



**Kansas City Power & Light Company
2017 Reliability Performance Report**

Annual reporting completed pursuant to 4 CSR 240-23.010

April 30, 2018

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4 CSR 240.23.010 (1)(A), (B), (C), (D), and (3) – Reliability Statistics 2017

Table 1: 2017 KCP&L Reliability Indices

Total Customers (Meter Counts)		283,266
Adjusted	SAIFI	0.83
	SAIDI	79.96
	CAIDI	96.47
	CAIFI	1.43
Unadjusted	SAIFI	1.68
	SAIDI	552.91
	CAIDI	329.97
	CAIFI	1.56

Excludes the following 2017 storm dates from the normalized data: March 6 –7, April 29 – 30, May 18 – 19, June 16 – 18, 29 – 30, July 22 – 24, 26 – 27, August 21 – 22, October 14 – 15.

4 CSR 240-23.010 (6), (7) – Highest 5% SAIFI Circuits Assessment

Patrols and repairs were completed in the 3rd and 4th Quarters of 2017. For circuits where an analysis is being completed, a systematic patrol plan is developed based on identified outage causes. When and where feasible, repairs are made during the initial patrol.

Additionally, KCP&L Engineering worked with an external provider to perform predictive diagnostic testing (Ultrasound) on some recurring problems and issued corrective action jobs scheduled for completion during the 1st and 2nd Quarters of 2018. Tree patrols were also performed where indicated, and spot trimming was completed as needed. Other maintenance, modifications or upgrades not completed during the initial patrol will be completed by the 2nd Quarter of 2018. Table 2 lists circuits identified as having the highest 5% of adjusted SAIFI statistics in 2017, as set forth in 4 CSR 240.23.010 (6).

Table 2: Highest 5% SAIFI Circuits

Centers	Circuit	Substation	Action Plan	SAIFI	SAIDI
FM	5338	53	Feeder ultrasound tested feeder and repaired broken equipment; installed additional varmint guard for birds and squirrels in laterals, replaced arresters and fuse mounts.	5.62	479.14
DOD	6134	61	Feeder ultrasound tested and repaired broken equipment; replaced pole, fuse mounts, and varmint guard equipment.	5.34	311.14
FM	7404	74	Feeder ultrasound tested and repaired broken equipment; replaced poles and repaired underground feeder cables.	4.69	217.89
FM	8613	86	Feeder ultrasound tested and repaired broken equipment; replaced arresters and fuse mounts, replaced burnt up overhead switch and jumpers, and started mid-year tree trimming cycle.	4.43	356.69
DOD	3531	35	Feeder ultrasound tested and repaired broken equipment; replaced arresters and fuse mounts, and replaced burnt up overhead switch and jumpers.	3.76	401.34
DOD	5624	56	Feeder ultrasound tested and repaired broken equipment; replaced fuse mounts and poles, and completed mid-year tree trimming cycle.	3.70	223.54
DOD	7574	75	Feeder ultrasound tested and repaired broken equipment; replaced overhead switches and poles, and completed the tree trimming mid-year cycle in June, 2017.	3.38	870.41
FM	1576	15	Feeder ultrasound tested and repaired broken equipment; rebuilt part of the overhead circuit, and varmint guarded equipment.	3.33	150.38
NLND	7861	78	Feeder ultrasound tested and repaired broken equipment; repaired cable faults and equipment.	2.73	277.58
DOD	6113	61	Feeder ultrasound tested and repaired broken equipment; replaced fuse mounts and poles, and begun tree trimming Q4, 2017.	2.59	364.91
EDST	12012	120	Feeder ultrasound tested and repaired broken equipment; replaced fuse mounts and poles.	2.45	179.43
DOD	7514	75	Feeder ultrasound tested and repaired broken equipment; install new underground fault current indicators at several underground switchgears.	2.34	252.04
FM	578	89	Feeder ultrasound tested and repaired broken equipment; performed extensive trimming, varmint guard equipment.	2.23	162.51
NLND	4941	49	Feeder ultrasound tested and repaired broken equipment; replaced cross arm and pole and started the 2017 mid-cycle tree trimming program.	1.77	197.76

