

**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

In the Matter of the Complaint Against KCPL     )  
by Kevin and Laura Fitzpatrick                     )     Docket No. 20-KCPE-107-COM

**NOTICE OF FILING OF STAFF'S REPORT AND RECOMMENDATION**

COMES NOW, the Staff of the State Corporation Commission of the State of Kansas (Staff and Commission, respectively), and files its Report and Recommendation regarding the Complaint against Evergy Kansas Metro, formally known as Kansas City Power & Light (KCPL)<sup>1</sup>. Staff recommends the Commission dismiss the Formal Complaint on the grounds that either vegetation or weather was the cause for most every outage experienced by the Complainants. Staff also recommends the Commission should direct Evergy Kansas Metro to review meters that are off longer than twenty-four hours (excluding intentional disconnects and storm restorations) and contact the customer to determine if the meter is actually off or intentionally disconnected.

WHEREFORE, Staff submits its Report and Recommendation for Commission review and consideration and for such other relief as the Commission deems just and reasonable.

Respectfully submitted,  
/s/ Carly R. Masenthin  
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<sup>1</sup> See Docket No. 20-KCPE-122-CCN, in which the Commission approved KCPL's name change to Evergy Kansas Metro.

Susan K. Duffy, Chair  
Shari Feist Albrecht, Commissioner  
Dwight D. Keen, Commissioner

Laura Kelly, Governor

**REPORT AND RECOMMENDATION  
UTILITIES DIVISION**

**TO:** Chair Susan K. Duffy  
Commissioner Shari Feist Albrecht  
Commissioner Dwight D. Keen

**FROM:** Tim Stringer, Energy Engineer  
Leo Haynos, Chief Engineer  
Jeff McClanahan, Director

**DATE:** June 12, 2020

**SUBJECT:** 20-KCPE-107-COM:  
In the Matter of the Complaint Against KCPL by Kevin and Laura Fitzpatrick

**EXECUTIVE SUMMARY:**

On September 4, 2019, Kevin and Laura Fitzpatrick (Complainant) filed a Formal Complaint against Kansas City Power & Light (KCPL)<sup>1</sup> alleging problems with electric service, such as power outages, flickering lights, and power surges.<sup>2</sup> Evergy Kansas Metro (EKM) responded requesting the Complaint be dismissed for failure to state a claim.<sup>3</sup>

The Complainants live in a heavily treed area in Mission Hills, Kansas. Between June 9, 2018, and July 21, 2019, the Complainants experienced thirteen electrical disturbances – ranging from a momentary interruption to a one hundred and seventy-two hour interruption.<sup>4</sup> Of those thirteen disturbances, seven involved only the Complainant while six were multi-customer disturbances. Staff believes that tree limbs falling or touching the primary contributed to most of the Complainant outages.

Staff recommends the Commission direct the utility to review meters that are off longer than 24 hours (excluding intentional meter disconnects and storm restoration) and contact the customer to determine if the meter is actually off or intentionally disconnected. Staff also recommends the

<sup>1</sup> Evergy Kansas Metro is formerly known as Kansas City Power & Light Company. See Docket No. 20-KCPE-122-CCN.

<sup>2</sup> Complainants' Formal Complaint, p. 1.

<sup>3</sup> 20-KCPE-107-COM, Motion to Dismiss of Evergy Metro, Inc., filed October 18, 2019, p 7.

<sup>4</sup> Evergy Kansas Metro Response to Staff Data Requests 1, 3, 4, 5, 7, 9, 10, 14, 20, 21.

Commission dismiss the complaint on the grounds of either vegetation or weather as the root cause of most of the outages.

### **BACKGROUND:**

The outages experienced by the Complainants can be separated into two groups. The first group includes disturbances where more than the Complainant are involved. There are six multi-customer outages listed in Table 1. Four disturbances were caused by vegetation hitting the primary, one disturbance was the result of an unplanned outage to allow crews to work safely on another part of the circuit, and one disturbance was caused by the weather.

