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Electric Loss Study for Test Year 2016 for the KCP&L and GMO Systems

Prepared for

Kansas City Power & Light Company

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Executive Summary

Introduction

Siemens Industry, Inc., Siemens Power Technologies International (Siemens PTI) has performed an Electric Loss Study ("Study") for the service territories of Kansas City Power and Light Company ("KCP&L") in Kansas ("KS") and Missouri ("MO"); and for Greater Missouri Operations Company ("GMO"). Year 2016 was selected as the test year.

KCP&L and GMO are regulated investor owned electric utility company serving customers in Missouri and Kansas. KCP&L has headquarters in Kansas City, Missouri. KCP&L and GMO currently served approximately 541,195 and 320,536 electric customers, respectively, in year 2016, as reported in page 304 of the FERC Form 1 report for 2016.

This report documents the results of the calculations of the demand and energy losses from the customer meter to the generator set-up transformer. Separate calculations were performed for the KCP&L-KS, KCP&L-MO, combined KCP&L (KCP&L-KS and KCP&L-MO), and GMO regions. The losses of the combined KCP&L system were obtained by adding the results of the component systems.

The methods for calculating losses are described in the following sections.

Electric Losses

Electric power system losses are a consequence of doing business for a full service electric utility. The operation of the electric system is dynamic and decisions are made every day that affect the losses and efficiency of the system. The losses that result from the electric system operation must be properly charged to the customers that are responsible for those losses. To enhance the operational decision making process and fairly allocate the losses to customers, it is necessary to understand the losses in detail as a function of where they occur in the system.

Siemens PTI calculated both the technical and non-technical losses. The technical losses can be calculated and predicted from system data. The non-technical losses are not readily quantified. The non-technical losses are related to energy use that is not metered or recorded, such as energy diversion (theft) and unmetered company use in company-owned substations.

Unmetered company use is not actually an electric loss; it represents the power and light consumption in substations which is supplied by auxiliary transformers at the substation. This consumption is considered a non-technical loss if it is not recorded or metered. Despite the fact that the non-technical losses are not "electric losses" in the physical or technical sense, they are included as part of the losses in this study because they need to be paid for by KCP&L and GMO electric customers.

Energy diversion is very small but is included in the Study using data provided by KCP&L.

Siemens PTI calculated the demand and energy components of the technical losses for the sub-system categories listed below:

- Transmission (lines, transformers, line corona)
- Primary transformers (substation transformers)
- Primary distribution lines
- Secondary transformers
- Secondary distribution lines and service drops
- Electric customer meters

The following non-technical losses were also calculated:

- Unmetered company use
- Energy diversion

Study Scope and Approach

Technical and Non-Technical Losses

Siemens PTI calculated the technical losses and estimated the non-technical losses. The technical losses are a function of both electric currents and voltage; most electrical losses are converted into heat. Technical losses occur in power system components such as transmission lines, transformers, distribution feeders, secondary lines, service drops, customer meters and other system components.

KCP&L estimated the energy diversion. Siemens PTI estimated the unmetered company use for KCP&L-KS, KCP&L-MO, and GMO substations assuming a typical transformer size, average demand and energy consumption for the Light and Power substation transformers.

Load and No-Load Losses

Siemens PTI calculated both load losses and no-load losses. Load losses are current-related losses in system components, also referred to as copper losses. No-load losses are voltage-related losses in transformers and high voltage transmission lines. The no-load losses in transformers are also called excitation or iron-core losses. No-load losses in high voltage transmission lines are caused by the corona phenomenon and typically constitute a small portion of the total losses.

Transmission and Distribution Losses

Transmission losses were determined with a detailed system model provided by KCP&L. Distribution system losses were determined by quantifying the losses for representative primary and secondary distribution circuits, including the service drops. The representative distribution circuits formed the basis for determining distribution losses for the primary and secondary distribution systems. KCP&L provided lists of primary and secondary transformers with their electric parameters for calculating transformer load and no-load losses. The data included the peak loads of primary distribution transformers. Detailed load

research data, and the number of customers by service level were also provided. The peak load of secondary transformers was determined from load research data.

Calculated and Allocated Losses

The losses calculated in the Study were made consistent with the energy loss documented in the FERC Form 1 report for the KCP&L and GMO regions. Any difference between the FERC reported total energy loss and the study calculated total energy loss was reconciled using an allocation process. The allocation procedure is described in this report.

Tables ES-1 through ES-4 show the allocated demand and energy losses for the KCP&L-KS, KCP&L-MO, KCP&L (KS+MO), and GMO regions. The corresponding calculated demand and energy losses are included in Appendix A.

Loss Multipliers

Loss multipliers are used to allocate losses to customers as a function of the service level. Therefore, transmission customers are only responsible for their share of losses that result from their service on the transmission system. Primary service customers are responsible for losses resulting from their load on the primary system and the transmission system. Secondary customers are responsible for losses that their load creates on all systems.

Siemens PTI calculated the demand and energy multipliers (also known as “loss factors”) for each service level based on the loss results. The loss multipliers are organized as a function of where customers can be connected to a designated voltage service level such as transmission, primary distribution, or secondary distribution.

The Loss Multipliers for the KCP&L-KS, KCP&L-MO, KCP&L (KS+MO), and GMO regions are included in Appendix B.

Table ES-1

KCP&L-KANSAS ALLOCATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES KW	COINCIDENT PEAK LOSSES KW	ENERGY LOSSES KWH
TRANSMISSION SYSTEM			
Transmission Line	21,887	21,887	101,474,801
Line Corona	4,351	49	921,635
Transformer No-Load	761	761	6,680,896
Generator Step-Up No-Load	1,042	1,042	7,047,264
Sum	28,041	23,739	116,124,596
SUBSTATION SYSTEM			
Transmission to Distribution Load	8,010	7,650	22,965,823
Transmission to Distribution No-Load	3,215	3,215	28,032,020
Sum	11,225	10,865	50,997,843
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	298	285	847,546
Distribution to Distribution No-Load	304	304	2,701,431
Primary Lines	34,918	33,347	71,158,670
Sum	35,520	33,936	74,707,647
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	4,871	4,436	6,960,659
Transformer No-Load	6,770	6,770	59,467,959
Lines and Service Drops	11,009	10,027	15,731,190
Customer Meters	42	42	369,736
Sum	22,692	21,275	82,529,544
NON-TECHNICAL LOSSES			
Substation Station Light & Power	1,244	1,133	6,556,365
Energy Diversion	17	15	49,004
Sum	1,261	1,148	6,605,369
Total	98,739	90,963	330,964,999
TOTAL SYSTEM LOSSES ALLOCATED			330,965,000

