared and visual inspection were conducted at the customer's facility with no identified issues. Since the customer was complaining about high voltage at first, I looked into possible capacitor bank issues as well as possible loops within the circuit. I further on moved into circuit level issues that may have been affecting the customer, where I noticed the voltage at the substation bus was a bit high. Substation crews went out the next day and lowered the tap on the transformer at the sub, which the customer confirmed corrected their high voltage situation. Focusing on the imbalance, I also noticed there was a load imbalance at the circuit level which needed to be addressed. This was one step into identifying what could potentially be affecting the customer- not necessarily the solution.

Moving forward, I have confirmed to the customer that a monitor will be placed tomorrow, data will be downloaded Thursday, and I will analyze it to provide a report no later than Friday. We cannot guarantee that the issue is CNP's, as I have discussed with the customer. Once their data is analyzed, I will be able to confirm whether that is the case. If it is our issue- the timeline to fix it will depend on the extent of the problem itself.

Thank you,
[redacted]

From: [redacted]
Sent: Monday, August 08, 2016 12:05 PM
To: [redacted]
Subject: FW: Ongoing Voltage Unbalance Issues
Importance: High

Can someone, preferably [redacted] due to [redacted] technical expertise, appropriately respond to this customer and let them know everything that we're doing, why we're doing it, and provide a timeframe for getting it completed? I spoke with [redacted], and he is working on getting the 2 identified URD loops moved from C-phase to A-phase, but I agree with his opinion that it doesn't seem like moving a 60A fuse and a 40A fuse to a different phase is going to fix this issue. Unless I was left off of an email, I haven't seen the following questions answered:

1) What are we doing to identify the issue?
2) Do we suspect what might be the issue?
3) Are we sure it's a CNP issue?
4) If it is our issue, what is our blueprint for fixing it?

I had [redacted] and am out of the office. Based on the fact that I am out of the office and out of the loop, I imagine that my perspective of Centerpoint's response to this issue mirrors this customers perspective, and unless I was left off of an email somewhere, our response has been sorely lacking detailed plans and timelines for addressing the issue. I have to agree with this customers claim that this issue doesn't appear to be a high priority for CNP. [redacted] email below informs the customer that we are placing a voltage meter at this customers location, but it doesn't give any information regarding what information that we're looking for or a timeframe that the meter will provide us with any usable information. I think a lot of this customers frustration is based on the lack of information that we're providing, and from where I'm sitting, I can't blame them.

Sincerely,

From: [redacted]
Sent: Monday, August 08, 2016 8:46 AM
To: [redacted]

EXTERNAL EMAIL

Good morning,

I am not certain what the meter can to expedite this issue, but we have not been able to run the facility between 3:00 pm and midnight for weeks now. Our on-call employee was out all weekend with the issue at [redacted]. We are running the generator for many hours a day in which is an added expense on top of all the overtime we are paying our employees. As noted last week, we also are still experiencing problems at our [redacted] facility that is the main source [redacted]. Furthermore, to remind you that both of these sites are [redacted].

From the previous e-mails it was [redacted] assumption that Centerpoint was already identifying areas to switch loads? What is the purpose of the monitor? It is already a known fact that there is a problem. This seems to be another

delay. Last week [redacted] stated that a [redacted] is looking into this, and that some adjustments have been made to your system already. He also stated that orders have been issued additional modifications to the circuit, and that Centerpoint is awaiting confirmation from the field crews that they have been completed. Where does the additional modifications stand at this point? How long does it take to get confirmation from field crews that they have completed the work?

I am quite certain that Centerpoint, like [redacted] are always dealing with issues, although if we were having a service problem with one of our customers this would be moved up to a priority for us to rectify asap. We seriously need help here, and feel that we are getting nowhere. We cannot continue to try and run our facilities like this.

To add another note: The following comment is what we were told from [redacted] on 8.3.2016 **Just to update you, a crew has gone out today to identify areas where we can shift some load. This job will be sent out to be completed by a larger crew with the necessary equipment to do so. After this is completed, I will monitor your service to identify if the problem has been resolved.**

Thank you,

From: [redacted]
Sent: Monday, August 08, 2016 8:08 AM
To: [redacted]
Subject: RE: Ongoing Voltage Unbalance Issues

Good morning,

This is to inform you that a monitor will be placed at your meter tomorrow in order to analyze our service and your usage. This will aid in identifying the root cause of your outage events. Please be informed that the installation may require a 5 minute outage.

Thank you,
[redacted]

From: [redacted]
Sent: Thursday, August 04, 2016 12:32 PM

To: [redacted]
Subject: RE: Ongoing Voltage Unbalance Issues

EXTERNAL EMAIL

Good day to All,
My name is [redacted], and I am [redacted]. [redacted] is one of the largest [redacted]. We have over [redacted] within our service area, including [redacted] We also provide [redacted] to several other utility districts in the [redacted]. Being a [redacted] provider we certainly understand that from time to time problems happen that are beyond our control that may result in outages and or service problem etc.. However, we take pride as I am sure Centerpoint Energy does, in being proactive and responsive to minimizing and correcting service problems to our customers.

We have been very patient in dealing with Centerpoint Energy on the issue of unbalanced voltage and current problems. These continues fluctuation problems are causing our electrical equipment to lockout our motors that pump the water provided to our customers. We have adjusted our electrical protection devices beyond the manufacture range, whereas to stay in operation. However, this is still not working and our personnel are going out almost every evening to manually manipulate our equipment in order to keep service to our customers. [redacted] has communicated on numerous occasions our continued problems in writing and by phone to numerous people with in your organization.

It is time to move this problem to a priority status! We have reached a point of frustration with this circumstance and expect Centerpoint Energy to solve the problems we are experiencing ASAP. We also expect a follow up communication as well as a meeting with Centerpoint Energy representatives to discuss this ongoing issue and a plan of action in moving forward. Should we not resolve this problem in the near future we will have no choice but to advance this problem to the regulatory agencies and the media for help to resolve this issues.

Regards,
[redacted]

From: [redacted]
Sent: Thursday, August 04, 2016 9:55 AM
To: [redacted]
Subject: Ongoing Voltage Unbalance Issues

Good morning,

Yet again about 3:00 pm yesterday we experienced the unbalanced voltage issue at [redacted]. As you well know by now, this site is located at [redacted] Furthermore, at our facility located at [redacted]

[redacted] in which is the key source of [redacted] experienced the same issue around 3:00 pm yesterday afternoon as well. It was 11:00 pm before the imbalance was within range to enable us to run the facilities.

From what we have been told crews have gone out to identify areas where you can shift some load. I was also told that the job would be sent out and completed by a larger crew with the necessary equipment to do so. When completed I would be notified, at that point our service would be monitored to ensure the problem has been resolved. Additionally, I was told that this task would be accomplished during the week of July 25th.

We serve over [redacted] customers that depend on [redacted], not to mention the rules we are governed by t[redacted]. We have been requesting assistance in this matter for nearly a month now. At this time we would like to request a meeting, or possibly a conference call with someone that has the authority to make this happen. We do appreciate what efforts that have been dedicated thus far, but we are not seeing any beneficial results.

Thank you,

From: [redacted]
Sent: Friday, May 13, 2016 3:32 PM
To: [redacted]
Subject: [redacted]

Good afternoon,

I have evaluated the current outages affecting the [redacted] location at [redacted] and the following is a breakdown of what you may have experienced year to date:

03/18/2016 @ 0706 - Transformer feeding your location experienced an outage in which crews had to replace the fuse. The outage lasted 4 hours and 30 minutes.
04/16/2016 @ 0704 - Customer paid outage which lasted 4 hours and 24 minutes
04/17/2016 @ 2357 – Momentary operation due to lighting
04/18/2016 @ 0950 - Transformer feeding your location experienced an outage due to severe weather. The outage lasted 11 hours and 40 minutes due to the high amount of customers affected.
04/18/2016 @ 1248 –Momentary operation due to lightning

04/19/2016 @ 0541 - Transformer experienced an outage on all three phases. Crews checked the equipment and fuse; both were found ok. The outage lasted 5 hours and 37 minutes.
04/28/2016 @ 0723 - Transformer experienced an outage on all phases. Crews went out and checked transformer; found it in good condition and with good voltage. The notes on the outage case state that there was inside trouble in your facilities.
05/01/2016 @ 0122 - Predicted outage at the transformer level which lasted 1 hr and 49 minutes.

I personally inspected the equipment externally this week (overhead line and fuse feeding your pad mount) and did not find any anomalies. A thermal inspection was also conducted to verify there was no damage to lightning arresters feeding your transformer.

I spoke to the line mechanic who responded to your recent outages and he verified that voltage was checked and found good at the transformer. The line mechanic mentioned he spoke to the electrician present and discussed some of the concerns when the shunt trip was being installed and the electrician confirmed the voltage feeding the autotransformer was good, and was low coming out of the autotransformer. Additionally, an outage was experienced by [redacted] on May 5th which does not appear on our system.

This information leads me to believe that the issue here is an internal one. We pride ourselves in delivering reliable power to our customers, but cannot guarantee against irregularities or interruptions. My recommendation would be to evaluate the installed equipment inside the facilities to confirm proper performance. Please feel free to contact me with any questions.

Thank you,

Good afternoon [redacted],

A monitor has been placed in one of the transformers at [redacted] and is in the process of being reviewed. The monitoring data recently collected includes information from June 8-June 15th. If you have any logs pertaining to these dates which you could provide, it could assist in determining what you are experiencing since the logs provided were from previous dates. I will have a finalized report on the downloaded data by next week and we could meet to discuss. Meanwhile, if you have further questions/concerns, you can contact me directly via email of phone listed below.

Thank you,

Good afternoon,

It has not been proven that there is an issue at the utility side and a conclusion cannot be made until data is collected and analyzed. Furthermore, the monitor will be placed at [redacted]

[redacted] tomorrow morning. Data will be downloaded in approximately two weeks- I will then evaluate CenterPoint Energy's service and provide a report with my findings.

A work order is being created to repair the uncovered pedestal north [redacted].

Thank you,

EXTERNAL EMAIL

[redacted],

I am glad that you were able to attend our meeting with Centerpoint today and hope that we can resolve the ongoing electrical problems that [redacted] homeowners are experiencing. I wanted to recap everything that was discussed so that you may relay the information to inquiring homeowners if need be. [redacted] has made several attempts to correct the electrical issues that have been occurring in [redacted], but has yet to discover a solution related to our products or services. After reviewing all of the service calls that [redacted] have made, the information in our system, and the surveys that you have provided to me, [redacted] has come to the conclusion that there is a problem on the Centerpoint side. Many homeowners have complained about power outages that occur more frequently than seems usual. The homes that are having issues range anywhere from 10+ years old to brand new and were not all built by [redacted] homes are also experiencing issues). Centerpoint has agreed to install a recorder on a home that has been experiencing problems to collect information with regard to the power that they are supplying. [redacted] will also install a recorder to collect information regarding the electrical components in the home, to ensure they have been installed correctly and are dispersing the electricity correctly. This will also help determine what is causing the breakers to trip when the power shuts off or surges. Essentially both parties will monitor their side of the equation to try to isolate the actual problem.

If at any point you or any of the [redacted] homeowners have any questions or concerns, please do not hesitate to contact me directly via email, or phone. Whenever we receive additional information regarding this specific issue I will update you immediately.