*Table 1 Kenilworth 5052 Multi-Customer Outages*

<b>Date</b>	<b>Duration</b>	<b>No. Cust's affected</b>	<b>Cause of Outage</b>	<b>Reference</b>	<b>Note</b>
6/9/18	0 days 2 hrs 27 mins	1601	Vegetation	DR 3, 7	Wind, Thunder, Cloudy
8/5/18	0 days 5 hrs 19 mins	331	Vegetation	DR 3, 7	Light Rain
1/12/19	1 days 11 hrs 56 mins	30	Vegetation	DR 3, 7	Winter Storm
5/18/19	0 days 2 hrs 26 mins	30	Unplanned Safe Work	DR 7, 14	Unplanned safe work, Heavy T-Storm, Windy
6/21/19	0 days 2 hrs 48 mins	1104	Weather, restored by switching	DR 7	Extreme Wind and Lightning
7/21/19	0 days 0 hrs 52 mins	1540	Vegetation	DR 7	Extreme Wind and Lightning

The second group of disturbances involve only the Complainant. In Table 2, the first six outages were reported by the AMI meter; when the Service Center remotely accessed the meter, it indicated that power was restored. Because the outage resolved itself, the tickets were cancelled and no crews were dispatched. On April 17, 2019, the records indicate a 7 day 4 hour 16 minute customer outage. The kWh readings during that timeframe state “No Read – Outage,”<sup>5</sup> which indicated the meter was not measuring 100% voltage. Every later determined the Complainant’s April 24, 2019, outage was due to a bad connector at the pole on the Complainant’s service line.

<sup>5</sup> Response to Staff Data Request 20.

*Table 2 Kenilworth 5052 Complainant Only Outages*

<b>Date</b>	<b>Duration</b>	<b>Reference</b>	<b>Note</b>
1/17/19	0 days 0 hrs 1 mins	DR 5, 4, Westar Motion	Light Wind, Fog
2/14/19	0 days 0 hrs 6 mins	DR 5, Westar Motion	Wind, Cloudy
2/15/19	0 days 0 hrs 0 mins	DR 5, Westar Motion	Wind, Snow
4/8/19	0 days 0 hrs 17 mins	DR 5, Westar Motion	Light Wind, Fair
4/9/19	0 days 5 hrs 5 mins	DR 5, 21, Westar Motion	Wind, Fair
4/17/19	7 days 4 hrs 16 mins	DR 1, 5, 9, 20, Westar Motion	Wind, Cloudy
4/24/19	0 days 0 hrs 13 mins	DR 2, 1, 8, 13, 22	Wind, Fair

The Complainant is served by an overhead service line. The service line is owned and operated by EKM. EKM has a vegetation management program which only trims vegetation away from service lines “to remove hard contact from vegetation, or deflection of the conductor’s intended path as a result of vegetation interference.”<sup>6</sup> Upon a customer request, Evergy will de-energize the service line and allow the customer to remove any of the customer’s vegetation that may interfere with Evergy’s service line.

Evergy Kansas Metro performed their mid cycle tree trimming in 2018 for the Complainants distribution circuit, twenty-seven trees were trimmed on the Complainants circuit.<sup>7</sup> Staff visited the Complainant’s home and reviewed their overhead electrical service line and primary lines on July 2, 2019. Staff noted four items:

1. The extensive vegetation in the area and some branches were close to the line,
2. Some cross arms (structures that hold overhead cables) were presumably raised to increase height above the vegetation,
3. The Complainant’s service line was routed through a small redbud tree on the Complainant’s property,
4. The service line could be potentially be too close to the ground according to the National Electrical Code.<sup>8</sup>

<sup>6</sup> Evergy Vegetation Management Guidelines, July 26, 2018, paragraph 5.2.