Table ES-2

KCP&L- MISSOURI ALLOCATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES KW	COINCIDENT PEAK LOSSES KW	ENERGY LOSSES KWH
TRANSMISSION SYSTEM			
Transmission Line	19,941	19,941	90,366,919
Line Corona	3,734	42	792,676
Transformer No-Load	591	591	5,190,375
Generator Step-Up No-Load	1,881	1,881	12,157,969
Sum	26,147	22,455	108,507,939
SUBSTATION SYSTEM			
Transmission to Distribution Load	7,533	7,402	21,605,970
Transmission to Distribution No-Load	3,091	3,091	27,051,319
Sum	10,624	10,493	48,657,290
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	86	85	248,816
Distribution to Distribution No-Load	147	147	1,305,877
Primary Lines	43,417	41,457	148,469,392
Sum	43,650	41,689	150,024,084
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	1,276	1,201	3,376,911
Transformer No-Load	5,475	5,475	48,087,062
Lines and Service Drops	3,272	3,079	8,659,227
Customer Meters	50	50	435,203
Sum	10,073	9,805	60,558,403
NON-TECHNICAL LOSSES			
Substation Station Light & Power	2,149	2,023	11,325,389
Energy Diversion	8	7	34,898
Sum	2,157	2,030	11,360,287
Total	92,651	86,472	379,108,003
TOTAL SYSTEM LOSSES ALLOCATED			379,108,000

Table ES-3

KCP&L-KS & MO TOTAL - ALLOCATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES KW	COINCIDENT PEAK LOSSES KW	ENERGY LOSSES KWH
TRANSMISSION SYSTEM			
Line	41,828	41,828	191,841,720
Line Corona	8,085	91	1,714,311
Transformer No-Load	1,352	1,352	11,871,271
Generator Step-Up No-Load	2,923	2,923	19,205,233
Sum	54,188	46,194	224,632,535
SUBSTATION SYSTEM			
Transmission to Distribution Load	15,543	15,052	44,571,793
Transmission to Distribution No-Loa	6,306	6,306	55,083,339
Sum	21,849	21,358	99,655,133
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	384	370	1,096,362
Distribution to distribution No-Load	451	451	4,007,308
Primary Lines	78,335	74,804	219,628,062
Sum	79,170	75,625	224,731,731
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	6,147	5,637	10,337,570
Transformer No-Load	12,245	12,245	107,555,021
Lines and Service Drops	14,281	13,106	24,390,417
Customer Meters	92	92	804,939
Sum	32,765	31,080	143,087,947
NON-TECHNICAL LOSSES			
Substation Station Light & Power	3,393	3,156	17,881,754
Energy Diversion	25	22	83,902
Sum	3,418	3,178	17,965,656
Total	191,390	177,435	710,073,002
TOTAL SYSTEM LOSSES ALLOCATED			710,073,000

Table ES-4

GMO ALLOCATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES KW	COINCIDENT PEAK LOSSES KW	ENERGY LOSSES KWH
TRANSMISSION SYSTEM			
Line	24,433	24,433	71,839,594
Line Corona	3,978	45	844,181
Transformer No-Load	1,521	1,521	13,368,158
Generator Step-Up No-Load	1,219	1,219	10,703,784
Sum	31,151	27,218	96,755,717
SUBSTATION SYSTEM			
Transmission to Distribution Load	1,762	1,748	3,756,319
Transmission to Distribution No-Loa	3,095	3,095	27,087,478
Sum	4,857	4,843	30,843,798
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	230	225	526,106
Distribution to distribution No-Load	865	865	7,585,229
Primary Lines	49,829	49,507	105,450,330
Sum	50,924	50,597	113,561,665
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	5,811	5,764	11,728,011
Transformer No-Load	6,489	6,489	57,002,664
Lines and Service Drops	14,551	14,381	30,827,707
Customer Meters	217	217	1,909,741
Sum	27,068	26,851	101,468,123
NON-TECHNICAL LOSSES			
Substation Station Light & Power	2,603	2,572	13,718,460
Energy Diversion	20	18	62,238
Sum	2,623	2,590	13,780,698
Total	116,623	112,099	356,410,001
TOTAL SYSTEM LOSSES ALLOCATED			356,410,000

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Section
1

Transmission Losses

1.1 Calculation Methodology

Siemens PTI calculated the demand and energy components of the transmission losses for KCP&L-Kansas, KCP&L-Missouri, and Greater Missouri Operations compani. In this report, we designate these regions as KCP&L-KS, KCP&L-MO, and GMO, respectively.

The losses result from the flow of electric currents through the resistance of transmission lines and transformers, the losses in the iron core of transformers, and the losses in transmission lines caused by the corona discharge. The resistive losses in lines and transformers are mostly a function of the square of the electric current and are load dependent losses. The corona and the transformer iron core losses are mostly a function of the square of the voltage and, for practical purposes, do not depend on the load. The corona and the iron core losses are relatively constant because the voltage remains relatively constant during normal steady state conditions.

Siemens PTI calculated the load losses in transmission lines and transformers using power flow simulations. The no-load iron core and corona losses were calculated separately.

The KCP&L and GMO transmission voltages are 345-kV, 161-kV, and 69-kV. The transmission system is comprised of lines operating at any of these voltages as well as transformers with both high and low side voltages in the transmission voltage range. The load losses in the generation step-up transformers (GSU's) were included as part of the transmission losses as the plant meters are located on the generating plant side of the transformers.

KCP&L and the GMO) companies operate their own balancing areas. The load losses in transmission lines and transformers are a function of the balancing area load, internal generation, purchases, power sales, wheeling, and inadvertent power flows through the balancing area. The flows related to these sources and loads do not follow a set pattern. In certain parts of the system at one point in time, the flows on a transmission line may go from north to south, and at other times from south to north. Null points during the transition periods (times when the flow is zero or near zero within the balancing area on any specific line) result in zero or near zero losses on those transmission lines. The relative unpredictability of these flows and the duration of null points complicate the loss calculation and all but eliminate the ability to use the same methodology that is used to calculate the losses in distribution systems where the flows go in a predictable direction from source to load.

The procedure that was used to calculate the transmission losses was to simulate a number of different power flow cases that were representative of the system operation in year 2016, from maximum to minimum load, taking into account the variation of generation and inter-tie flows.

The transmission loss analysis was performed using Siemens PTI's PSS®E Version 33 software tool. PSS®E is an integrated program for simulating, analyzing, and optimizing power system performance that uses the most advanced methods for performing power flow studies, fault analysis, and dynamic stability simulations.

The losses associated with the transmission lines and transformers can be tabulated on an area and zone basis. Within the PSS®E power flow model, the KCP&L and GMO balancing areas have the number designations shown in Table 1-1. For zone KACP, KCP&L provided the buses that belong to KCP&L-KS and KCP&L-MO. For each line or transformer, one end of the facility is designated as the metered end. For facilities interconnecting different areas or zones, the metered end can identify that change in responsibility. For example, in tabulating the losses in GMO the losses in any line or transformer that is connected at both ends to buses in GMO area 540 were assigned to GMO by PSS®E. If a line or transformer is connected to two different areas, the losses in that element were assigned to the area that is not the metered end.