Respectfully,

From: [redacted]
Sent: Monday, August 22, 2016 2:20 PM
To:
Subject: Electrical Problems

Good Afternoon [redacted],

I wanted to reach out to you with regard to the ongoing electrical issues that [redacted] has been experiencing. [redacted] has been working tirelessly to determine the cause of the issues that homeowners have been experiencing and we sincerely hope that we can come to a conclusion to the matter soon. We have been to many homes and have come to the conclusion that Centerpoint is having a problem on their end and the power that they are providing to the subdivision. [redacted] will have several representatives at the model home tomorrow to meet with Centerpoint so that we can hopefully find a solution. I understand that this has been a frustrating time, but please know that our homeowners' happiness and satisfaction is our top priority. I would like to invite you, and [redacted] to the meeting tomorrow as representation for the homeowners and [redacted]. If you are able to attend we can discuss the matters at hand and answer any questions that you may have. If not, I would be happy to meet with you at another, more convenient time, however, tomorrow we will have our construction management team, as well as Centerpoint, and myself present. The details are below, and I hope that you will be able to attend.

Good afternoon,

A monitoring device is being placed at [redacted] (mid circuit) to evaluate where the harmonics are emerging from in order to mitigate. The issue could be due to an accumulation of harmonics in the circuit, or even a certain customer. This will help drill down to the source of the issue and find a solution. I will keep you posted on my findings.

Thank you,

From: [redacted]
Sent: Friday, October 07, 2016 2:29 PM
To: [redacted]
Subject: RE: [redacted]

[redacted],

Thank you for the information, I believe the plan is to gather another two weeks of data so we have a full month prior to removing the monitors.

Please let me know what the solutions entail as well as a time line on what needs to happen (do you need work orders issued?) so we can make sure to address on our end.

The plan is to present data we find to the HOA once we have the full month report, I'd like to present a solution to any issues we find at that time as well.

Thank you for all your assistance with this and let me know if there is anything you need from my end.

[redacted]

From: [redacted]
Sent: Thursday, October 06, 2016 3:49 PM
To: [redacted]
Subject: [redacted]

[redacted],

See attached reports for [redacted] and [redacted]. It seems they may be experiencing high levels of voltage distortion. I will work on a solution and keep you updated. Let me know if you have any questions.

Good afternoon,

I've been in contact with [redacted] from [redacted] and explained the recent momentary operations, but she mentioned having experienced multiple issues even after. Could we send somebody out to inspect the padmount, please? The address is [redacted]

Thank you,

Good afternoon,

The infrared inspection did not show any issues with your overhead service- I can provide these if needed. I've taken a look at the recent outages at your location and have noticed only three circuit level operations YTD have taken place on the circuit providing your service. Your meter has been tested during trouble calls and voltage has been found within our service limits every time. These facts lead me to believe that your issue may be internal or at your panel. Placing a monitor does not seem feasible, given that there were no issues found during inspection and there have not seen any other known complaints in the same circuit. Let me know if you have any further questions.

Thank you,

These customers are on the [redacted] circuit, and I do not see any DDP or switching on it right now, so the circuit operations may be due to trees or some type of fault. The last tree trimming on this circuit seems to have been on the fourth quarter of 2013 so it's due for a trim. The circuit will have to be inspected first for any visual items, and if nothing is found and the issue persists, I can look further into other possible issues.

From: [redacted]
Sent: Monday, July 11, 2016 2:27 PM
To: [redacted]

Could you give me their contact information so that I can get more detail on the outages they're experiencing?

From: [redacted]
Sent: Monday, July 11, 2016 2:18 PM
To: [redacted]

June 29 and 30th , but there complaining about the frequency and loosing equipment.

From: [redacted]
Sent: Monday, July 11, 2016 2:08 PM
To: [redacted]

Are the complaints for the same day? 6/29

From: [redacted]
Sent: Monday, July 11, 2016 8:44 AM
To: [redacted]

[redacted],
I Have 2 complaints on [redacted] , outage shows breaker operations . is there something to look at this further with Sub –Station or how do we need to proceed with this .
Thanks

Subject: Rate Case RFI - Power Quality Process, re: Appendix 1.

Scope of RFI response: "the scope of a RFI response ... have the relevant employees that we identified search their own outlook folder for emails (and documents) about the company's process for responding to repeat customer complaints related to service interruptions.", re: Appendix 1.

Task: "... provide copies (from the last five years) of any and all emails and documents dealing with our company's process related to responding to repeat customer complaints related to service interruptions.", re: Appendix 1.

PQ Process Summary/Outline (RE: "Copies emails and documents" section below):
There is no exact process/outline for dealing with customer complaints due to the many factors/variables in each case and different priorities/care for certain types of customers, e.g. hospitals, schools, politicians, lawyers, etc., but I would say the following to be typical (the process is in the pudding, i.e. action taken/response);

1. Work with the Service Center personnel to answer any problems and make recommendations.
   - 1.1. Start with gathering Customer Information (re: Appendix 2.), to better understand the customer's issues/complaints.
   - 1.2. Accumulate CNP's captured Data/Events pertaining to Customer's Service,
   - 1.3. Ask for a log of events (time/dates) from customer and note if this is a single customer complaint or others on the circuit also with complaints,
   - 1.4. Install a PQ monitor per Tariff if the customer is requesting one or if customer has actual data evidence of steady-state high voltage etc. (not just one or two events over several months),
   - 1.5. Determine if recorded data suggest other than typical/average reliability/PQ, i.e. common utility events, and decide whether further investigation is prudent or necessary,
   - 1.6. If further investigation is prudent or necessary to satisfy customer's concern's,
     - 1.6.1. Analyze substation fault data, or install a toll grade sensor, to locate the causes of excessive circuit/recloser operations,
     - 1.6.2. Take care of the tree problem, visual inspection, trim as needed,
     - 1.6.3. Send troubleshooter to check our equipment (field check, connections, voltage etc.),
     - 1.6.4. Do an IR check of equipment, if prudent, (e.g. customers log of pwr outages or momentary's not being recorded (not showing up) on CNP databases),
     - 1.6.5. And if they're still with problems install a monitor, (voltage checks too high or too low on field check for example, etc.),
     - 1.6.6. Follow up with a Power Quality Investigation report, to include Customer's request(s) / Issue(s) / complaint(s) / Concern(s), Steady-State Voltage Analysis, Voltage unbalance %, Harmonic Distortion Limits, etc., Voltage Event Analysis, Summary, Resolution(s) and Recommendation(s) to include PQ Solutions for customer side of meter, and Additional Information.
2. Work with Planning Department to make them aware of any trouble areas and make recommendations, e.g. evaluations of the need for DACS devices to improve circuit reliability performance.
3. If no Utility problems are found it is often necessary to provide information to Customer regarding Customer's vs CNP's responsibilities related to power issues/concerns. CNP's 2018 Commercial & Residential Reliability Brochures are provided to Customer for this purpose.

Copies of emails and documents:

Item 1:

From: Cryer, Wm Scott
Sent: Friday, May 10, 2019 11:46 AM
To:

See below:

An update of the hyper fuse, circuit, & automation report. Looking at the dashboards, if I were to select one device from each category that needed to be focused on, I would make pick these items

- Fuse –
  - WY7 – Spring Branch area – EC-14 James Brewer
  - Operated 7 times in April and 2 times in March
  - It looks like most of the outages were caused by unknown / other / vegetation, so my guess is that the lateral has a vegetation problem
  - This fuse doesn't have a history of problems, so it looks like this is a new problem that has not been fixed yet
  - Didn't see where it has made the Hot Fuse list yet, but it should make it on next update

...

From: Brewer, James R
Sent: Monday, May 20, 2019 7:54 AM
To: Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Subject: RE: Hyper Fuse, Circuit, & Automation Reports

FYI – Fuse WY7 (SBR EC14) Removed vines from 311 Rainier, trimmed trees, and replaced overloaded/leaking xfmr (25kva to 50kva)

Item 2:

From: Brewer, James R
Sent: Thursday, May 02, 2019 2:40 PM
To: Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>; Perdue, Anne R <Anne.Perdue@centerpointenergy.com>
Cc: Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Subject: RE: [External Email]

Service: 1500KVA, 480/277V, 3ph, 4W, GLN:

Year to date Event(s) for Customer:
There has been four (4) days with events, all momentary (0 min Duration). Earliest three (3) days were due to "Strong Wind" and "Lightning" in which substation BREAKER - SF_43A0 operated. The latest event (4th day) was on 4/25/19 11:12am and was listed as unknown cause in which RECL 188M operated

1 time. Wind was clocked at 13mph on 4/25/19 11:18am at Hobby Airport with some precipitation 1hr earlier.

Recommendation(s):

1) Inform customer that CNPs logged events for this customer this year are typical for overhead circuits (Strong Wind/Lightning), and do not presently indicated any particular "pattern", cause, or system issue in which to investigate,
2) Re-inform (reassure) customer of recent (Q1 2019) tree trimming, and the "above the board" attention this circuit (customer) is receiving in the way of an aggressive on-going inspection cycle, i.e. care not typically afforded to similarly situated (commercial) customers,
3) Ask customer to keep a log of events (dates/times) in case of issues other than the typical CNP recorded/logged events, i.e. if given something that could be investigated as a cause other than typical weather events for which this circuit is already receiving "special" attention, CNP will be happy to further investigate,
4) Lastly I would advise customer to seek out third party sources, to review their site for areas of concern in regards to power, who can make recommendations, e.g. adding UPS, generator, etc., or other that may mitigate/alleviate their "VERY troubling" concerns in ways that the Utility is unable to address (outside of the Utilities Tariff / responsibilities); include the attached PQ brochure.

Regards,

CenterPoint. Energy

James R. Brewer, P.E.
Senior Engineer | Power Quality
281-391-5122 W.
CenterPointEnergy.com

From: Wilson, Jonathan J
Sent: Thursday, May 02, 2019 6:57 AM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Subject: FW: [External Email

From: Perdue, Anne R
Sent: Thursday, April 25, 2019 3:12 PM
To: Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>
Subject: Fwd: [External Email]

Can you look into this please.

Thank you,

Anne
Sent from my iPhone

Begin forwarded message:

From:
Date: April 25, 2019 at 11:28:02 AM CDT
To: "Anne Perdue (Anne.Perdue@centerpointenergy.com)" <Anne.Perdue@centerpointenergy.com>, "Adrian Moreno (adrian.moreno@centerpointenergy.com)" <adrian.moreno@centerpointenergy.com>
Subject: [External Email]

EXTERNAL EMAIL

Good morning,

We just had another power blip.

We are beginning to see the same pattern we experienced some years ago, and this is VERY troubling for the Building, and for its Tenants.

Can I please get some feedback on the issue today that caused that blip.

Best regards,

Item 3:

From
Sent: Sunday, April 07, 2019 9:22 PM
To: Joubert, LaTanya D <LaTanya.Joubert@centerpointenergy.com>
Subject: [External Email] ELECTRICAL SURGES -

EXTERNAL EMAIL

LaTanya,
Hope you are doing well Im contacting you in hope you can direct me to the appropriate department to discuss possible monitoring of for power surges.

Since power up, the main surge protection between the 1000kva transformer and building has had a failure of "phase A" three (3) times between July 2018 - current. After each failure the protection unit is replaced but another failure of the same phase occurs within 2- 10 days.

Any assistance you can provide is greatly appreciated.

Respectfully

...

Power Quality Investigation:

Information

Customer:
Address:
Customer Contact:
CenterPoint Energy Power Quality Engineer: James R Brewer, P.E.
Service Area Consultant: Dylan Schuchmann, (281) 391-5160, Katy S/C
Service: Commercial, 1000 KVA Padmount Xfrm, 3ph, 4W, 480/277V wye/wye service, GLN:
Distribution Circuit: SE42 (same substation bus as SE43 & CB1)
Monitoring Period: Apr 23, 2019, 12:54:27 thru May 08, 2019, 09:03:40 (14 days, 20:09:13)
Report Date: ***05/29/19***

Customer Request(s) / Issue

"___ request assistance in determining if the phase 'A' or other line service into ___ is causing repeated faults in the building surge protection".

