



KANSAS CITY POWER & LIGHT COMPANY

**Annual Kansas Reliability Performance Report
(January 1, 2018 – December 31, 2018)**

To the Kansas Corporation Commission

April 24, 2019

Docket No. 02-GIME-365-GIE

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Introduction

Kansas City Power & Light Company (KCP&L or the Company) hereby submits its *Annual Kansas Reliability Performance Report* (Report) for the reporting period January 1, 2018 through December 31, 2018 in compliance with the Kansas Corporation Commission's (Commission) orders under Docket No. 02-GIME-365-GIE. KCP&L's Report follows the format outlined in the Attachment *Electric Reliability Requirements with Form ER* included with the Commission's January 16, 2004 Order as amended in subsequent Commission orders in this docket.

During 2018, KCP&L served an average of 269,202 customers in eleven different Kansas counties covering approximately 1,900 square miles.

Background

In Docket No. 02-GIME-365-GIE, *In the Matter of the Investigation by the Commission of the Adequacy of Quality of Retail Service Provided by Kansas Electric Public Utilities and the Prudence of Developing Electric Service Quality Standards*, the Commission issued several orders pertaining to utility reliability reporting requirements. The first – *Order [Setting Electric Reliability Requirements for Jurisdictional Electric Companies]* – was issued January 16, 2004. It provided an Attachment titled *Electric Reliability Requirements with Form ER* and required the first annual report provide data for calendar year 2005 and be filed by May 1, 2006. It also required electric utilities to report to the Commission on any storms affecting more than 10,000 customers. The second – *Order on Reconsideration* – was issued on March 4, 2004 and made certain revisions to the *Electric Reliability Requirements Attachment*. The third – *Order Modifying an Electric Requirement Standard and Granting Midwest's Request for a Waiver* – was issued on July 20, 2004 and contained additional modifications to the *Electric Reliability Requirements Attachment*. The fourth order – *Order: Containing Complete Copy of Electric Reliability Requirements Encompassing the Previous Modification Made to Subsection 6(a)* – was issued on October 4, 2004.

Specifically, the *Electric Reliability Requirements* state,

7. **Annual reporting on electric service reliability.** Each public utility which is not a cooperative as defined in K.S.A. 66-104d and which provides electric retail service to 15,000 or more retail customers in Kansas shall provide an annual reliability performance report to the Commission by May 1 of each year for the previous calendar year for the utility's Kansas service territory.

Sections 7(a), 7(b) and 7(c) provide the details of what the annual reliability performance report must include.

KCP&L began compliance under the Commission's orders in 2005 issuing a number of storm reports. KCP&L filed its first annual reliability report in accordance with the Commission's orders on May 1, 2006 covering the reporting period January 1, 2005 through December 31, 2005.

Section 7(a)(1-2) – PREVIOUS FIVE YEARS RELIABILITY STATISTICS

Table 1: Reliability Indices – 2014-2018 Normalized Consistent with Docket No. 02-GIME-365-GIE Normalization Standards (Kansas Only)						
Reporting Year		2014	2015	2016	2017	2018
Total Customers (Calculated by Meter Counts)		254,226	255,676	259,658	263,833	269,202
Normalized*	SAIDI	113.06	138.69	117.28	148.59	117.06
	SAIFI	0.86	0.89	0.87	0.727	0.803
	CAIDI	131.87	156.29	134.47	204.30	145.75
Without Normalization	SAIDI	113.06	138.69	117.28	473.67	117.06
	SAIFI	0.86	0.89	0.87	1.06	0.803
	CAIDI	131.87	156.29	134.47	446.47	145.75

*No storms met the 02-365 Docket exclusion criteria in 2018.

Section 7(a)(3) – ROOT CAUSES

Table 5 in Section 7(b)(1-5) on page 5 lists all customer interruptions and customer minutes interrupted by cause.

KCP&L's service territories experienced 13 storm events in 2018 compared to 17 storm events in 2017. There were 2 Class III and above storms¹ in 2018 compared to 6 in 2017.

¹ Storm Classification reflects the number of total system customers affected by the storm event: Class I—5,000 to 7,999 customers; Class II—8,000 to 23,999 customers; Class III—24,000 to 79,999 customers; and Class IV— 80,000 customers and higher. Storm classification is not based on a specific jurisdiction.

Section 7(a)(4) – WORST PERFORMING CIRCUITS ASSESSMENT

Table 2 below lists circuits identified as worst performing circuits (WPCs) for two consecutive years (2017 and 2018). There was one repeat circuit to report in 2018.