Table 1-1. KCP&L and GMO PSS®E Area/Zone Designations

Region	Area	Zone
KCP&L-Kansas	541	1544 – KACP (some buses) 1548 – Johnson County 1550 – South District
KCP&L-Missouri	541	1544 – KACP (some buses) 1545 – Downtown 1546 – Metro 1547 – North 1549 – East District 1551 – Marshall 1552 – 69 kV
GMO	540	595 – GMO1 596 – GMO2 597 – GMO3 598 – GMO4

1.1.1 Transmission Line and Transformer Load Losses

KCP&L provided the 2016 hourly system loads for the KCP&L and GMO systems. The data reflected zero loads for the spring and fall time change hours in March and November. The zero loads were replaced with the average demand that occurred at the contiguous hours. The hourly system loads were calculated in per unit of the maximum load. The KCP&L hourly load shapes obtained were used to develop the hourly system loads for KCP&L-KS and KCP&L-MO using the monthly system peak loads provided by KCP&L for each region. We prepared load duration curves (LDC) for each region that were used in the hourly loss calculations. The hourly loads for the KCP&L system are the sum of the hourly loads of the KCP&L-KS and KCP&L-MO regions.

KCP&L provided six power flow models for 2016 representing the system load conditions for the Southwestern Power Pool (SWPP) electric system, described below. The SWPP system includes the KCP&L, GMO, and other SPP and non-SPP balancing areas. The system load conditions represented in the cases are listed below:

- Summer peak
- Summer shoulder
- Fall
- Winter
- Spring
- Minimum

Using these models as starting points, by scaling the load and generation, we developed a series of power flow snapshots of the steady state system operation for each region. A total of 21 power flow cases were developed for each region. Typical system conditions of loads, internal generation, and tie flows were modeled from maximum system load to minimum load. For each region, Siemens PTI determined the transmission losses for each of the 21 system load levels using power flow simulations. We obtained Loss vs. System Load data pairs from the power flow simulations and performed a regression analysis using the least square approach to find the mathematical equation that best fitted the results of the power flow simulations. Figure 1-1 through illustrate the Transmission Loss vs. System Load relationships for the KCP&L-KS, KCP&L-MO, and GMO regions, respectively.

We calculated the hourly demand losses by applying the equations developed for each region to the corresponding hourly loads represented in the LDC's. The non-coincident peak demand loss at the transmission level occurs at the time of the non-coincident peak load. Typically, the coincident factor at the transmission level is 1.0 and the non-coincident and coincident peak demand losses are equal. The annual transmission energy losses were calculated by summing up the hourly demand losses.