Steady-state Voltage Analysis

A PMI (Power Monitors, Inc.), Revolution Power monitor was installed, at the point of service (utility meter) to continuously monitor the steady-state supply voltage at the point of service. An analysis was conducted to determine if the monitoring data is in compliance with applicable standards in regard to the steady-state supply voltage. The analysis results, for the monitoring are summarized below.

RMS Voltage Limits

The American National Standards Institute (ANSI) Standard C84.1 provides the utility design criteria for the maximum and minimum range of steady-state supply voltage at the point of service. During the monitoring period, the steady-state supply voltage was in compliance with the ANSI C84.1 range A limits (+/-5% of nominal 480Y/277 V). The following chart represents the steady-state voltage recorded.

Steady-State Voltage at Point of Service

Voltage Unbalance Limits

In addition, the voltage unbalance was in compliance with the ANSI C84.1 recommended maximum limit (3%). The following chart represents the voltage unbalance recorded at the point of service.

Voltage unbalance recorded at Point of Service

Harmonic Distortion Limits

The IEEE Standard 519 provides the limits for harmonic distortion in electrical power systems. The limit for voltage distortion V ≤ 1 kV is 8% Total Harmonic Distortion (THD). The current distortion limits for the subject service is in the 5% Total Demand Distortion (TDD) category per Table 2 of IEEE 519 with Isc/IL = 7.5. This value is determined from the three-phase short-circuit current (Isc=4220 Amps) located at the PCC (point of common coupling) and the 12-month average load current (note only 3 months of data is available; so 3 mo. Avg peek or approx. 564 amps load, i.e. IL= 564;) as seen at the point of service.

During the monitoring period, the voltage and current distortion was in compliance with IEEE 519 harmonic limits except where TDD exceeded 5%, re: below. In those instances, the TDD exceeding 5% was due to and corresponds with customers operational loading, i.e., customers equipment.

Voltage THD recorded at Point of Service

Current Total Demand Distortion (TDD) recorded at Point of Service

Average Current at Point of Service

Voltage Event Analysis

From the same monitor(s) data, an analysis was conducted to determine if the monitoring data is in compliance with applicable standards in regard to the voltage events. IEEE Standard 1159 provides the categories and characteristics of typical power system electromagnetic phenomena (i.e. events such as interruptions, sags and swells).

Sags

During the monitoring period, one (1) Sag was recorded exceeding the IEEE 1159 limit for voltage sags (-10% of nominal 277 V).

Event	Date / Time	Magnitude and Duration	System Record
Instantaneous Sag	04/27/19 @ 07:24:50	1 phase sag to 242.5 volts for 1 cycles	Service Transformer on SE43 circuit, cause listed as "other"

Swells

During the monitoring period, there were three (3) recorded swells exceeding the IEEE 1159 limit for voltage swells (+10% of nominal 480Y/277 V).

Event	Date / Time	Magnitude and Duration	System Record
Instantaneous Swell	04/26/19 @ 08:05:01	1 phase swell to 310.3 Volts for 1 cycles	Substation Capacitor Bank CB1 Remote Close
Instantaneous Swell	05/04/19 @ 17:15:44	1 phase swell to 306.2 Volts for 1 cycles	Substation Capacitor Bank CB1 Remote Close
Instantaneous Swell	05/08/19 @ 06:40:26	2 phase swell to 307.1 Volts for 1 cycles	Substation Capacitor Bank CB1 Remote Close

Voltage and Current Waveform Capture

Interruptions

During the monitoring period, there was one (1) recorded interruptions.

Event	Date / Time	Magnitude and Duration	System Record
Temp Interruption	05/07/19 @ 22:21:27	3 phase Interruption (0 volts) Lasting 16 Seconds	SE42 Substation BKR Operated due to weather (lightning)

Summary

To summarize, the steady-state supply voltage and harmonic distortion was in compliance with applicable design standards during the monitoring period with exception of TDD due to customer equipment. The monitoring results were normal and show that CNP is providing service within the steady state voltage limits per ANSI C84.1.

Common utility events on overhead utility distribution systems due to lightning, circuit operations, etc. and their associated sags, swells, and interruptions, should not have adverse effects upon customer-owned equipment and operations.

Resolution(s) and Recommendation(s)

Customer states in e-mail dated 4/7/19, "Since power up, the main surge protection between the 1000kva transformer and building has had a failure of "phase A" three (3) times between July 2018 – current. After each failure the protection unit is replaced but another failure of the same phase occurs within 2- 10 days." CNP performed IR (infrared) and field inspections on overhead (LF 64AXQ & LF 82AXM/poles on 4-15-19) and padmount (on 4-11-19) service equipment, with no utility issues found. Also, prior to placing a power quality monitor on site, SE42 substation bus voltage & Customer's meter voltage data (per OpenWay link) were looked at and showed all to be within ANSI C84.1 Range A.

Customer was asked by CNP for a LOG of events, in an email dated 4/15/19, regarding the issue at hand and Customer replied, "August 2018 the TVSS failed ... Between August 2018 and Feb 2019 the unit failed two more times ...". In the future, if the customer can provide a LOG (time/dates/etc.) of events when the failure(s) occur(ed), it could help in determining if there is a correlation to CNP's (i.e. the utilities) recorded events. It looks like an ASCO model 570 (SPD or surge protection device) is installed on site, and if so there might be an "Active Surge Monitor" package which logs and records time, type, and severity of PQ anomalies and a 'counter' total of any transient voltage surge(s), as per ASCO literature. In addition to a LOG of events (date & time) from customer, I recommend asking an electrician to re-check connections. If device is not properly connected to the source neutral it could result in failure per ASCO literature. Also, Customer may want to investigate using/installing harmonic filters for customer owned equipment.

Some example causes of SPD failure: Utility switching (cap-bank switching transients could be magnified if customer has low-voltage power-factor correction capacitors for example), lightning (multiple strokes), or internally generated surges caused by Motor load switching, bad wiring, improperly sized SPDs, etc. It is the customer's responsibility to mitigate the effects of transient voltages due to normal overhead and utility operational events (re: "Additional Information").

Additional Information

Most power outages disturbances can be attributed to factors beyond the control of a utility. CenterPoint Energy's system is exposed to environmental influences and normal operations conditions, which can create both power quality and reliability disturbances.

In terms of reliability and power quality, two sections in Chapter 5 of the PUCT-approved CenterPoint Energy Tariff are especially important:

- Section 5.2.1 (Liability Between Company and Retail Customers), states that CenterPoint Energy will make reasonable provisions to supply steady and continuous delivery service, but does not guarantee against fluctuations or interruptions.
- Section 5.5.3, (Equipment Sensitive to Voltage and Waveforms), states that customers, with equipment that may be adversely impacted by voltage fluctuations, are responsible for installing the necessary protective equipment to limit the effect of those events.

Section 5.2.1 requires CenterPoint Energy to make reasonable efforts to provide reliable service, while Section 5.5.3 states it is the customer's responsibility to install protective equipment for sensitive loads.

Regards,

James R. Brewer, P.E.
Senior Engineer | Power Quality
281-391-5122 W.
james.brewer@centerpointenergy.com
CenterPointEnergy.com

Item 4:

From: Brewer, James R
Sent: Thursday, March 21, 2019 12:29 PM
To: Swiney, John E <John.Swiney@centerpointenergy.com>
Cc: Reese, Leon N <leon.reese@centerpointenergy.com>; Lee, Brian X <brian.lee@centerpointenergy.com>; Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Subject: RE: 325M Operation

This was a momentary only (HK44). Unknown cause. Have no other findings to report at this time.

From: Swiney, John E
Sent: Wednesday, March 20, 2019 5:07 PM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Cc: Reese, Leon N <leon.reese@centerpointenergy.com>
Subject: 325M Operation

Can you look into a likely cause of operation of recloser 325M on 3/20 at 1244? This is located on ___ facility grounds and impacted their operations today. Let me know if you can locate any details. Thanks James.

CenterPoint. Energy

Erik Swiney
Manager | Katy Service Center
Interim Manager | Cypress Service Center
Power Delivery Solutions
281.391.5146 w.
CenterPointEnergy.com

Item 5:

Power Quality Investigation: ___

Information

Customer:
Address:
Customer Contact:
CenterPoint Energy Reliability Engineer: James R Brewer
Service Area Manager: John (Erik) Swiney, 281-391-5146
Service: Industrial, 2000 KVA Padmount Xfrm, 3ph, 4W, 480/277V wye, GLN:

Distribution Circuit: FZ43 (same substation bus as FZ42 & FZ54)
Monitoring Period: Jan 07, 2019, 09:11:00 thru Jan 22, 2019, 08:13:02 (14 days, 23:02:02)
Report Date: **01/25/19**

Concern(s) / Expectation(s)

Concern: "The instability of the Centerpoint electrical grid is a problem for our __ facility. The frequent outages cause damage to our clinical equipment, cause clinical tests to be aborted and re-scheduled, and require unnecessary work for the engineering staff."
Expectation: "I expect the same service and reliability at the ___ as we see at the medical center."

Steady-state Voltage Analysis

A PMI (Power Monitors, Inc.), Revolution Power monitor was installed, at the point of service (utility meter) to continuously monitor the steady-state supply voltage at the point of service. An analysis was conducted to determine if the monitoring data is in compliance with applicable standards in regard to the steady-state supply voltage. The analysis results, for the monitoring are summarized below.

RMS Voltage Limits
The American National Standards Institute (ANSI) Standard C84.1 provides the utility design criteria for the maximum and minimum range of steady-state supply voltage at the point of service. During the monitoring period, the steady-state supply voltage was in compliance with the ANSI C84.1 range A limits (+/-5% of nominal 480Y/277 V). The following chart represents the steady-state voltage recorded.

Steady-State Voltage at Point of Service

Voltage Unbalance Limits
In addition, the voltage unbalance was in compliance with the ANSI C84.1 recommended maximum limit (3%). The following chart represents the voltage unbalance recorded at the point of service.

Voltage unbalance recorded at Point of Service

Harmonic Distortion Limits
The IEEE Standard 519 provides the limits for harmonic distortion in electrical power systems. The limit for voltage distortion V ≤ 1.0 kV is 8% Total Harmonic Distortion (THD). During the monitoring period(s), the voltage was in compliance with applicable THD limits.

Voltage THD recorded at Point of Service

Voltage Event Analysis

From the same monitor(s) data, an analysis was conducted to determine if the monitoring data is in compliance with applicable standards in regard to the voltage events. IEEE Standard 1159 provides the categories and characteristics of typical power system electromagnetic phenomena (i.e. events such as interruptions, sags and swells).

Sags
During the monitoring period, three (3) Sags were recorded exceeding the IEEE 1159 limit for voltage sags (-10% of nominal 277 V).

Event	Date / Time	Magnitude and Duration	System Record
Instantaneous Sag	01/09/19 @ 07:00:53	2 phase sag to 233.2 volts for 4 cycles	None
Instantaneous Sag	01/15/19 @ 13:38:50	3 phase sag to 150.9 volts for 25 cycles	Due to collision event on adjacent circuit FZ54 (on same substation bus as FZ43)

Instantaneous Sag	01/17/19 @ 07:00:13	2 phase sag to 143.8 volts for 15 cycles	Due to unknown event causing Substation Breaker to operate on adjacent circuit FZ54 (on same substation bus as FZ43)

Swells
During the monitoring period, there were no recorded swells exceeding the IEEE 1159 limit for voltage swells (+10% of nominal 480Y/277 V).