<sup>7</sup> Docket No. 20-EKME-312-CPL, Situational Report, p. 9.

<sup>8</sup> National Electrical Code, paragraph 230.24(B)1 requires 10 feet vertical clearance from the service line to the final grade.

EKM's automated meter infrastructure allows EKM to remotely monitor the status of meters. Some of the parameters that can be monitored are:

1. Meter number,
2. Date/time,
3. kiloWatt hour (kWh) consumption,
4. Meter status,
5. Voltage,
6. Downstream/upstream time (time it takes for the meter to receive information from the meter command center and the time for the meter command center to receive the information from the meter),
7. Number of mesh networks being used to transmit the information.<sup>9</sup>

For the normal residential customer, if the AMI meter senses a loss of voltage, 120 Volt (V) or 240 V, it sends a "last gasp" radio signal to alert EKM's outage management system that an outage has occurred. Initially, it was EKM's policy to initiate a work ticket to investigate a reported outage. However, at the time of the Complainant's outages, if only one meter on a transformer reports an outage, EKM's policy is to not act on that report but wait until a customer called in to report the outage. This policy change was necessary because of a software problem that has resulted in false reports of meter outages. EKM is in the process of correcting the software issue.<sup>10</sup>

On April 17, 2019, the Complainant experienced a single customer outage. The Complainant's meter reported the outage, but because it was the only meter of six meters connected to the transformer reporting a problem, EKM did not act on the report and waited for a customer to call in and confirm the meter's report. Because the Complainant was out of town, there was no one at the residence to report the outage and the meter reported no kWh usage for over seven days.<sup>11</sup> However, the meter can record power in only one 120 V leg of the service and still report no kWh consumption.

Upon returning home on April 24, 2019, the Complainant reported a partial power outage to EKM. After receiving the report, EKM dispatched a lineman to the site. The lineman found a loose connection between the transformer and the overhead service line to the customer, which was repaired. The elapsed time from the Complainant reporting the outage until it was repaired was slightly over 7 days.

Every Kansas Metro does not have a program to monitor outages over time. When Staff asked for the number of customer that have experienced outages lasting over 12 hours, EKM responded, "The total amount of customer outages that have lasted longer than 12 hours in 2019 is 155,452".<sup>12</sup> This number is the total number of customers experiencing outages lasting 12

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<sup>9</sup> If the meter can not directly access the router, or if the router is down, the meter communications can "hop" to the next meter and piggy back onto the new meter communication path to send its information to a router. There can be up to approximately 7 hops that each meter can use to access the router. Every tries to design their system to allow for no more than 3 hops between the meter and router.

<sup>10</sup> Response to Staff Data Requests 12 and 19.

<sup>11</sup> Response to Staff Data Request 20.

<sup>12</sup> Response to Staff Data Request 16.

hours or longer, and are spread over 7,421 events, including storms, during 2019. When the storm dates are filtered out, there are 2,925 events that affected 42,009 customers in 2019 when the customers were without power for 12 hours or longer.<sup>13</sup>

### **ANALYSIS:**

The outages experienced by the Complainants on January 12, 2019, June 21, 2019, and July 12, 2019, occurred on major event days (MED) as defined in the Institute of Electrical and Electronics Engineers (IEEE) standard 1366, *Guide for Electric Power Distribution Reliability Indices*.<sup>14</sup> IEEE 1366 defines an MED as a day when the reliability for that day exceeds the threshold calculated from data from the past five years. The usual causes of MEDs are wind storms, ice storm, thunderstorms, or tornados. Since the three dates listed occurred on MED days, the outages can be explained by extreme weather, Staff contends no further investigation is needed for those outages.

Staff believes that vegetation plays a large part in the outages experienced by the Complainants and other customers in the surrounding area based on Tables 1 and 2 and visual observations made by Staff. Docket 16-KCPE-195-COM (16-195) recognizes the vegetation rich areas in Leawood, Mission Hills, Overland Park, Prairie Village, and Roeland Park and its influence on the distribution grid in the area. There is currently a study of the outages in the area being conducted as directed by the Commission in 16-195.