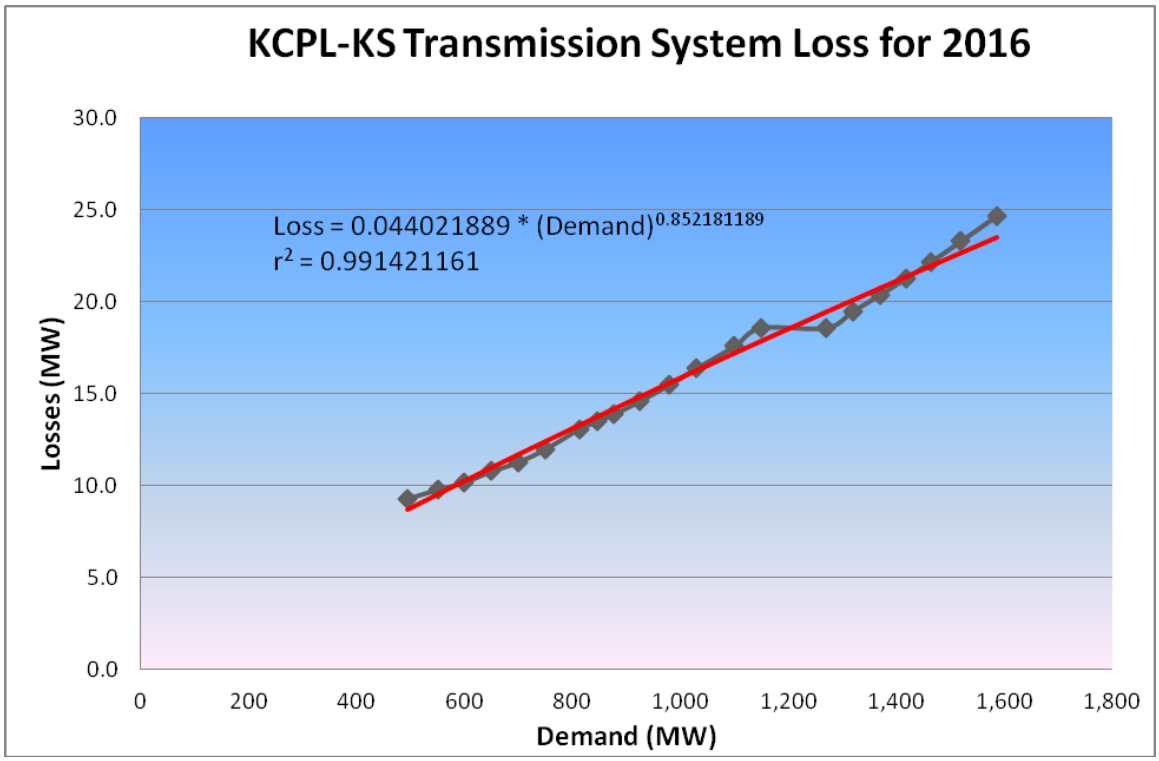

Figure 1-1. Transmission Loss vs. System Load Relationship for KCP&L-KS

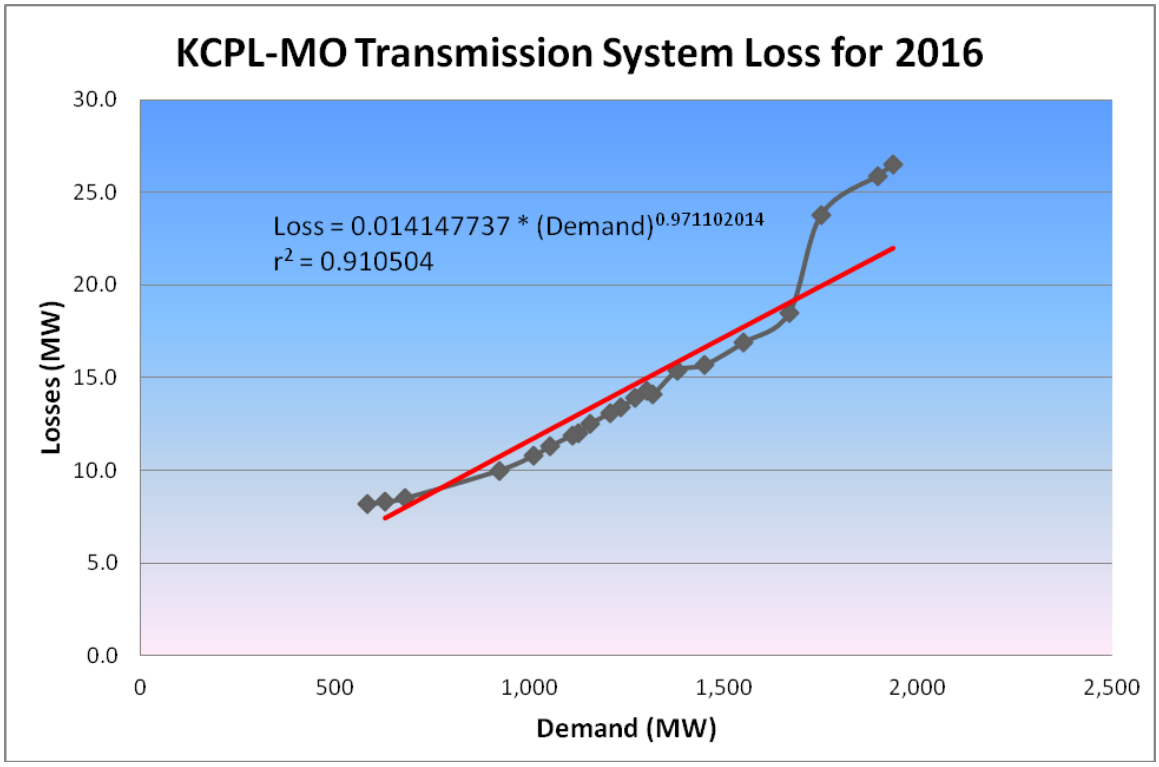

Figure 1-2. Transmission Loss vs. System Load Relationship for KCP&L-MO Region

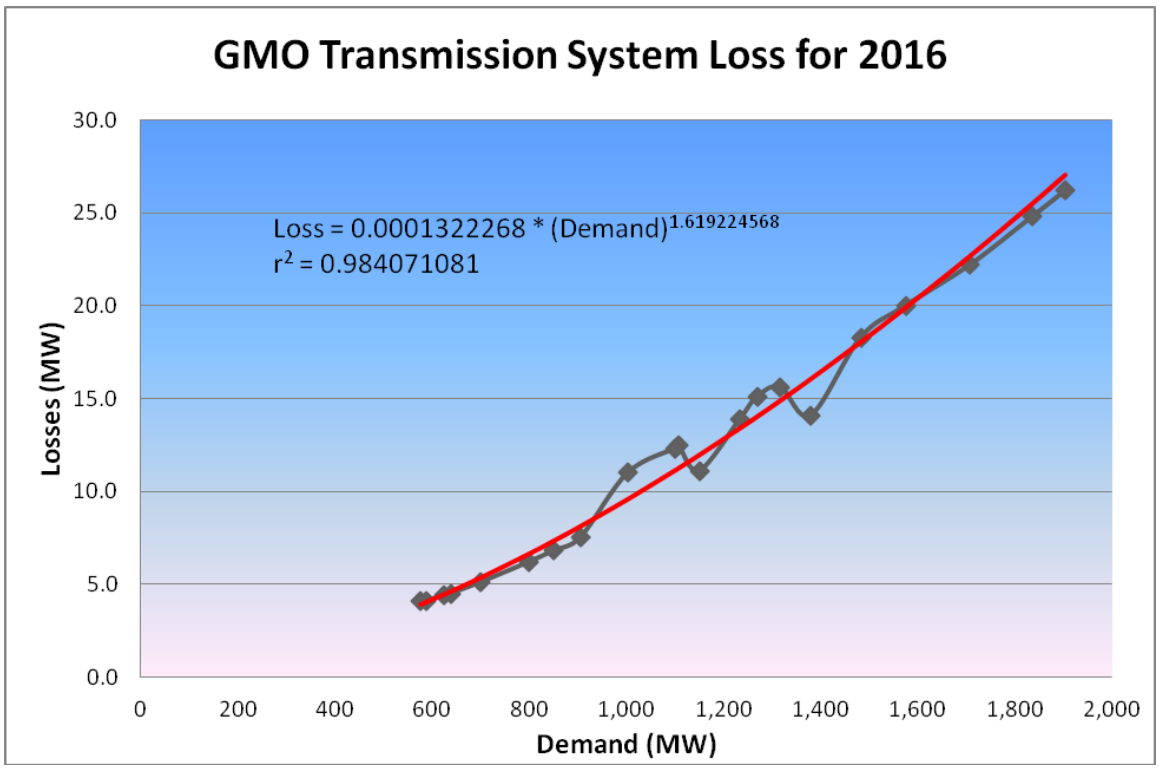

Figure 1-3. Transmission Loss vs. System Load Relationship for GMO Region

1.1.2 GSU and Transmission Transformers No-Load Losses

Transformers have two distinctive characteristics that result in losses. The first one is called the "no-load" iron loss or excitation loss, and it is caused by the excitation or magnetizing current in the transformer. The no-load loss is always present as long as the transformer is energized and is a function of the voltage squared. The iron or excitation loss is called no-load because it does not depend on the transformer loading; the no-load loss is nearly constant throughout the year as voltages remain nearly constant in normal steady state conditions. No-load losses are in the form of heat energy and noise.

The transformer no-load demand loss was calculated by multiplying the capacity value of each transformer by the per unit no-load loss parameter provided by the equipment manufacturer in the test report. The energy loss was calculated by multiplying the demand loss by 8,784, the number of hours in 2016. The no-load coincident and non-coincident demand losses are equal because the no-load loss remains approximately constant.

1.2 Corona Losses in Transmission Lines

Corona loss is an electric discharge into the air surrounding a conductor. Under relatively high humidity conditions, the air surrounding the conductors of high voltage transmission lines becomes ionized and conducts electricity to a limited extent. As a result, a very small part of the electric energy flowing in the transmission line leaks into the air resulting in electric loss. The amount of the corona discharge depends on the voltage level, the diameter of the conductor and the weather conditions. Other factors affect the corona discharge, such as,

adverse weather conditions, elevation, conductor spacing, and the presence of a shield wire. Rain increases the corona loss substantially.

Siemens PTI calculated the corona demand losses separately for the 345-kV, 161-kV, and 69-kV transmission lines using the Bonneville Power Administration computer program, CORONAII, Corona and Field Effects. Corona loss is negligible for voltages below 69-kV for fair weather conditions. KCP&L provided the lengths of transmission lines for the three transmission voltages in every region.

For the corona loss calculation precipitation data for 2016 was obtained from public sources. The coincident demand corona loss occurred with no precipitation at the same time of the system peak load. The non-coincident peak demand corona loss occurred with precipitation and was calculated using actual precipitation data.

The calculated corona losses for each region are summarized in Appendix C.

1.3 Allocated Transmission System Losses

The allocated transmission system losses are summarized in Table 1-2 for each region.