Interruptions
During the monitoring period, there were no service related interruptions. However, for completeness, an interruption was recorded about 15 minutes after installing the monitor (01/07/19 @ 09:27:12 – 09:28:35) but this record/data was not from an actual service interruption but was a result of (consequently due to) a data download test of the monitor done by CNP.

Summary
To summarize, the steady-state supply voltage was in compliance with applicable design standards during the monitoring period. The monitoring results were normal and show that CNP is providing service within the steady state voltage limits per ANSI C84.1. Common utility events on overhead utility distribution systems due to lightning, circuit operations, etc. and their associated sags, swells, and interruptions, should not have adverse effects upon customer-owned equipment and operations.

Additional Information
Most power outages disturbances can be attributed to factors beyond the control of a utility. CenterPoint Energy's system is exposed to environmental influences and normal operations conditions, which can create both power quality and reliability disturbances.

In terms of reliability and power quality, two sections in Chapter 5 of the PUCT-approved CenterPoint Energy Tariff are especially important:

- Section 5.2.1 (Liability Between Company and Retail Customers), states that CenterPoint Energy will make reasonable provisions to supply steady and continuous delivery service, but does not guarantee against fluctuations or interruptions.
- Section 5.5.3, (Equipment Sensitive to Voltage and Waveforms), states that customers, with equipment that may be adversely impacted by voltage fluctuations, are responsible for installing the necessary protective equipment to limit the effect of those events.

Section 5.2.1 requires CenterPoint Energy to make reasonable efforts to provide reliable service, while Section 5.5.3 states it is the customer's responsibility to install protective equipment for sensitive loads.

Resolution(s) and Recommendation(s)
___ is located at the tail end of two available circuits which are overhead. Overhead circuits have exposure to weather events, etc., unlike the underground circuits serving the TCH medical center campus. To achieve customer stated expectations, given the current location of the hospital and the electrical grid at this location, i.e. overhead vs underground circuits, location of substations, etc., it is recommended that the customer make changes and/or additions within their facility, i.e. find solutions that the customer deems appropriate, to mitigate the normal overhead service operation conditions.

Per CenterPoint Energy's tariff, it is the customer's responsibility to mitigate the effects of transient voltages due to normal overhead and utility operational events. As CNP's system will change over time, any solution must be designed to accommodate the customer's load requirements and the dynamics of the utility system.

___ monitored the power at __ from November 5, 2018 to December 3, 2018 (at customers incoming main switchboards) while the __ was on circuit ___ and presented their findings in the report, "___", dated 11 January 2019. CenterPoint Energy's report (this report) is from data collected at the point of service

with ___ on circuit ___. Switching the customers circuit does not guarantee better service reliability. The circuit change was made at customer's request, placing them on the same circuit as ___.

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
james.brewer@centerpointenergy.com
CenterPointEnergy.com

Item 6:

From: Brewer, James R
Sent: Thursday, January 17, 2019 11:34 AM
To: Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Subject: RE: ___ - Frequent Outages

See attached for probable locations of 12/23/18 & 12/26/18 faults based on fault values.
Probably not behind fuse protected laterals but I'd look closely at main line around 16ARU area towards LF 50CD.

From: Gonzalez Jr, Ruben
Sent: Monday, January 14, 2019 7:49 AM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Subject: FW: ___ - Frequent Outages

Good Morning James,

I have a customer that has a complaint on momentary outages.

Could you give us the fault location to identify the are we need to inspect? Just on the last 3 outages in December.

They are on Tanner 44 and it was just trimmed last year.

Item 7:

From: Brewer, James R
Sent: Friday, November 30, 2018 7:49 AM
To: Swiney, John E <John.Swiney@centerpointenergy.com>
Cc: ___ ; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>; Parker, Billy J. <billy.parker@centerpointenergy.com>
Subject: RE: [External Email] ____

Yes. Starter controls could trip the motor for numerous reasons (e.g. low voltage).

The customers 1-Line does not reflect the starter they are using (i.e. we do not have an "As-Built" 1-Line), it shows instead, a RVAT starter with a 65% setting that should reduce (limit) the line current to ~ 254% FLA at startup. Their motor is tripping at >2000Amps or >450% FLA of the motor, well above the RVAT's 250% FLA (original design/intent per 1-Line). If starting current is now to be >450% of FLA, the system Voltage Drop associated with this (larger) starting current cannot be ignored, i.e. will have to be taken into account (larger starting current = increased Voltage Drop). The starter model #ATS48C66Y (given by Mark Langford in meeting) is a 3 Phase, Soft Start, with 660A Output Current rating. The maximum starting current can be adjusted and there is a limiting current adjustment range of 150% to 700% of nominal motor current (factory setting is 400%), per SqareD literature on this starter.

Question: why the >450% FLA starting current (starter settings?, increased load (excessive loading)?, mechanical issues (bearings etc?), starter being operated in bypass mode, etc.?) ??? Has the motor load changed/increased?

There does not appear to be any utility (CNP) issues; equipment has been sized appropriately (per customer's info to CNP) and has been check out and shown to be functioning properly (OH & UNG).

From: Swiney, John E
Sent: Thursday, November 29, 2018 3:20 PM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Cc: De Leon, Frank <frank.deleon@centerpointenergy.com>; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>; Parker, Billy J. <billy.parker@centerpointenergy.com>
Subject: RE: [External Email] ____

I can't imagine that they're getting that fault alert and ignoring such an obvious problem. Right? Could the controls be set in such a way that the motor startup is being aborted prior to the LrF alert being triggered?

From: Brewer, James R
Sent: Thursday, November 29, 2018 3:06 PM
To: Swiney, John E <John.Swiney@centerpointenergy.com>
Cc: De Leon, Frank <frank.deleon@centerpointenergy.com>; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>; Parker, Billy J. <billy.parker@centerpointenergy.com>
Subject: RE: [External Email] ___

John,

FYI
In today's meeting at CH Fulshear, it was shown that the 400hp starting current went >2000Amps when starting the motor. The scan report from INFRAMARK (Mark) shows the FLA of the 400hp motor to be 445Amps. The Starter is a Schneider model# ATS48C66Y.

Question we could ask Mark Langford (INFRAMARK operations): Is he getting a Locked Rotor Fault indication "LrF" on the unit/starter display (also stored in the fault history)? This fault indication (LrF) occurs if the motor draws more than 5 times its rated current (445Amps x 5 = 2225Amps). Looks to be a possibility based on provided info from customer at meeting.

Per the given starters' (ATS48) "Maintenance and Repair Guide" (re: attached), if the condition is a Locked Rotor Fault (pg9):
Probable cause is listed as: "The motor is experiencing a locked rotor condition due to excessive loading."
Corrective Action: "Correct the locked rotor condition."

Regards,

CenterPoint. Energy

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
CenterPointEnergy.com

From: Swiney, John E
Sent: Wednesday, November 28, 2018 10:10 AM
To:
Cc: ___ Brewer, James R <james.brewer@centerpointenergy.com>; De Leon, Frank <frank.deleon@centerpointenergy.com>; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>; Parker, Billy J. <billy.parker@centerpointenergy.com>
Subject: RE: [External Email] ____

Also,
To ensure that this is a productive meeting, please make sure that your electrician/engineer(s) come prepared to discuss the two (2) highlighted passages below. I don't recall getting any response. Thank you

From: ___
Sent: Wednesday, November 28, 2018 9:58 AM
To: Swiney, John E <John.Swiney@centerpointenergy.com>
Cc: ___
Subject: RE: [External Email]

John

Will you all be able to join us tomorrow?

_____

From: Swiney, John E <John.Swiney@centerpointenergy.com>
Sent: Tuesday, November 27, 2018 11:38 AM
To: ___

Cc: ___
Subject: RE: [External Email] ___

I am waiting on a response from one more individual before I commit to this meeting time. We have a few players on CNP's side that need to be present, and I've confirmed 3 of the 4 can make it. I hope to have a firm response by EOB today.

CenterPoint. Energy

Erik Swiney
Service Area Manager | Spring Branch & Katy
Power Delivery Solutions
281.391.5146 w.
CenterPointEnergy.com

From: ___
Sent: Monday, November 26, 2018 12:19 PM
To: Swiney, John E <John.Swiney@centerpointenergy.com>
Cc: ___
Subject: RE: [External Email] ___

John

We'd like to set up a meeting to discuss and see what we can do to resolve the concerns. Please let me know if Thursday Nov 29th at 10 Am works?

From: Swiney, John E <John.Swiney@centerpointenergy.com>
Sent: Monday, November 12, 2018 11:53 AM
To: ___
Subject: FW: [External Email] ___

___,
See 2 separate highlighted paragraphs below that are posing questions/suggestions for you and/or your engineer. Let me know. Thanks

Erik Swiney
Service Area Manager | Spring Branch & Katy
Power Delivery Solutions
281.391.5146 w.
CenterPointEnergy.com

From: Brewer, James R
Sent: Monday, November 12, 2018 11:28 AM
To: Weygandt, Eric D <eric.weygandt@centerpointenergy.com>; Swiney, John E <John.Swiney@centerpointenergy.com>
Cc: Chawla, Alisha X <alisha.chawla@centerpointenergy.com>; De Leon, Frank <frank.deleon@centerpointenergy.com>; Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>; Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Subject: RE: [External Email] ____

Thanks Eric W. for the site info. Was a motor start/coordination study done (400hp)?

Eric Swiney, et. Al.

Assuming what Major Undg has on file for customer (1-line, load, etc.,) is current, voltage drop looks like it could be an issue if all other motors/loads are running when starting the 400hp mtr (i.e., less system capacity available vs starting with no other loads on bus). The distance & size of cable to the motor could be a significant factor also (voltage drop increases with distance). Upsizing CNP's 750kva service xfmr would reduce voltage drop on secondary of service xfmr, but the customer could reduce the tap setting on the 400hp (RVAT) starter from 65% to 50% (lowering the starting current and hence the voltage drop at startup) and they could also start the 400hp motor (first) before adding other loads. Could be other issues at play on customer side also (starting capacitor, connections, contacts, cable issues, motor bearings, etc.). The problem seems to have started around August (per Premise Research data). It's possible changes were made to their operation/system (increased load, etc.). As far as their generator voltage being 474V with load applied (re: CNP notes in e-mail below), Generators have voltage regulators to maintain a certain output voltage.

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
CenterPointEnergy.com

From: Weygandt, Eric D
Sent: Thursday, November 08, 2018 2:22 PM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Cc: Chawla, Alisha X <alisha.chawla@centerpointenergy.com>; De Leon, Frank <frank.deleon@centerpointenergy.com>
Subject: RE: [External Email] ___

James,

FYI - I attached some Major Underground documents (oneline, TRF %Z, customer load / site / electrical drawings).

Sincerely,

CenterPoint Energy

Eric Weygandt
Engineer | Distribution System Protection
713.207.6277 w. | 979.331.5273 c.
CenterPointEnergy.com

From: De Leon, Frank
Sent: Thursday, November 8, 2018 10:20 AM
To: Weygandt, Eric D <eric.weygandt@centerpointenergy.com>; Chawla, Alisha X <alisha.chawla@centerpointenergy.com>
Subject: FW: [External Email] ___

Eric, Alisha,
FYI,
James Brewer is already aware of the customer's problems.
This is was I've been told. The customer cannot start a motor. However, the motor will start when powered from the emergency generator.
Billy Parker has a send a crew this morning to inspect the underground service facilities.
Frank

From: Brewer, James R
Sent: Wednesday, November 07, 2018 5:38 PM
To: Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Cc: Perdue, Anne R <Anne.Perdue@centerpointenergy.com>; Swiney, John E <John.Swiney@centerpointenergy.com>; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>; Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>
Subject: RE: [External Email] ___

Ruben,

- I will get an Infrared check of overhead equipment (TP, fuse, etc.) to check for any bad connections. From the customer e-mail & CNP log it looks like someone from CNP went out there already. (Re: attached and serv. details in e-mail below)
- You can send a troubleshooter to examine the overhead part if not already done.
- This is a 750KVA padmount service so I'd get with underground group and have them send someone to check out the padmount (UDG) portion if not already done.