Centers	Circuit	Substation	Action Plan	SAIFI	SAIDI
FM	4442	44	Feeder ultrasound tested and repaired broken equipment; replaced pole and installed overhead line fault current indicators.	1.36	113.30
FM	9613	96	Feeder ultrasound tested and repaired broken equipment; performed extensive trimming in Q4, 2016, repaired overhead conductors and jumpers.	1.26	122.70
DOD	6141	61	Feeder ultrasound tested and repaired broken equipment; replaced overhead switches and poles, and begun tree trimming in Q3-Q4 2017.	1.08	358.86
NLND	7843	78	Feeder ultrasound tested and repaired broken equipment; repaired cable fault, repaired overhead conductors, and completed tree trimming cycle 2017,	0.65	45.04
DOD	5641	56	Feeder ultrasound tested and repaired broken equipment; installed new fuses, replaced underslung switches	0.35	48.34
NLND	7812	78	Feeder ultrasound tested and repaired broken equipment; replaced poles, completed mid-cycle tree trimming, and trimmed 4 trees as reliability threats.	0.23	24.01
NLND	7142	71	Feeder ultrasound tested and repaired broken equipment; repaired underground terminator pole, switchgear, and padmount transformer. Completed mid-cycle tree trimming in Q4, 2017	0.01	1.93

Excludes the following 2017 storm dates from the normalized data: March 6th-7th, April 29th-30th, May 18th-19th, June 16th-18th, June 29th-30th, July 22nd -24th, July 26th-27th, August 21th- 22nd, October 14th-15th

4 CSR 240-23.010 (8) – Multi-Year Worst Performing Circuit Reporting

The referenced rule requires the plan and a schedule to lower SAIFI metrics on circuits that are listed on the highest 5% SAIFI list for two out of three of the preceding years. Table 3 reflects the action plans implemented and completed in 2017 to lower the SAIFI metric for these circuits.

Table 3: Multi-Year Worst Performing Circuit Report

Year	Centers	Circuits	Substation	Action Plan	SAIFI	SAIDI
2016 2017	FM	5338	53	Feeder ultrasound tested and repaired broken equipment; installed additional varmint guard for birds and squirrels in laterals, replaced arresters and fuse mounts.	5.62	479.14
2016 2017	FM	8613	86	Feeder ultrasound tested and repaired broken equipment; replaced arresters and fuse mounts, replaced burnt up overhead switch and jumpers, and started mid-year tree trimming cycle.	4.43	356.69
2015 2017	FM	1576	15	Feeder ultrasound tested and repaired broken equipment; rebuilt part of the overhead circuit, and varmint guarded equipment.	3.33	150.38
2015 2017	FM	578	53	Feeder ultrasound tested and repaired broken equipment; performed extensive trimming, varmint guard equipment.	2.23	162.51
2016 2017	FM	7142	53	Feeder ultrasound tested and repaired broken equipment; repaired underground terminator pole, switchgear, and padmount transformer. Completed mid-cycle tree trimming in Q4, 2017	0.01	1.93
2015 2016	FM	5381	53	Remedial action was completed in 2015 and 2016; no further action was required in 2017 based upon anticipated improvement from 2016 efforts, and SAIFI improvement already realized from 2014 to 2016. One outage occurred on 7/23/2017 caused from vandalism that would brought down the SAIFI index to less than 1.0.and SAIDI index less than 100.0	1.63	134.6
2015 2016	FM	5382	53	Remedial action was completed in 2015 and 2016; no further action was required in 2017 based upon anticipated improvement from 2016 efforts, and SAIFI improvement already realized from 2014-2016. One outage event in 2017 caused from underground cable fault.	1.55	80.09