There is no dispute that EKM owns the Distribution System, which includes conductors and equipment and includes the service line from the overhead (or underground) transformer to the customer's point of service. For overhead service, the point of service is at the customer's weatherhead. For underground service, the point of service is the line side of the meter socket. These points of service are defined in the Evergy Service Standards.<sup>15</sup>

EKM trims the vegetation from all the overhead lines except for service lines, As explained earlier, Evergy will only trim the service line to remove vegetation making hard contact with the service line. Otherwise, EKM will disconnect the service line from the transformer while the customer trims the trees, then EKM will re-energize the service line.

In EKM's Outage Management System, they compile outage information from each of the AMI meters and call-ins. Based on the collected data, algorithms next try to determine the specific interrupting device which caused the outage and direct the repair crew to the location of the interrupting device. Although the system does not determine the cause or exact location of the outage, the system troubleshoots the outages and allows the repair crew to be more productive in the power restoration.

EKM states that when a single meter reports an outage, no crews are dispatched. EKM explains that the metering software is supposed to detect when a meter is intentionally disconnected versus an outage. Unfortunately, a software issue occurred, disabling that function, and before discovering the problem, EKM sent many crews to investigate, only to find the meter back on, or, intentionally removed. The IT group is working to resolve the issue and after the fix is

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<sup>13</sup> Response to Staff Data Request 16.

<sup>14</sup> Response to Staff Data Request 25.

<sup>15</sup> Evergy Electric Service Standards, Section 10.1.

implemented, EKM will start sending crews to a single meter reporting an outage.<sup>16</sup> In February 2020, EKM reported they have developed a work-around to this problem. 95% of the single meter outages are resolved with this work-around, however, the root cause of the problem is still unknown. EKM continues working to resolve this software issue.<sup>17</sup>

The National Electrical Safety Code (NESC) Rule 218A1 states:

*“Vegetation that may damage ungrounded supply conductors should be pruned or removed. Vegetation management should be performed as experience has shown to be necessary.*

*NOTE: Factors to consider in determining the extent of vegetation management required include, but are not limited to: line voltage class, species’ growth rates and failure characteristics, right-of-way limitations, the vegetation’s location in relation to the conductors, the potential combined movement of vegetation and conductors during routine winds, and sagging of conductors due to elevated temperatures or icing.”*

The NESC Rule 218A1 recognizes that vegetation can damage the electrical line; however, it is silent on the distance to prune trees and shrubs from the power line and leaves that up to each individual utility. In KCP&L’s Vegetation Management Guidelines,<sup>18</sup> for Distribution Circuits, except for service lines, up to 35 kV, the utility prunes limbs ten feet away from the primary lines. Tree Re-Growth Rates are taken into account based on the tree species, voltage conducted by the line, and branches contacting the line.<sup>19</sup> The primary cable that carries power from the substation to each customer’s residence, such as the Complainant’s circuit, went through its mid-cycle trimming in 2018.<sup>20</sup> The Complainant’s service line goes through a small redbud tree. Staff believes that due to the branches of the redbud tree hitting the service line, this could contribute to the connector failure on April 24, 2019.

The most troubling outage in Table 2 is the outage on April 17, 2019. The outage lasted seven days, four hours, and sixteen minutes.<sup>21</sup> EKM stated that if a meter reports four or more outages in a week, then a crew is dispatched to look at the problem.<sup>22</sup> In the Complainant’s case, the meter reported one time during the seven day outage. In fact, there were no meter reads between April 17, 2019, 6:09 p.m. and April 24, 2019, 10:25 p.m.<sup>23</sup> The Complainant’s reported a partial power outage on April 24, 2019, after returning from a vacation. They found their two refrigerators and two freezers off, but all the lights worked.<sup>24</sup> According to a conversation with Evergy, the meter communication power is taken from the two 240 Volt (V) hot legs at the meter.<sup>25</sup> That means whenever one leg of the three wire meter loses power, then the meter reports a loss of total power, even though the meter still sees 120 V. Even though one leg does

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<sup>16</sup> Response to Staff Data Request 12.