On Date: 11/07/18 6:20AM
Substation circuit voltages = 493V (a,b,c) (on 480V base)
Customer Meter Voltages = 468V-472V (a,b,c)
All voltages are within ANSI C84 Range A values.
Per customer rep the Voltage Drops to 410V before aborting start-up, or ~12.8% VD from meter to point measured (assuming meter voltage per said date/time). A typical desirable voltage drop is to allow 10-12% voltage drop at motor start so they may have set controls to stop mtr start-up at 410V or >10% or 12% VD for example. I'd have them look into this. They could change startup settings to allow motor to start at a greater % VD. The VD% could also be decreased by increasing CNPs service xfmr size but doubt anyone would want to do that. XFMR TLM is 58% - 76%.

Question(s) for customer: Where, or at what point, is this 410V measured? At the motor? At the service? How long is cable distance from service to motor(s)? VD increases with cable length due to its resistance. They might check connections, have the motor(s) serviced, cable size & length, etc. on their side of the meter also.
I do not see any correlations between PELCAR data (substation bus voltages) and the logged "StatusEvent -> Volt(RMS) Below Threshold" in Premise Research data (i.e. the VD's not due to any substation voltage variations/events). I have not found any other CNP data to correlate either.

The logged "StatusEvent -> Volt(RMS) Below Threshold" is typical (but not so often) for three (3) other MJD districts I looked at. I believe it reflects the inrush current, and subsequent voltage drop, due to motor starting.
If we need to do a motor start study (for CNP purposes), do we have a 1-line and load list for this customer? We need a load list & 1-line with motor sizes and how they're started (across the line, VFD, etc) if we look further into this. We might want to do a motor start study if motors >250hp (or regardless), and if we can't get one from UDG. We'll have to ask UDG if one was done for this (padmount) service. If we don't have one (or regardless) send customer the attached "Motor Start Review Form.doc" and ask for 1-Line & Load List to get the required info if we need or desire to do a mtr start study/review.

Regards,

CenterPoint. Energy

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
CenterPointEnergy.com

From: Gonzalez Jr, Ruben
Sent: Tuesday, November 06, 2018 3:27 PM
To: Swiney, John E <John.Swiney@centerpointenergy.com>; Brewer, James R <james.brewer@centerpointenergy.com>; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>
Cc: Perdue, Anne R <Anne.Perdue@centerpointenergy.com>
Subject: RE: [External Email] ___

This is some data that I pulled from Premise Research. It seems this voltage issue has been happening since August 6th, 2018.
This is a sample of the attachment I added.

James-Could this maybe be a result of the motor start and what are some questions we could ask the customer to help understand the reason the voltage is dropping?

___

From: Swiney, John E
Sent: Tuesday, November 6, 2018 1:30 PM
To: Brewer, James R <james.brewer@centerpointenergy.com>; Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>; Wilson, Jonathan J <jonathan.wilson@centerpointenergy.com>
Cc: Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>; Perdue, Anne R <Anne.Perdue@centerpointenergy.com>
Subject: FW: [External Email] ___
Importance: High

Gentleman,
Please look into these outage concerns from ___. Let me know what you find. Thanks

CenterPoint. Energy

Erik Swiney
Service Area Manager | Spring Branch & Katy
Power Delivery Solutions
281.391.5146 w.
CenterPointEnergy.com

From: ___
Sent: Tuesday, November 06, 2018 8:03 AM
To: Swiney, John E <John.Swiney@centerpointenergy.com>
Cc: Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>; Perdue, Anne R <Anne.Perdue@centerpointenergy.com>; ___
Subject: RE: [External Email] ___
Importance: High

Thank you for the information.

On this related note, we are wondering in CenterPoint could join us this Thursday at 10 AM for our regular operations staff meeting to discuss this concern and some of the other power related issues we've been experiencing?
We would be interested in hearing about any upgrade/new construction plans in our area as well.

From ___
Sent: Tuesday, November 6, 2018 7:23 AM
To: ___
Cc: Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>; Perdue, Anne R <Anne.Perdue@centerpointenergy.com>; ___
Subject: RE: [External Email] ___

The address is below.

___

From ___
Sent: Monday, November 5, 2018 11:04 PM
To: Swiney, John E <John.Swiney@centerpointenergy.com>; ___
Cc: Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>; Perdue, Anne R <Anne.Perdue@centerpointenergy.com>; ___
Subject: RE: [External Email] ___

The plant is on Fulshear Bend just west of FM 1463. I will send along the physical address in the morning when I get into the office.

Sent from Mail for Windows 10

From: Swiney, John E <John.Swiney@centerpointenergy.com>
Sent: Wednesday, October 31, 2018 3:27:24 PM
To: ___
Cc: Oliver, Christopher W.; Perdue, Anne R
Subject: FW: [External Email] ___

I just wanted you to know that I will be looking into this. Can you please provide me the address for this site? Feel free to call me directly if you'd like to discuss. Thank you both.

CenterPoint Energy

Erik Swiney
Service Area Manager | Spring Branch & Katy
Power Delivery Solutions
281.391.5146 w.
CenterPointEnergy.com

-----Original Message-----
From: Oliver, Christopher W.
Sent: Wednesday, October 31, 2018 2:52 PM
To: Swiney, John E <John.Swiney@centerpointenergy.com>; Perdue, Anne R <Anne.Perdue@centerpointenergy.com>
Subject: FW: [External Email ___

Erik / Anne,

Please see e-mail below and follow-up with ___. ___ is their public works director and ___ is their assistant city manager.

Also, please keep me posted on your findings.

Thanks,
Chris Oliver
Director | North Region
Power Delivery Solutions
281.391.5155 w. | 713.444.6315c. CenterPointEnergy.com/ServiceConnect

-----Original Message-----
From: ___
Sent: Wednesday, October 31, 2018 8:09 AM
To: ___
Cc: ___ Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>
Subject: [External Email] ___

EXTERNAL EMAIL

Good morning

Over the past year or so ever since the ___ we have experienced many tripping is on the well. Last night we had Centerpoint come out I am including the correspondence from last night to get a good picture of what we are experiencing. This is what I received last night from ___ just an FYI wp#2 in cfccr The plant keeps tripping the well out for under voltage coming in. The electrician and ___ are out there and when they turn the well on, the voltage goes down to 410 and shuts the well down. They tried it under generator power and they are getting plenty of voltage and the well runs fine. They are calling Centerpoint to see if they can get someone out tonight to check it out. Scott please correct me if I missed anything. In the meantime if Centerpoint can't make it tonight we will fill up the gst and leave the small jockey pump on and the other plant should handle the demand Cedar point made it out and the indications from the gentleman on site is that the transformer is undersized. He indicated that the transfer man was installed per engineer designed.
We would like to investigate this with your assistance to see what needs to be done to resolve the issues Please let us know when you have some time for a phone call ___

Sent from my iPhone

Item 8:

From: Brewer, James R
Sent: Tuesday, October 30, 2018 5:21 PM
To: Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Subject: RE: [External Email] [Complaint No: _____

Ruben,

RE: Attached, lighting strike data for September 2018
- 1.5 mile radius for ____
- 8.0 mile radius for SE42

___ customer is feed from xfmr 3462147255 that is protected by upstream Line Fuse 85JU. Customers down from Line Fuse 20JU (an 85JU child fuse) had several nearby strikes and that fuse did "blow" on 9/26/18. I see only one other strike location downstream of LF 85JU and its very close to the customer at ____. but it didn't blow the fuse (per Sept strike data). Fuse – LF 85JU was taken out by Lightning on 10/9/18 per FocalPt data. 85JU is child fuse to 73APH which also did not "blow". So looking past 73APH ...

BKR SE_45A0 operated by Lightning twice on 9/10/18 per FocalPt data.

I would recommend, based on September Lightning strikes, the following location(s) for an arrester station:
- None for Fuse 85JU, based on 1.5 mile Lightning strike data because it was not an issue. Might want one by customer downstream of LF 20JU though.

- for BKR SE_45A0, based on 8.0 mile Lightning strike data and FocalPt, I'd put one around LF 16APR location and/or maybe PTS 27246. Looks like there are several candidate locations that could be chosen.

From: Brewer, James R
Sent: Wednesday, October 24, 2018 9:15 AM
To: Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Subject: RE: [External Email] [Complaint No:____

FYI – A lightning study is in the works to be performed sometime this week by Brian Lee. I've passed along to him the address of the PUC complaint and asked for a candidate location for a lightning arrester station. Also, as soon as I get the requested fault values I'll work on getting you locations.

From: Gonzalez Jr, Ruben
Sent: Monday, October 22, 2018 8:56 AM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Subject: RE: [External Email] [Complaint No:____

Thanks James.

From: Brewer, James R
Sent: Monday, October 22, 2018 8:55 AM
To: Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Subject: RE: [External Email] [Complaint No:_____

Message received. I'll let you know when I have something.

From: Gonzalez Jr, Ruben
Sent: Friday, October 19, 2018 1:39 PM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Subject: FW: [External Email] [Complaint No:_____

Good Afternoon James,

We recently got a PUC complaint from a customer at _____

There was an outage on 10/09/2018 that was on LF 85JU. I went out there to inspect the line fuse this week and was not able to find anything. Tree trimming has been completed on this circuit recently. The reason given was lightning. Is there a way to see where the lightning strike was to possibly install an arrestor station at this location.

This is a 12kv line with "B" phase on top in an open area. There was also another outage on 10/09/2018 on a child fuse H17I that was also on "B" phase that went out because of lightning.

I see that currently this portion of circuit is tied in to HK44. Is this a permanent change or is this temporary.

Can you give me the fault locations of the outages from September?

We are trying to respond back to the PUC by the deadline of 10/31/2018.
Any help would be great?

Appreciate your help on this James.

From: Swiney, John E
Sent: Thursday, October 11, 2018 10:48 AM
To: Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Subject: FW: [External Email] [Complaint No: _____

See below and attached. Did you speak with this customer?

CenterPoint. Energy

Erik Swiney
Service Area Manager | Spring Branch & Katy
Power Delivery Solutions
281.391.5146 w.
CenterPointEnergy.com

From: Escobar, Natalie
Sent: Wednesday, October 10, 2018 12:16 PM
To: Oliver, Christopher W. <christopher.oliver@centerpointenergy.com>; Smith, Shalonda N <shalonda.smith@centerpointenergy.com>; Swiney, John E <John.Swiney@centerpointenergy.com>; Perdue, Anne R <Anne.Perdue@centerpointenergy.com>; Stone, Steve W <steven.stone@centerpointenergy.com>
Cc: Alexander, Kim <kim.alexander@centerpointenergy.com>; Brown-Boswell, Angela D <Angela.Brown-Boswell@centerpointenergy.com>; Escobar, Natalie <natalie.escobar@centerpointenergy.com>
Subject: FW: [External Email] [Complaint No:_____

Good morning,

Please assist with answering this complaint; **please note I will need response back no later than 10/24/18.**

Thank you,

Natalie Escobar
Customer Advocate/ Compliance Liaison II | CERT
713.207.7452 w. | 713.207.7574 o.
CenterPointEnergy.com

From: Wilson, Kenneth [mailto:Kenneth.Wilson@puc.texas.gov]
Sent: Wednesday, October 10, 2018 9:02 AM
To: PUC Complaints-CPE <PUC_Complaints-CPE@CenterpointEnergy.com>
Subject: [External Email] [Complaint No:_____

EXTERNAL EMAIL

DO NOT CHANGE THE SUBJECT LINE

Reply to Email address : puccomplaints@puc.state.tx.us
Respond only to complaint _____

Please note: If this complaint involves a non-regulated service that is not within the jurisdiction of the PUC, please respond immediately to immediateattention@puc.texas.gov

This email is to inform you that a customer has filed a complaint against your company and that the PUC is currently beginning an investigation. According to PUC Procedural Rules, you must respond to this complaint within 21 days of the date of this Notice. Your complete response MUST include a copy of ALL documentary evidence relied upon by the company to support its position in this matter. In the case of an alleged slam or cram, documentary evidence includes, a signed letter of agency, third party verification, and electronically recorded authorization & verification.