Table 1-2. Allocated Transmission Losses Summary

Loss Type	Non-Coincident Peak Demand Loss kW	Coincident Peak Demand Loss kW	Energy Loss kWh
KCP&L - Kansas			
Transmission lines and transformers (load)	25,407	25,407	117,494,435
Transformers (no-load) – including GSU's	2,092	2,092	8,180,637
Corona	5,050	57	1,069,857
KCP&L - Missouri			
Transmission lines and transformers (load)	19,941	19,941	90,366,919
Transformers (no-load) – including GSU's	2,472	2,472	17,348,344
Corona	3,734	42	792,676
KCP&L (KS + MO)			
Transmission lines and transformers (load)	45,348	45,348	208,161,354
Transformers (no-load) – including GSU's	4,564	4,564	33,284,329
Corona	8,784	99	1,862,533

Loss Type	Non-Coincident Peak Demand Loss kW	Coincident Peak Demand Loss kW	Energy Loss kWh
GMO			
Transmission lines and transformers (load)	24,433	24,433	71,839,594
Transformers (no-load) – including GSU's	2,740	2,740	24,071,942
Corona	3,978	45	844,181

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Section
2

Primary Distribution Losses

2.1 Calculation Methodology

The Substation System and Primary Distribution losses are comprised of both demand (kW) and energy (kWh) components. Included in this category are the load and no-load losses in the Transmission to Distribution Transformers (Substation System), Distribution to Distribution Transformers and the losses in primary distribution lines.

The Substation Transformers have nominal high side voltages at transmission levels (345-kV, 161-kV or 69-kV), and low side voltages at primary distribution levels (25-kV, 13-kV, 12-kV, 8-kV, 4-kV, and 2-kV). There are also primary distribution transformers with primary distribution voltages on both sides (Distribution to Distribution Transformers).

Losses were calculated for three categories, each with demand and energy components:

- Distribution Substation Transformer load and no-load losses
- Distribution to Distribution Transformer load and no-load losses
- Primary Distribution line load losses

KCP&L provided the 2016 non-coincident peak demand loads for the Primary Distribution Transformers. We used these demands to calculate the non-coincident peak demand losses. Those losses are called “non-coincident” because they typically occur at different times than the system peak. We also calculated the coincident peak demand losses and the annual energy losses using the primary distribution Loss Factor[1] and the Coincident Factor[2] for KCP&L-KS, KCP&L-MO, and GMO systems.

Transformer losses have a load and a no-load component. The transformer load losses depend on the electric current and the resistance of the transformer. The transformer no-load losses are voltage dependent. During steady state conditions voltages remain relatively constant in the primary distribution system and the no-load losses are relatively constant. No-load losses occur whenever the transformer is energized, whether or not the transformer is connected to a load. We determined the no-load transformer losses at the transformer nominal voltages using the transformer no-load parameters for every transformer. KCP&L provided the transformer loss characteristics for most transformers; typical values were used to estimate the transformer losses for those cases in which the parameters were unavailable.

[1] Loss Factor of a subsystem (e.g. distribution primary system) is the energy loss in a period divided by the non-coincident peak demand for that system and the number of hours in a year.
[2] Coincident Factor of a subsystem is the subsystem peak demand divided by the subsystem demand at the time of the system peak.

2.2 Primary Distribution Transformer Loss Calculations

Siemens PTI calculated the losses in Substation Transformers and Distribution to Distribution transformers.

2.2.1 Transformer Load Loss Calculation

Transformers load losses, also called copper losses, are associated with the current flowing through the transformer. We used the non-coincident peak load for each transformer to calculate the non-coincident peak demand losses using the transformer's resistance. We also calculated the average non-coincident peak loading for those transformers with recorded load information. The average peak demand loading was used to estimate the peak demand for those transformers with no historical loading information.

Appendix D includes the basic OA (Oil to Air) rating of each primary distribution transformer and the corresponding non-coincident peak loading for 2016. The OA rating is the lowest rating given to a transformer. The OA rating is the most basic cooling rating, as there are no oil pumps to circulate the oil, and cooling fans are offline and only natural convection occurs. In some cases, the transformer's non-coincident peak loading may be greater than the OA rating as these transformers have additional cooling stages which add about 33% of additional kVA capacity for every additional cooling stage.

The annual transformer energy loss for each transformer was determined from the non-coincident peak demand loss, the primary distribution loss factor, and 8,784 hours in the year. The coincident peak demand loss for each transformer was also calculated using the coincident factor of the primary distribution system. The loss and coincident factors were determined from load research data. The coincident and loss factors at the primary distribution level are included in Table 2-1. KCP&L maintains a sophisticated load research program that enables the calculation of loss and coincident factors directly from the load research data without having to use empirical formula methods.

Table 2-1. Primary Distribution Loss and Coincident Factors

Region	Loss Factor	Coincident Factor
KCP&L-KS	0.3879	1.09
KCP&L-MO	0.5041	1.03
KCP&L (KS + MO)	0.4625	1.05
GMO	0.3088	1.01

2.2.2 Transformer No- Load Losses

No-load losses, also called iron core losses, are, approximately, a function of the square of the applied voltage. For this study the voltage applied to the primary distribution primary was assumed to be relatively constant and equal to the nominal voltage (1.0 per unit). Due to the relative constancy of the voltages, the variation in the no-load losses due to voltage variations was not considered significant.

The transformer no-load loss parameter has a relatively small variance when converted to per unit based on the OA transformer rating. Therefore, if the manufacturer's no-load parameters were not available typical values were used.

The no-load demand losses were calculated from the transformer no-load parameters. The coincident and non-coincident transformer demand no-load losses are both equal. The no-load energy losses were calculated from the no-load loss multiplied by the 8,784 hours.

2.3 Summary of Substation Transformer Losses

The allocated no-load and load losses of the substation transformer are summarized in Table 2-2 for each system.

Table 2-2. Allocated Substation System Losses

	No-Load Losses		Load Losses	
Region	**Demand kW**	**Energy kWh**	**Non-Coincident Peak Demand kW**	**Energy kWh**
KCP&L-KS	3,732	32,540,255	9,298	26,659,290
KCP&L-MO	3,091	27,051,319	7,533	21,605,970
KCP&L (KS + MO)	6,823	59,591,574	16,831	48,265,260
GMO	3,095	27,087,478	1,762	3,756,319

2.4 Distribution to Distribution Transformer Losses

The allocated losses of those transformers with distribution voltages on the high and low voltage sides are summarized in Table 2-3. The relative disproportion of the KCP&L-KS losses compared to the KCP&L-MO losses in these transformers does not mean much by itself; a more realistic proportion is obtained when the losses in these transformers are added to the losses in the substation transformers.