Table 2: Consecutive Worst Performing Circuits – Assessment/Improvements - 2018				
Circuit Code	Associated Substation	Outage Cause(s)	System Patrol	Tree Patrol
5053	50	Trees	System patrolled and Ultrasound tested fourth quarter 2018; conditions found repaired first quarter 2018; adding Communicating Faulted Circuit Indicators 3rd quarter 2019	Spot Trimmed

Section 7(b)(1-5) - REPORTING FORM ER

Table 3: Annual Performance Data – 2018		
	Actual	Normalized
Average monthly customers (meter counts)	269,202	269,202
Total number of customer interruptions	216,220	216,220
Total customer interruption minutes	31,514,024	31,514,024
SAIDI (minutes)	117.06	117.06
SAIFI (interruptions)	0.803	0.803
CAIDI (minutes)	145.75	145.75

Table 4: Major Event(s) - 2018			
Date(s)	Description (Cause of Event)	Customer Interruptions	Customer Interruption Minutes
n/a			
Total		0	0

Table 5: Actual Interruptions Statistics by Root Cause - 2018		
Cause	Customer Interruptions	Customer Interruption Minutes
Animals	8,301	621,800
Dig-Ins	790	89,100
Human Error	24	1,923
Ice, Sleet, Snow	920	146,667
Lightning	10,042	1,099,303
OH Equipment	43,480	4,343,353
Other	32,521	3,978,264
Other Weather	35,828	9,352,690
Trees	26,882	5,291,878
UG Cable	27,156	2,195,425
UG Equipment	5,487	435,702
Unknown	10,316	849,144
Vandalism, Action of the Public	10	617
Vehicles	5,113	558,225
Wind	9,350	2,549,936
Total	216,220	31,514,024

Table 6: Statistics for Worst Performing Circuits as Measured by SAIDI									
Circuit Code	WPC in Previous Year	Assoc.		# of Cust Served	Customer Interruptions (Ci)	Customer Interruption Minutes	SAIDI (minutes)	SAIFI (inter-ructions)	CAIDI (minutes)
		Sub-station	Communities Affected						
33	N	106	Edgerton	248	1,107	253,106	1,020.59	4.46	228.64
47211	N	472	Baldwin City Rural	757	3,256	616,064	813.82	4.30	189.21
12401	N	124	Rantoul Rural - Lane	145	587	100,865	695.62	4.05	171.83
5053	Y	50	Overland Park -Sub Kenilworth	346	364	219,924	635.62	1.05	604.19
4143	N	41	Olathe	538	2,809	331,383	615.95	5.22	117.97
12402	N	124	Rantoul Rural - Lane	527	1,412	294,837	559.46	2.68	208.81
5063	N	50	Overland Park -Sub Kenilworth	609	789	333,882	548.25	1.30	423.17
3311	N	33	Pleasanton	480	1,243	261,609	545.02	2.59	210.47
5	N	1	BPU substation Leavenworth County	189	234	102,415	541.88	1.24	437.67
55601	N	55	Paola	1,368	5,002	739,601	540.64	3.66	147.86

Table 7: Statistics for Worst Performing Circuits as Measured by SAIFI									
Circuit Code	WPC in Previous Year	Associations		# of Cust Served	Customer Interruptions (Ci)	Customer Interruption Minutes	SAIDI (minutes)	SAIFI (inter-ructions)	CAIDI (minutes)
		Sub-station Affected	Communities Affected						
4143	N	41	Olathe	538	2,809	331,383	615.95	5.22	117.97
33	N	106	Edgerton	248	1,107	253,106	1,020.59	4.46	228.64
47211	N	472	Baldwin City Rural	757	3,256	616,064	813.82	4.30	189.21
12401	N	124	Rantoul Rural - Lane	145	587	100,865	695.62	4.05	171.83
55601	N	55	Paola	1,368	5,002	739,601	540.64	3.66	147.86
4111	N	41	Olathe	315	1,055	107,753	342.07	3.35	102.14
81707	N	480	Wellsville	1,124	3,377	107,712	95.83	3.00	31.90
12402	N	124	Rantoul Rural - Lane	527	1,412	294,837	559.46	2.68	208.81
3311	N	33	Pleasanton	480	1,243	261,609	545.02	2.59	210.47
9041	N	90	Overland Park - Sub College	381	883	171,452	450.01	2.32	194.17