Disconnection is prohibited under Substantive Rule 25.483 (e)(5) and 25.485 (e)(2)(A) while the informal complaint process is pending.

Per Substantive Rule §25.480 (l) when responding, please advise if this premise has a switch-hold due to average payment plan or deferred payment plan.

Per Substantive Rule §25.126 (g) when responding, please advise if this premise has a switch-hold due to tampering.

Item 9:

From: Brewer, James R
Sent: Wednesday, October 03, 2018 3:46 PM
To: Scott, William J. <bill.scott@centerpointenergy.com>
Cc: Perdue, Anne R <Anne.Perdue@centerpointenergy.com>
Subject: RE: [External Email _____ - Power Outages

Scott,

All Sub ops from 9/23/18 (last week) to present were included in the ops you noted (pdf).
Per these substation operations, four (4) circuits (including WD44) where switched at ~8:17am to TR2 transformer (from TR1) and back to TR1 at ~4:04pm. These operations are not recorded as an outage, but apparently the customers equipment reacted to these substation operations.

Could find no records for the other "power outages" mentioned by customer except the one "unknown" you already noted at 10/2/18 12:11pm. These circuits are underground and padmount xfmrs so Anne might want to have the underground group send troubleshooter to investigate (looks like they did on 10/2/18 but found OK).

Question: what can we do to minimize this kind of disruption? (substation switching)
Answer: Substation switching occurs from time to time (maintenance etc.) and may have caused a transient voltage dip with the Sub TR# load change. The switching was closed transition so the customer should not have noticed. However, they could check the settings on their equipment and possibly make adjustments if their equipment trips on say a 0.5 volt drop/change for example.

Regards,

CenterPoint. Energy

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
CenterPointEnergy.com

From: Scott, William J.
Sent: Wednesday, October 03, 2018 2:05 PM
To: Brewer, James R <james.brewer@centerpointenergy.com>

Cc: Perdue, Anne R <Anne.Perdue@centerpointenergy.com>
Subject: FW: [External Email_____ - Power Outages

James, Anne,
Can you investigate in your respective areas, these concerns this customer has? Focal Point does not show much and Substation under EMS web has events recorded yesterday (see attachments). Thanks.

CenterPoint. Energy

Bill Scott
Key Accounts Consultant IV | Power Delivery Solutions
713.207.3631 w. | 713.875.9049 c.
CenterPointEnergy.com

From: Scott, William J.
Sent: Wednesday, October 03, 2018 1:47 PM
To: _____
Cc:_____

Subject: RE: [External Email_____- Power Outages

_____,
Thank you for contacting me. I've done a cursory review and see that we showed an event occurring yesterday 12:11 PM yesterday. I did not see anything occurring today or for the other times you listed. I have asked our Reliability Engineering Group to look into this as well however.

CenterPoint. Energy

Bill Scott
Key Accounts Consultant IV | Power Delivery Solutions
713.207.3631 w. | 713.875.9049 c.
CenterPointEnergy.com

From:_____
Sent: Wednesday, October 03, 2018 12:04 PM
To: Scott, William J. <bill.scott@centerpointenergy.com>
Cc: _____
Subject: [External Email_____ Power Outages
Importance: High

EXTERNAL EMAIL

Bill,

I left you a voice mail a short bit ago about the above referenced property. Over the last few business days we have experienced power outages lasting long enough to transfer power over to the generator and as soon as the generator ramps up, the power comes back online. We are losing our plant and everything else building equipment wise and it is a bit concerning as it is causing unnecessary wear and tear on our equipment.

These aren't blips because we historically haven't lost our plant when a blip occurs.

Today, one happened at 11:38 am, yesterday we had 2 during the day, we had one on Monday 10/1, and one last week. Our tenants are concerned and we need to figure out what is going on. Can you please look into this and let me know what might be causing this? Are they switching load from circuit to circuit? What can we do to minimize this type of disruption?

Best regards,

Item 10:

From: Brewer, James R
Sent: Tuesday, October 02, 2018 10:33 AM
To: Gonzalez Jr, Ruben <Ruben.GonzalezJr@centerpointenergy.com>
Cc: Schuchmann, Dylan L <dylan.schuchmann@centerpointenergy.com>
Subject: RE: MAR43-Circuit Operations

See attached for the locations of the recorded events I was able to get (9/21/18) from the relay for MAR43.

From: Gonzalez Jr, Ruben
Sent: Friday, September 21, 2018 11:07 AM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Cc: Schuchmann, Dylan L <dylan.schuchmann@centerpointenergy.com>
Subject: MAR43-Circuit Operations

Good Morning James,

We have a customer that has been experiencing Circuit Operations at their residence.
I see that it has been happening at the circuit level.
Are you able to get the fault locations for these operations, so that we can concentrate our inspections on those locations?
Especially for the ones on 09/20/2018 and 08/08/2018. I see those were weather dates and the other was an unknown.
Last time this circuit was trimmed was in 2013. I got a hunch that it might be trees.

Thank you sir.

Item 11:

Power Quality Investigation: _____

Information

Customer: _____
Address: _____
Customer Contact: _____
CenterPoint Energy Reliability Engineer: James R Brewer
Service Area Consultant Supervisor: Steve Stone, 281-391-5134, Spring Branch / Katy S/C
Service: Industrial, Primary Metering, 34.5KV/19.92KV, 3ph, 4W, Wye, PMI 8851, GLN: 5061001776
Distribution Circuit: TAN44, Sect-14812 (same substation bus as TAN41)
Monitoring Period: Aug 09th, 2018, 10:51:32 thru Aug 23rd, 2018, 11:43:48 (14 days, 00:51:48)
Report Date: **08/24/18**

Complaint(s)

Complaint: Power Quality

Steady-state Voltage Analysis

A PMI (Power Monitors, Inc.), Revolution Power monitor was installed, at the point of service (utility meter) to continuously monitor the steady-state supply voltage at the point of service. An analysis was conducted to determine if the monitoring data was in compliance with applicable standards in regard to the steady-state supply voltage. The analysis results are summarized below.

RMS Voltage Limits

The American National Standards Institute (ANSI) Standard C84.1 provides the utility design criteria for the maximum and minimum range of steady-state supply voltage at the point of service. During the monitoring period, the steady-state supply voltage was in compliance with the ANSI C84.1 range A limits (+5% / -2.5% of nominal 34.5 / 19.92KV). The following chart represents the steady-state supply voltage recorded at the utility meter.

Steady-State Voltage at Point of Service

Voltage Unbalance Limits

In addition, the voltage unbalance was in compliance with the ANSI C84.1 recommended maximum limit (3%). The following chart represents the voltage unbalance recorded at the utility meter.

Voltage unbalance recorded at Point of Service

Harmonic Distortion Limits

The IEEE Standard 519 provides the limits for harmonic distortion in electrical power systems. The limit for voltage distortion 1 kV < V ≤ 69 kV is 5% Total Harmonic Distortion (THD). The current distortion limits for the subject service is in the 12% Total Demand Distortion (TDD) category per Table 2 of IEEE 519 with Isc/IL = 73. This value is determined from the three-phase short-circuit current (Isc=4585 Amps) located at the PCC (point of common coupling) and the 12-month average load current (12 mo. Avg peek KVA = 3765KVA or approx. 63 amps load, i.e. IL= 63) as seen at the point of service.

During the monitoring period, the voltage and current distortion was in compliance with IEEE 519 harmonic limits.

Voltage THD recorded at Point of Service

Current Total Demand Distortion (TDD) recorded at Point of Service

Average Current at Point of Service

Voltage Event Analysis

From the same monitor, an analysis was conducted to determine if the monitoring data is in compliance with applicable standards in regard to the voltage events. IEEE Standard 1159 provides the categories and characteristics of typical power system electromagnetic phenomena (i.e. events such as interruptions, sags and swells).

Interruptions
During the monitoring period, there were no recorded interruptions.

Sags
During the monitoring period, there were no recorded voltage sags (-10% of nominal 34.5/19.92 KV).

Swells
During the monitoring period, there was (1) recorded swell exceeding the IEEE 1159 limit for voltage swells (+10% of nominal 34.5/19.92 KV).

Event	Date / Time	Magnitude and Duration	System Record
Instantaneous Swell	08/20/18 @ 17:08:19	1 phase swell to 22120 volts for 1 cycle	None

Voltage and Current Waveform Capture

Summary

To summarize, the steady-state supply voltage and harmonic distortion was in compliance with applicable design standards during the monitoring period. The monitoring results were normal and show that CNP is providing service within the steady state voltage limits per ANSI C84.1. Common utility events on overhead utility distribution systems due to lightning, circuit operations, etc. and their associated sags, swells, and interruptions, should not have adverse effects upon customer-owned equipment and operations.

Resolution(s) and Recommendation(s)

There is no further action needed in this case, aside from customer looking at adjusting equipment settings. In the future, a good idea is to always keep a record of the date and time of events that occur for reference when dealing with your retail energy provider or CenterPoint Energy.

Additional Information

Most power outages disturbances can be attributed to factors beyond the control of a utility. CenterPoint Energy's system is exposed to environmental influences and normal operations conditions, which can create both power quality and reliability disturbances.

In terms of reliability and power quality, two sections in Chapter 5 of the PUCT-approved CenterPoint Energy Tariff are especially important:

- Section 5.2.1 (Liability Between Company and Retail Customers), states that CenterPoint Energy will make reasonable provisions to supply steady and continuous delivery service, but does not guarantee against fluctuations or interruptions.
- Section 5.5.3, (Equipment Sensitive to Voltage and Waveforms), states that customers, with equipment that may be adversely impacted by voltage fluctuations, are responsible for installing the necessary protective equipment to limit the effect of those events.

Section 5.2.1 requires CenterPoint Energy to make reasonable efforts to provide reliable service, while Section 5.5.3 states it is the customer's responsibility to install protective equipment for sensitive loads.

Regards,

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
james.brewer@centerpointenergy.com
CenterPointEnergy.com

From: Brewer, James R
Sent: Friday, August 24, 2018 5:39 PM
To: Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Subject: RE: [External Email] RE: _____PQ Audit Discussion

RE: monitor report attached.
To summarize, the steady-state supply voltage and harmonic distortion was in compliance with applicable design standards.

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
CenterPointEnergy.com

From: Cryer, Wm Scott
Sent: Wednesday, August 15, 2018 9:47 AM
To: Brewer, James R <james.brewer@centerpointenergy.com>
Subject: FW: [External Email] RE: ___ PQ Audit Discussion

_____– per our discussion verify compliance with CNP harmonic specification, it they are within limits remove the monitor on the next download, if not leave it in place until resolution.