Table 2-3. Allocated Distribution to Distribution Transformer Losses

	No-Load Losses		Load Losses	
Region	**Demand kW**	**Energy kWh**	**Non-Coincident Peak Demand kW**	**Energy kWh**
KCP&L-KS	353	3,135,888	346	983,852
KCP&L-MO	147	1,305,877	86	248,816
KCP&L (KS + MO)	500	4,441,765	432	1,232,668
GMO	865	7,585,229	230	526,106

2.5 Distribution Primary Line Losses

As shown in Table 2-4, we counted a total of 1,641 primary distribution circuits in the KCP&L-KS, KCP&L-MO and GMO systems. The circuits have nominal primary distribution voltages ranging from 2.4-kV to 34.5-kV. The vast majority of circuits operate at the 12.47-kV and 13.2-kV voltage levels, most of them in KCP&L; a few circuits have nominal voltages of 2.4-kV, 7.2-kV, 8.32-kV and 13.8-kV.

Table 2-4. Number of Primary Distribution Circuits

Circuit kV	KCP&L-KS	KCP&L-MO	KCP&L (KS + MO)	GMO	TOTAL (KCP&L + GMO)
2.40	0	0	0	7	7
4.16	0	4	4	54	58
7.20	0	2	2	2	4
8.32	0	0	0	11	11
12.47	423	277	700	496	1196
13.20	0	287	287	0	287
13.80	0	0	0	8	8
24.90	0	0	0	22	22
34.50	14	20	34	44	78
TOTALS	437	590	1027	644	1671

KCP&L provided the 2016 non-coincident peak load for each primary circuit. The corresponding power factor was used if available; typical power factors were used in those cases where the power factor was not available. Due to the large number of circuits, it was not practical to perform a detailed loss calculation on each circuit. Instead, we calculated the losses for a representative subset of 79 circuits, selected by KCP&L, having different voltage and load levels. We modeled the selected circuits and applied the corresponding non-coincident peak demand for 2016 on each circuit considering the load distribution represented in the distribution models. From power flow simulations we determined Loss vs. Load data points for different voltage levels. We used regression analysis and the Least Squares approach to find the Loss vs. Load mathematical relationships that best fitted the data for different voltage levels. The mathematical equations were selected from options that included logarithmic, power, polynomial, and exponential equations. We applied the equations to calculate the non-coincident peak demand loss for each circuit; the energy loss was calculated using the non-coincident peak demand loss, the loss factor at the primary distribution level, and the number of hours in the year. The coincident peak demand losses were calculated using the coincident factor at the primary distribution level. The loss and coincident factors were calculated from load research data; these factors are shown in Table 2-1 above.

The circuits selected for detailed analysis are listed in Table 2-5.

Table 2-5. Selected Circuits for Detailed Analysis

Circuit ID	Substation	Service Center	Voltage	Region	Type
21423	Blue Springs East	Blue Springs	12.47	GMO-MPS	Suburban
22313	Clinton Plant	Clinton	12.47	GMO-MPS	Suburban/Rural
22711	Concordia	Warrensburg	4.16	GMO-MPS	Suburban/Rural
22712	Concordia	Warrensburg	4.16	GMO-MPS	Suburban
22713	Concordia	Warrensburg	4.16	GMO-MPS	Suburban
26313	Holden	Warrensburg	4.16	GMO-MPS	Suburban/Rural
24811	Grandview City	Belton	8.32	GMO-MPS	Suburban
24812	Grandview City	Belton	8.32	GMO-MPS	Suburban
24813	Grandview City	Belton	8.32	GMO-MPS	Suburban
24814	Grandview City	Belton	8.32	GMO-MPS	Suburban
24815	Grandview City	Belton	8.32	GMO-MPS	Suburban
24711	Grandview West	Belton	8.32	GMO-MPS	Suburban
24712	Grandview West	Belton	8.32	GMO-MPS	Suburban
24713	Grandview West	Belton	8.32	GMO-MPS	Suburban
24722	Grandview West	Belton	8.32	GMO-MPS	Suburban
24723	Grandview West	Belton	8.32	GMO-MPS	Suburban
11823	Duncan Road	Blue Springs	12.47	GMO-MPS	Suburban
34711	Sedalia Plant	Sedalia	12.47	GMO-MPS	Suburban/Rural
27311	Kingsville Rural	Warrensburg	12.47	GMO-MPS	Rural
37231	Warrensburg Plant	Warrensburg	4.16	GMO-MPS	Suburban
37234	Warrensburg Plant	Warrensburg	4.16	GMO-MPS	Suburban
22511	Cole Camp City	Sedalia	4.16	GMO-MPS	Suburban/Rural
22512	Cole Camp City	Sedalia	4.16	GMO-MPS	Suburban
28511	Lexington	Henrietta	12.47	GMO-MPS	Suburban/Rural
31911	Platte City	Platte	24.9	GMO-MPS	Suburban/Rural
31912	Platte City	Platte	24.9	GMO-MPS	Suburban/Rural
32111	Pope Lane	Platte	24.9	GMO-MPS	Rural
23811	Ferrelview	Platte	24.9	GMO-MPS	Suburban
23812	Ferrelview	Platte	24.9	GMO-MPS	Suburban
23813	Ferrelview	Platte	24.9	GMO-MPS	Suburban
23822	Ferrelview	Platte	24.9	GMO-MPS	Suburban
23823	Ferrelview	Platte	24.9	GMO-MPS	Suburban
32131	Pope Lane	Platte	13.8	GMO-MPS	Suburban/Rural

Circuit ID	Substation	Service Center	Voltage	Region	Type
32132	Pope Lane	Platte	13.8	GMO-MPS	Suburban/Rural
35511	Pope Lane	Smithville	13.8	GMO-MPS	Suburban/Rural
35512	Pope Lane	Smithville	13.8	GMO-MPS	Suburban/Rural
35522	Pope Lane	Smithville	13.8	GMO-MPS	Suburban/Rural
37612	Western Electric	Lee's Summit	12.47	GMO-MPS	Suburban
39011	East Side	St Joe	34.5	GMO-SJLP	Suburban
39012	East Side	St Joe	34.5	GMO-SJLP	Suburban
39021	East Side	St Joe	34.5	GMO-SJLP	Suburban
407771	Maryville	Maryville	34.5	GMO-SJLP	Suburban
39921	Industrial Park	St Joe	34.5	GMO-SJLP	Suburban
40413	Lake Road	St Joe	34.5	GMO-SJLP	Suburban
40423	Lake Road	St Joe	34.5	GMO-SJLP	Suburban
40422	Lake Road	St Joe	34.5	GMO-SJLP	Suburban
41721	Oregan	Maryville	12.47	GMO-SJLP	Rural
41611	Oak Street	St Joe	12.47	GMO-SJLP	Urban/Suburban
41621	Oak Street	St Joe	12.47	GMO-SJLP	Urban/Suburban
43313	Woodbine	St Joe	12.47	GMO-SJLP	Urban/Suburban
40121	Kellog	St Joe	12.47	GMO-SJLP	Rural
2941	Lenexa	JOCO	12.47	KCP&L-KS	Suburban
3833	Oxford	JOCO	12.47	KCP&L-KS	Suburban
6811	Roeland Park	JOCO	12.47	KCP&L-KS	Suburban
11722	Bucyrus	South Dist	12.47	KCP&L-KS	Rural
12113	North Louisburg	South Dist	12.47	KCP&L-KS	Suburban/Rural
3211	Mt. Leonard	East District	12.47	KCP&L-MO	Rural
1562	Grand Avenue	F&M	13.2	KCP&L-MO	Urban
1567	Grand Avenue	F&M	13.2	KCP&L-MO	Urban
7411	Northeast	F&M	13.2	KCP&L-MO	Urban
7414	Northeast	F&M	13.2	KCP&L-MO	Urban
7444	Northeast	F&M	13.2	KCP&L-MO	Urban
2454	Crosstown	F&M	13.2	KCP&L-MO	Urban
2464	Crosstown	F&M	13.2	KCP&L-MO	Urban
3111	Forest	Dodson	13.2	KCP&L-MO	Urban
3114	Forest	Dodson	13.2	KCP&L-MO	Urban