<sup>17</sup> Response to Staff Data Request 19.

<sup>18</sup> KCP&L’s Vegetation Management Guidelines, January 1, 2010, p. 3.

<sup>19</sup> KCP&L’s Vegetation Management Guidelines, January 1, 2010, p. 3.

<sup>20</sup> Docket No. 20-EKME-312-CPL, Situational Report, p. 9.

<sup>21</sup> Response to Staff Data Request 1.

<sup>22</sup> Response to Staff Data Request 19.

<sup>23</sup> Response to Staff Data Request 1.

<sup>24</sup> Complaint, p. 2.

<sup>25</sup> Most residential customers have “3 Wire Service” which gives them 240 V across the hot legs and 120 V between each of the hot legs and neutral.

not have power, the meter is still recording the kWh consumption in the energized leg, and reports that usage when the meter reconnects to the network. Staff contends this explanation is reasonable based on the information from the Complainant that their lights were working while the refrigerators and freezers were without power, when they returned home on April 24, 2019.

EKM states that the seven day outage may not have lasted that long. “The records we have do make it appear that way, but the caution is that our communications with AMI are imperfect. It’s possible the meter would have powered up and we didn’t receive the communication.”<sup>26</sup> Staff is concerned that EKM does not have a reporting mechanism that identifies meters off for any set amount of time not due to storm restoration or intentional disconnects.

Staff believes that if the utility records indicate that a meter should have power and a signal from the AMI meter indicates that power is off for an extended amount of time, then the utility should contact the customer to verify the customer is truly without power.

### **CONCLUSION:**

Staff believes that vegetation or weather were the root cause of most of the outages experienced by the Complainant and recommends the Commission deny the complaint.

EKM is currently working to resolve the issue with intentionally disconnected meters being reported as an outage. In the April 24, 2019, outage with the bad hot leg connector, EKM believes they are not liable to customers for loss or damage that occurs from interruptions in electric service, unless such damage is the result of the utility’s willful misconduct of gross negligence.<sup>27</sup> Since there is a redbud tree in the Complainant’s back yard that could move the service line, a hot leg connector becoming loose is plausible. EKM is also in the process of addressing the dense vegetation in the area through a study ordered by the Commission in Docket 16-195. Staff believes EKM should investigate outages that last more than 24 hours by either contacting the customer to verify the outage or issuing a work order to investigate the meter report.

### **RECOMMENDATION:**

Staff recommends the Commission direct the utility to review meters that are off longer than 24 hours (excluding intentional meter disconnects and storm restorations) and contact the customer to determine if the meter is actually off or intentionally disconnected. Staff also recommends the Commission dismiss the complaint on the grounds that either vegetation or weather was the root cause for most every outage experienced by the Complainant.

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<sup>26</sup> Response to Staff Data Request 9.

<sup>27</sup> Motion to Dismiss of Evergy Metro, Inc., pgs. 1-2.



## CERTIFICATE OF SERVICE

20-KCPE-107-COM

I, the undersigned, certify that a true and correct copy of the above and foregoing Notice of Filing of Staff's Report and Recommendation was served via electronic service this 15th day of June, 2020, to the following:

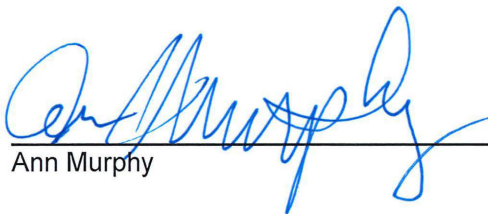
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