From: Stephens, Mark [mailto:MStephens@epri.com]
Sent: Wednesday, August 15, 2018 9:16 AM
To _____Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Cc: Owens, James <jowens@epri.com>; Bunton, Scott <SBUNTON@epri.com>; Johns, Jason

<jjohns@epri.com>
Subject: [External Email] RE: ____PQ Audit Discussion

EXTERNAL EMAIL

Scott,
Thanks for the quick feedback. I hope that you are able to restore the static switch – otherwise you will continue to see losses due to PQ events. If you happen to change your mind, we will be glad to look at this again.

Best Regards,

Mark Stephens, PE, CEM, CP EnMS
Principal Project Manager, Industrial PQ and EE Group
EPRI, 942 Corridor Park Blvd, Knoxville, TN 37932
Desk: 865.218.8022 / Mobile: 865.773.3631
mstephens@epri.com, http://mypq.epri.com , www.epri.com

From: ____
Sent: Wednesday, August 15, 2018 10:04 AM
To: Stephens, Mark <MStephens@epri.com>; Colwell, ____Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Cc: Owens, James <jowens@epri.com>; Bunton, Scott <SBUNTON@epri.com>; Johns, Jason <jjohns@epri.com>
Subject: [EXTERNAL] RE: ITW PQ Audit Discussion

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***.
Mark,

After reviewing the proposal, _____does not see the benefit of another study like the one which we had back in 1999.

Regards,

From: Stephens, Mark <MStephens@epri.com>
Sent: Wednesday, August 15, 2018 8:42 AM
To ____ Cryer, Wm Scott <scott.cryer@centerpointenergy.com _____
Cc: Owens, James <jowens@epri.com>; Bunton, Scott <SBUNTON@epri.com>; Johns, Jason <jjohns@epri.com>
Subject: RE: ____PQ Audit Discussion

Team,

I trust you have had time to review the draft proposal. Are there any changes that need to be made? Should we schedule a follow up discussion to determine next steps? May we send an actionable contract to ITW?

Best Regards,

Mark Stephens, PE, CEM, CP EnMS
Principal Project Manager, Industrial PQ and EE Group
EPRI, 942 Corridor Park Blvd, Knoxville, TN 37932
Desk: 865.218.8022 / Mobile: 865.773.3631
mstephens@epri.com, http://mypq.epri.com , www.epri.com

From: Stephens, Mark
Sent: Friday, August 3, 2018 2:44 PM
To: _____Cryer, Wm Scott <scott.cryer@centerpointenergy.com>; Hawkins, Scott <SHawkins@valeron.com>
Cc: Owens, James <jowens@epri.com>; Bunton, Scott <SBUNTON@epri.com>; Johns, Jason <jjohns@epri.com>
Subject: RE: _____ PQ Audit Discussion

Team,
Please find EPRI's draft proposal attached. Please review to make sure the SOW fits what you are expecting.

Best Regards,

Mark Stephens, PE, CEM, CP EnMS
Principal Project Manager, Industrial PQ and EE Group
EPRI, 942 Corridor Park Blvd, Knoxville, TN 37932
Desk: 865.218.8022 / Mobile: 865.773.3631
mstephens@epri.com, http://mypq.epri.com , www.epri.com

From: _____
Sent: Friday, August 3, 2018 9:08 AM
To: Stephens, Mark <MStephens@epri.com>; Cryer, Wm Scott <scott.cryer@centerpointenergy.com>;
_____
Cc: Owens, James <jowens@epri.com>; Bunton, Scott <SBUNTON@epri.com>; Johns, Jason <jjohns@epri.com>
Subject: [EXTERNAL] RE:____PQ Audit Discussion

Good morning all –

I am following up on our call from last week to see where things are regarding the Action Items/Next Steps:

- Scott Cryer of CenterPoint to install metering at metering point
  - Week of July 30th, will leave in several weeks.
    _____ to note DT Event logs

- EPRI to put together a draft proposal for PQ Audit
  - Week of July 30th
  - Will focus on Internal PQ Audit to compare against or in addition to revamping high speed switch and secondary feed solutions

Did CenterPoint install metering?
When will EPRI have a proposal to___?

Also, EPRI mentioned on our call and referenced in the notes that they had been at the site in 1999. What was the nature of the visit and was anything performed (produced) at that time? Just curious what the nature of the visit was and what came of it.

From: Stephens, Mark [mailto:MStephens@epri.com]
Sent: Wednesday, July 25, 2018 3:31 PM
To: Cryer, Wm Scott <scott.cryer@centerpointenergy.com>; Johns, Jason <jjohns@epri.com>; Bunton, Scott <SBUNTON@epri.com>; Owens, James <jowens@epri.com>; _____
Cc: _____
Subject: RE:_____PQ Audit Discussion

Team,
Please find attached slide deck with notes. We will build on this for the PQ Audit proposal. Also, we have found what we think is your static switch from a 2000 publication by Mitsubishi. See page 28 from the attached Vol89.pdf document as well.

Best Regards,

Mark Stephens, PE, CEM, CP EnMS
Principal Project Manager, Industrial PQ and EE Group
EPRI, 942 Corridor Park Blvd, Knoxville, TN 37932
Desk: 865.218.8022 / Mobile: 865.773.3631
mstephens@epri.com, http://mypq.epri.com , www.epri.com

-----Original Appointment-----
From: _____
Sent: Friday, July 20, 2018 2:54 PM
To: _____
Cc: _____
Subject:_____PQ Audit Discussion
When: Wednesday, July 25, 2018 3:00 PM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: WebEx - See Invite Below

Item 12:

From: Brewer, James R
Sent: Monday, July 23, 2018 1:01 PM

To: Beasley, Richard R. <richard.beasley@centerpointenergy.com>
Cc: Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Subject: RE: [External Email] FW: power outages at _____

Customer is currently on Circuit THW46

7/1 at 12:38 am – customer's circuit substation bkr tripped (adjacent circuit on substation bus locked out)

7-4-18 at ~4:30pm - No corresponding records found at this time on THW46 or adjacent circuits on same BUS;
however, at 3:50pm on THW48 (not on same bus) there was an outage at LF H48W

7-7-18 at 4:25pm adjacent circuit substation BKR tripped due to Lighting (THW47)

Cap Banks all switched in the AM timeframe
No other correlations with CNP data was found

From: Beasley, Richard R.
Sent: Monday, July 23, 2018 11:10 AM
To: Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Cc: Brewer, James R <james.brewer@centerpointenergy.com>
Subject: RE: [External Email] FW: power outages at _____

Thank you!

Richard

From: Cryer, Wm Scott
Sent: Monday, July 23, 2018 11:08 AM
To: Beasley, Richard R. <richard.beasley@centerpointenergy.com>
Cc: Brewer, James R <james.brewer@centerpointenergy.com>
Subject: RE: [External Email] FW: power outages at _____

7/1 at 12:38 am – adjacent circuit on substation bus locked out, causing their circuit (THW-48) to operate.

No CNP record of any events on these dates or time frame that would have impacted this customer.
7-4-18 – late afternoon around 4:30 pm
7-7-18 – late afternoon around 4:30pm

James can look into this a little deeper and see if there is any correlation to our capacitor banks or other switching, or if there are IGSD devices on the circuit that may be operating without generating a record.

From: Beasley, Richard R.
Sent: Monday, July 23, 2018 10:52 AM

To: Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Subject: FW: [External Email] FW: power outages at 100890102390031693O109

Hello Scott,

Could you have someone review the concern below? Thank you.

Richard

From: Angela Ghormley [mailto:Angela.Ghormley@calpinesolutions.com]
Sent: Tuesday, July 17, 2018 9:52 AM
To: Beasley, Richard R. <richard.beasley@centerpointenergy.com>
Subject: [External Email] FW: power outages at _____

EXTERNAL EMAIL

Richard,

Please see e-mail below from our customer ____ regarding ESID _____.

Can we request that Centerpoint review the outages and determine if there is an issue on the line or if it's just a coincidence?

From: _____
Sent: Friday, July 13, 2018 9:01 AM
To: Jon Shore _____
Subject: power outage's

External Sender: Use caution with links/attachments.

_,
We have had 3 power outages so far this month...
7-1-18 – around 12:30 am
7-4-18 – late afternoon around 4:30 pm
7-7-18 – late afternoon around 4:30pm
Please relay this to your team member we were speaking about. This roughly cost us $2500 each power outage.

Item 13:

From: Brewer, James R
Sent: Friday, August 31, 2018 3:48 PM
To: Weygandt, Eric D <eric.weygandt@centerpointenergy.com>; ____
Cc: Whited, Charles W. <charles.whited@centerpointenergy.com>; Joubert, LaTanya D <LaTanya.Joubert@centerpointenergy.com>; Forgie, Matthew K <matthew.forgie@centerpointenergy.com>; Cryer, Wm Scott <scott.cryer@centerpointenergy.com>
Subject: RE: [EXT] RE: [External Email] _____Power Surge Data

Subject Matter:
Correlations have been found and noted, between CNP Cap Bank switching and the time/date data provided to CNP by customer for the facility located at _____

Customer Questions and CNP response to date:
Question **#1**: "Essentially at this point you are telling us there is an issue in fluctuations but that it is our problem not yours, correct?"
Response: It is the customer's responsibility to mitigate the effects of transient voltages due to normal overhead and utility operational events. Swells and sags due to normal power system operations are not considered violations per CenterPoint Energy's Tariff on file with the PUC. Cap Bank switching is a normal utility power system operation.
Question **#2**: "is there enough evidence there to justify turning the taps down on the transformer?"
Response: Tap change would not mitigate the transients.

RE: attached e-mail chains.

Regards,

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
CenterPointEnergy.com

From: _____
Sent: Friday, August 31, 2018 8:41 AM
To: Weygandt, Eric D <eric.weygandt@centerpointenergy.com>
Subject: RE: [EXT] RE: [External Email] _____ Power Surge Data

No, I have not seen this report before.

After reading the report and looking at the data there in it is apparent that there are spikes/surges that occur often but CenterPoint is claiming that this is normal per ANSI C84.1.

Information

Customer: _____
Address: _____
Customer Contact:_____

CenterPoint Energy Reliability Engineer: James R Brewer
Service Area Consultant: Matthew (KIPP) Forgie, 281-391-5119, Katy S/C
Service: Industrial, 2000 KVA Padmount Xfrm, 3ph, 4W, 480/277V wye service, GLN:___
Distribution Circuit: SE42 (same substation bus as SE43 & CB1)
Monitoring Period: May 16, 2018, 11:30am thru Jun 29, 2018, 10:24am (43 days, 22h-54m-35s)
Report Date: ***08/01/18***

Complaint(s)

Complaint: experiencing "power surge" issues. Also, asking if power monitoring data justifies lowering the taps on the transformer as suggested numerous times by customers electricians.

Steady-state Voltage Analysis

A PMI (Power Monitors, Inc.), Revolution Power monitor was installed, at the point of service (utility meter) to continuously monitor the steady-state supply voltage at the point of service. An analysis was conducted to determine if the monitoring data is in compliance with applicable standards in regard to the steady-state supply voltage. The analysis results, for the monitoring are summarized below.

RMS Voltage Limits

The American National Standards Institute (ANSI) Standard C84.1 provides the utility design criteria for the maximum and minimum range of steady-state supply voltage at the point of service. During the monitoring period, the steady-state supply voltage was in compliance with the ANSI C84.1 range A limits (+/-5% of nominal 480Y/277 V). The following chart represents the steady-state voltage recorded.

Steady-State Voltage at Point of Service

Voltage Unbalance Limits

In addition, the voltage unbalance was in compliance with the ANSI C84.1 recommended maximum limit (3%). The following chart represents the voltage unbalance recorded at the point of service.