Circuit ID	Substation	Service Center	Voltage	Region	Type
4414	Chouteau	F&M	13.2	KCP&L-MO	Urban
2333	Southtown	Dodson	13.2	KCP&L-MO	Urban
2373	Southtown	Dodson	13.2	KCP&L-MO	Urban
7453	Northeast	Dodson	13.2	KCP&L-MO	Urban
6134	Leeds	Dodson	13.2	KCP&L-MO	Urban
6131	Leeds	Dodson	13.2	KCP&L-MO	Urban
3511	Loma Vista	Dodson	12.47	KCP&L-MO	Urban
3531	Loma Vista	Dodson	12.47	KCP&L-MO	Urban
3543	Loma Vista	Dodson	12.47	KCP&L-MO	Urban
6613	Martin City	Dodson	12.47	KCP&L-MO	Urban/Suburban
6631	Martin City	Dodson	12.47	KCP&L-MO	Urban/Suburban
4841	Tomahawk	Dodson	12.47	KCP&L-MO	Urban/Suburban
4822	Tomahawk	Dodson	12.47	KCP&L-MO	Urban/Suburban

Siemens PTI used its proprietary PSS®SINCAL distribution software program to calculate the losses in the distribution feeders. KCP&L provided the distribution circuit models in SynerGEE format. PSS®SINCAL and SynerGEE have similar capabilities. The data provided by KCP&L included conductor length, type, phasing (A, B, C, AB, BC, AC, and ABC), loads by phase, and capacitors and other distribution equipment. The total circuit load was scaled for each circuit to match the SCADA system recorded non-coincident peak loads on that circuit provided by KCP&L.

We represented the models in a format suitable for use with our distribution software program. Our circuit models were validated using loss results provided by KCP&L. PSS®SINCAL can represent three phase, two phase, and single line to ground distribution lines. We did not include the secondary transformers in our circuit models as the loss calculation for the secondary transformers was performed separately. The transformer node was utilized as the connected load node. We performed the loss calculation on a per-phase basis considering the phase unbalances represented in the circuit models provided by KCP&L.

The curves and equations determined from the detailed loss calculations and the regression analysis are shown in Figure 2-1 through Figure 2-8 for voltages ranging from 2.4-kV through 35-kV. These equations were applied to the circuits in KCP&L-KS, KCP&L-MO and GMO systems.