Voltage unbalance recorded at Point of Service

Voltage Event Analysis

From the same monitor(s) data, an analysis was conducted to determine if the monitoring data is in compliance with applicable standards in regard to the voltage events. IEEE Standard 1159 provides the categories and characteristics of typical power system electromagnetic phenomena (i.e. events such as interruptions, sags and swells).

Sags

During the monitoring period, eight (8) Sags were recorded exceeding the IEEE 1159 limit for voltage sags (-10% of nominal 277 V).

Event	Date / Time	Magnitude and Duration	System Record
Instantaneous Sag	05/22/18 @ 16:07:32	1 phase sag to 228.5 volts for 1 cycles	Line Fuse 50APH operated due to strong wind
Instantaneous Sag	06/11/18 @ 19:24:23	1 phase sag to 196.5 volts for 2 cycles	None
Instantaneous	06/11/18 @ 19:56:55	1 phase sag to 230.9 volts for	None

Sag		2 cycles	
Instantaneous Sag	06/17/18 @ 22:17:05	1 phase sag to 139 volts for 12 cycles	SE42 Substation BKR Operated
Instantaneous Sag	06/17/18 @ 22:17:06	1 phase sag to 137.6 volts for 6 cycles	SE42 Substation BKR Operated
Multiple Sags Momentary & Instantaneous	06/21/18 @ 3:27:04 – 3:27:54	1 to 3 phase sags to 180.6 volts & up to 166 cycles on 3 ph & up to 150 cycles on 1 ph	SE43 (CKT on same bus as SE42) Substation BKR Operated due to Collision
Multiple Sags Momentary & Instantaneous	06/21/18 @ 3:33:44 – 3:33:47	1 to 3 phase sags to 181.4 volts & 1 cycles on 3 ph & up to 165 cycles on 1 ph sags	SE43 (CKT on same bus as SE42) Substation BKR Operated due to Collision
Instantaneous Sag	06/25/18 @ 13:47:31	1 phase sag to 154.1 volts for 14 cycles	SE43 Substation BKR Operated due to Lightning

Swells

During the monitoring period, there was (1) recorded swell exceeding the IEEE 1159 limit for voltage swells (+10% of nominal 480Y/277 V).

Event	Date / Time	Magnitude and Duration	System Record
Instantaneous Swell	05/19/18 @ 07:36:14	1 phase swell to 307.6 Volts for 1 cycles	Capacitor Bank Remote Close

Interruptions

During the monitoring period, there were two (2) recorded interruptions.

Event	Date / Time	Magnitude and Duration	System Record
Temp Interruption	06/16/18 @ 3:35:19	3 phase Interruption (0 volts) Lasting 14 Seconds	SE42 Substation BKR Operated
Temp Interruption	06/17/18 @ 22:17:20	3 phase Interruption (0 volts) Lasting 14 Seconds	SE42 Substation BKR Operated

Customer Log vs CNP system records (and/or monitor data correlation)

Customer's Event Log from 5/6/18 - 6/26/18 showing CNP system record(s) & PMI monitor correlation(s):

Event (Cust)	Date / Time (Cust)	Magnitude / Time (PMI)	System Record (CNP)
"P. Surge"	05/6/18 / ?	11:36:38 (CNP record)	Capacitor Bank Remote Close
"P. Surge"	05/8/18 @ 5:30am	05:13:15 (CNP record)	Capacitor Bank Remote Close
"P. Surge"	05/11/18 @ 12:03pm	Customer comment: "Power lost 1 phase"	SE42 Substation BKR Operated 12:02:35
"P. Surge"	05/19/18 @ 7:40am	1ph to 307.6V @ 7:36:14 RE: "Swells" table above	Capacitor Bank Remote Close
"P. Surge"	05/20/18 / ?	** 294.3V @ 8:16 am	Capacitor Bank Remote Close
"P. Surge"	05/31/18 / 5:35am	** 296V @ 05:33 am	Capacitor Bank Remote Close
"P. Surge"	06/1/18 / 5:30am	** 296.6V @ 05:29 am	Capacitor Bank Remote Close
"P. Surge"	06/4/18 / ?	** 294.9V @ 12:45 pm	Capacitor Bank Remote Close
"P. Surge"	06/5/18 / ?	** 298V @ 06:41 am	Capacitor Bank Remote Close
"P. Surge"	06/15/18 @ 5:07am	** 295.6V @ 05:05 am	Capacitor Bank Remote Close
"Outage"	06/17/18 @ 3:09am	RE: "Interruptions" tbl above	SE42 Substation BKR Operated
"Outage"	06/21/18 @ 3:09am	RE: "sags" table above	SE43 Substation BKR Operated
"P. Surge"	06/23/18 / 9:17am	** 295.8V @ 09:17 am	Capacitor Bank Remote Close

"P. Surge"	06/24/18 / ?	** 300.2V @ 07:59	Capacitor Bank Remote Close
"P. Surge"	06/25/18 / ?	** 295.3V @ 09:22 am	Capacitor Bank Remote Close
"P. Surge"	06/26/18 / ?	** 291V @ 07:33 am	Capacitor Bank Remote Close

** The voltage value given represents a phase Max or Min during the event and, in this case, does not qualify as a sag, swell, or interruption (per IEEE Standard 1159), and does not represent (is not) the steady state (average) voltage value for the event.

Summary

To summarize, the steady-state supply voltage was in compliance with applicable design standards during the monitoring period. The monitoring results were normal and show that CNP is providing service within the steady state voltage limits per ANSI C84.1.

Common utility events on overhead utility distribution systems due to lightning, circuit operations, etc. and their associated sags, swells, and interruptions, should not have adverse effects upon customer-owned equipment and operations.

Additional Information

Most power outages disturbances can be attributed to factors beyond the control of a utility. CenterPoint Energy's system is exposed to environmental influences and normal operations conditions, which can create both power quality and reliability disturbances.

In terms of reliability and power quality, two sections in Chapter 5 of the PUCT-approved CenterPoint Energy Tariff are especially important:

- Section 5.2.1 (Liability Between Company and Retail Customers), states that CenterPoint Energy will make reasonable provisions to supply steady and continuous delivery service, but does not guarantee against fluctuations or interruptions.
- Section 5.5.3, (Equipment Sensitive to Voltage and Waveforms), states that customers, with equipment that may be adversely impacted by voltage fluctuations, are responsible for installing the necessary protective equipment to limit the effect of those events.

Section 5.2.1 requires CenterPoint Energy to make reasonable efforts to provide reliable service, while Section 5.5.3 states it is the customer's responsibility to install protective equipment for sensitive loads.

Resolution(s) and Recommendation(s)

It is the customer's responsibility to mitigate the effects of transient voltages due to normal overhead and utility operational events. Moreover, changing the taps on a service transformer will not prevent transient voltage values from exceeding the steady state voltage value limits (RE: ANSI C84.1), i.e. tap changes will not mitigate transients.

Installation of TVSS devices are believed to have been installed at the customers facility and, moreover, that "the TVSS devices work as intended" (i.e. to mitigate the effects of the transients) as stated in a previous customer's email _____, Thursday, May 04, 2017 3:04 PM). It is suggested that the devices be inspected and/or replaced, or that customer make changes in their relay settings, or other solutions that the customer deems appropriate. As CNP system will change over time, any solution must be designed to accommodate the customer's load requirements and the dynamics of the utility system.

Regards,

James R. Brewer, P.E.
Senior Engineer | Power Delivery Solutions
281-391-5122 W.
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Appendix List:

1. e-mail Fri 6/7/2019 8:07 AM, Cryer, Wm Scott
2. Customer Information Regarding A Potential Power Quality Issue.pdf

Appendix 1, e-mail Fri 6/7/2019 8:07 AM, Cryer, Wm Scott:

From: Cryer, Wm Scott
Sent: Friday, June 07, 2019 8:07 AM
To: Arredondo, Maria I. <Maria.Arredondo@centerpointenergy.com>; Bicol, Kevin M <kevin.bicol@centerpointenergy.com>; Diehl, Bradley J <bradley.diehl@centerpointenergy.com>; Brewer, James R <james.brewer@centerpointenergy.com>; Colunga, Richard A <richard.colunga@CenterpointEnergy.com>; Francis, Dennis K <Dennis.Francis@centerpointenergy.com>; Hawthorne, Colin C <colin.hawthorne@centerpointenergy.com>; Lee, Brian X <brian.lee@centerpointenergy.com>; Lindsay, Patrick E <patrick.lindsay@CenterpointEnergy.com>; Martinez, Elizabeth X <elizabeth.martinez@centerpointenergy.com>; Perez, Daniel R <daniel.perez@centerpointenergy.com>
Subject: Rate Case RFI - Power Quality Process

Team, in response to an intervenor request for information; we are to provide copies (from the last five years) of any and all emails and documents dealing with our company's **process** related to responding to repeat customer complaints related to service interruptions.

This shall take priority today and next week and you will provide the information back to me and Richard Moffat by Wednesday, June 2 at 9 am.

The emphasis is on our process, if there is any customer specific information (customer name, address, contacts) – redact it, before converting to pdf.

Provide your applicable copies to me on a single pdf file. If it is too large for a single pdf, break it out by year.

The actual wording we (the relevant employees) are responding to:

"the scope of a RFI response that our group discussed on the call this afternoon. Namely, we can have the relevant employees that we identified search their own outlook folder for emails (and documents) about the company's process for responding to repeat customer complaints related to service interruptions."

Appendix 2, Customer Information Regarding A Potential Power Quality Issue.pdf:

To begin analyzing a potential power quality issue, collect all of the following information and submit to the reliability engineer:

- ☐ What is the customer's name, address, contact person and phone number?
- ☐ What is the service voltage and transformer size and type serving the facility? (i.e. - 480/277, 500 kVA, overhead transformer, GLN # 1234567890)
- ☐ What circuit, section and fuse (if applicable) serves this customer?
- ☐ What does the recent circuit history look like? (i.e. - from LOH or OIS) Has there been repeated circuit lockouts or operations? Is the fuse a "hot fuse"?
- ☐ Is the customer served behind a primary line recloser or sectionalizer? (A quick way to determine this is if the line section has a letter in it. i.e. - 2334B)
- ☐ How often is the customer experiencing these events? (Once a day, once a week, once a month, ...etc.)
- ☐ How long do the events last? (1 or 2 seconds, 1 or 2 minutes, 1 or 2 hours, ...etc.)
- ☐ Do the lights/equipment go out completely or do they just dim/flicker?
- ☐ Is the problem more frequent on bad weather days?
- ☐ Has CenterPoint Energy sent out a trouble-shooter to check voltage and look for obvious problems? What was looked at and what was found?
- ☐ Does the customer have a record of exact (or very close) times and dates the events occurred? Explain to the customer, in the future this is very helpful information to provide.

Industrial or Commercial Customers

- ☐ Does it happen in the entire facility or just certain locations?
- ☐ Are the neighboring customers experiencing similar problems?
- ☐ Has the customer had an electrician look for problems in the main service panel and throughout the facility? If so, what particular pieces of equipment were looked at and what was found?
- ☐ Are there any power factor correction or motor soft-start devices located in the facility? (i.e. - capacitors or motor drives)

Residential Customers

- ☐ Does it happen in the entire house or just certain rooms?
- ☐ If the light bulbs are burning out "all the time", find out what kind of bulbs they are and the voltage rating (i.e. Are they standard GE 120 volt bulbs from a grocery store, or are they a more expensive 125 or 130 volt brand? Note if the bulbs are standard 120 volt and the service voltage is slightly over 120, the bulbs will burn out much quicker than expected!)
- ☐ Are the neighbors experiencing similar problems?
- ☐ Has the customer had an electrician look for problems in the main service panel and throughout the house? If so, what was looked at and what was found?