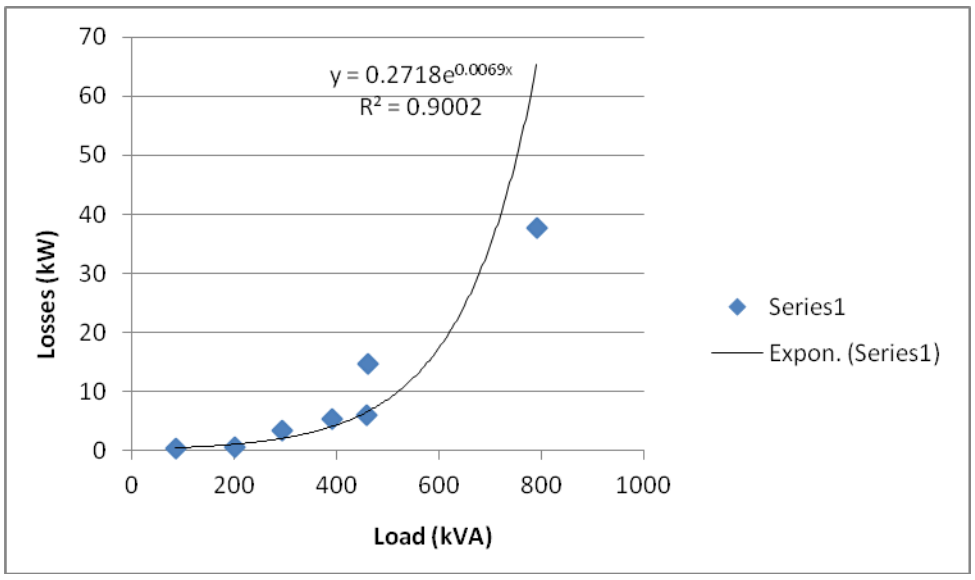

Figure 2-1. 2.40-kV Circuits – Calculated Losses and Regression Curve

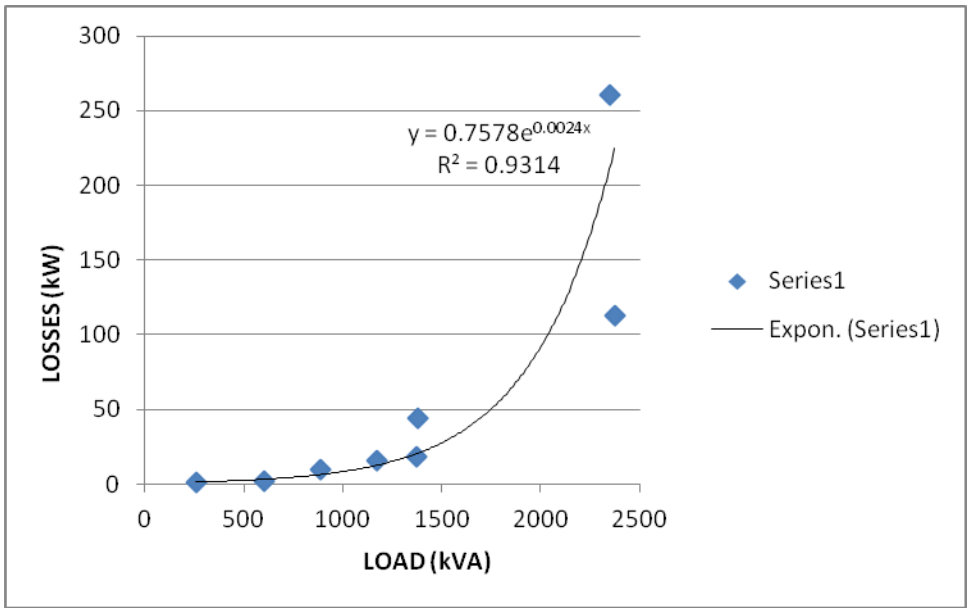

Figure 2-2. 4.16-kV Circuits - Calculated Losses and Regression Curve

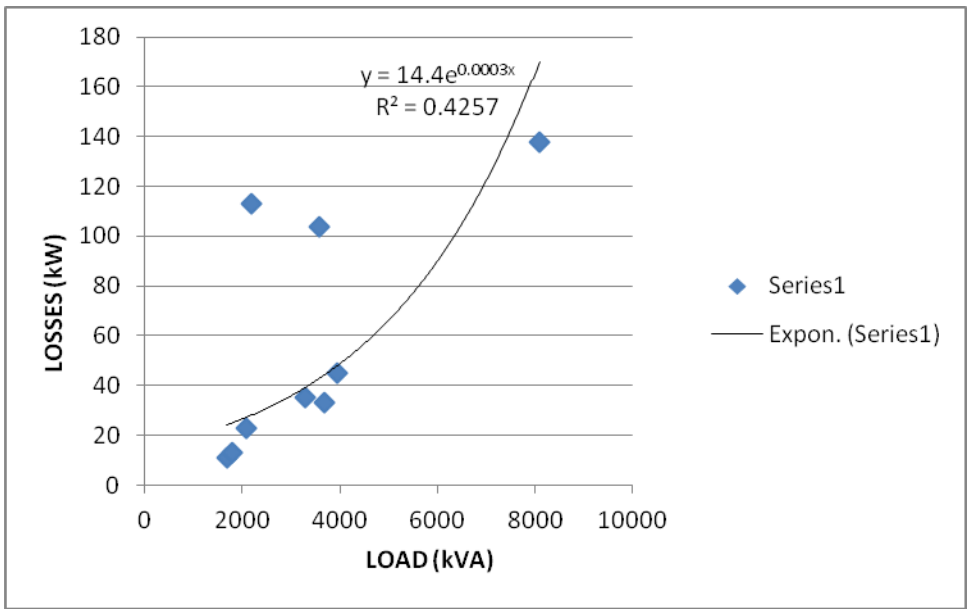

Figure 2-3. 8.32-kV Circuits - Calculated Losses and Regression Curve

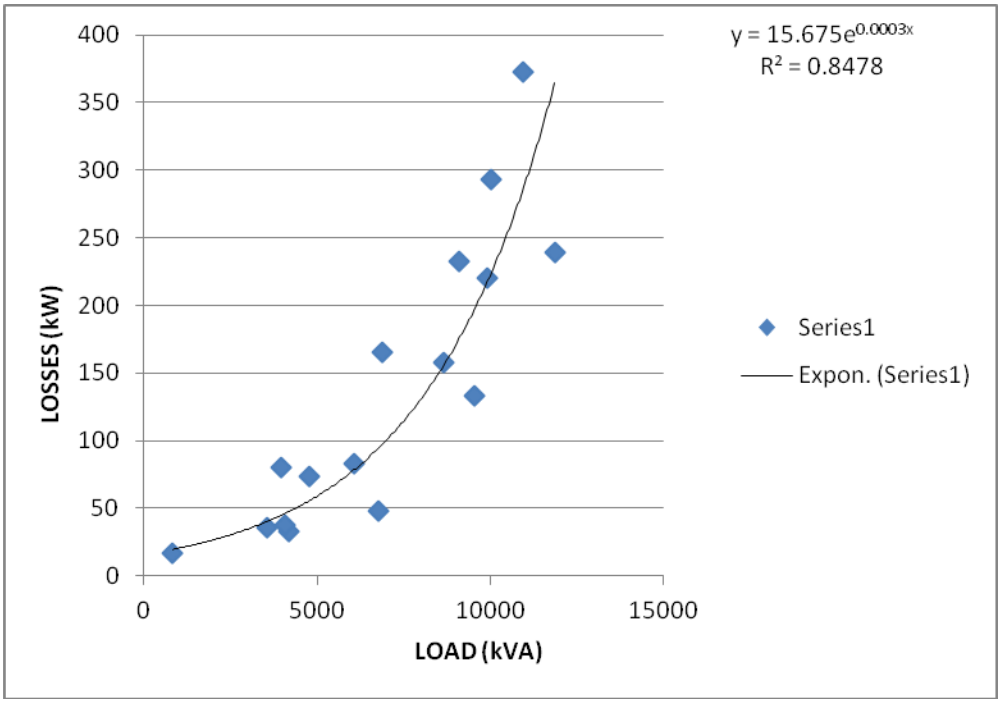

Figure 2-4. 12.47-kV Circuits - Calculated Losses and Regression Curve

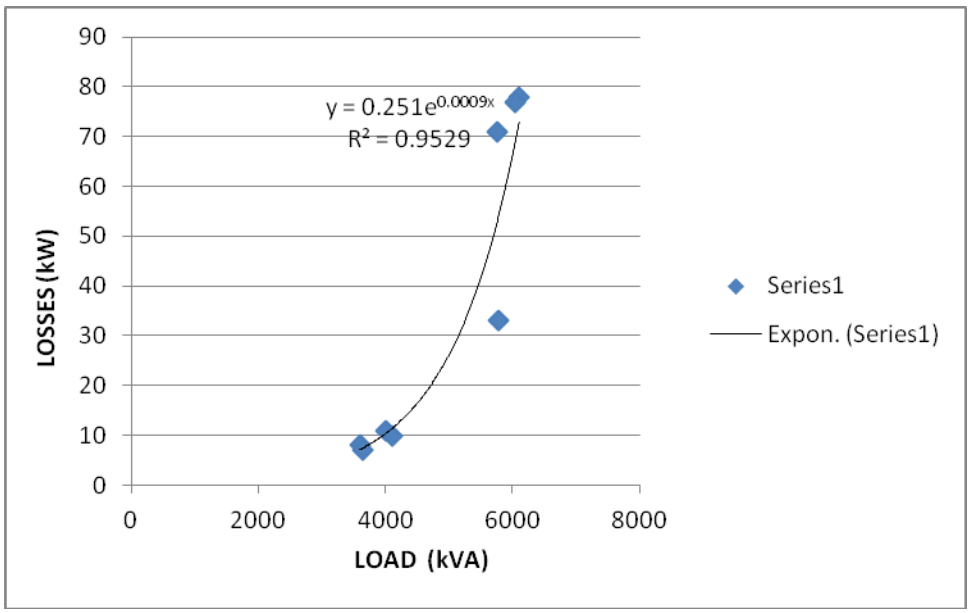

Figure 2-5. 13.20-kV Circuits - Calculated Losses and Regression Curve

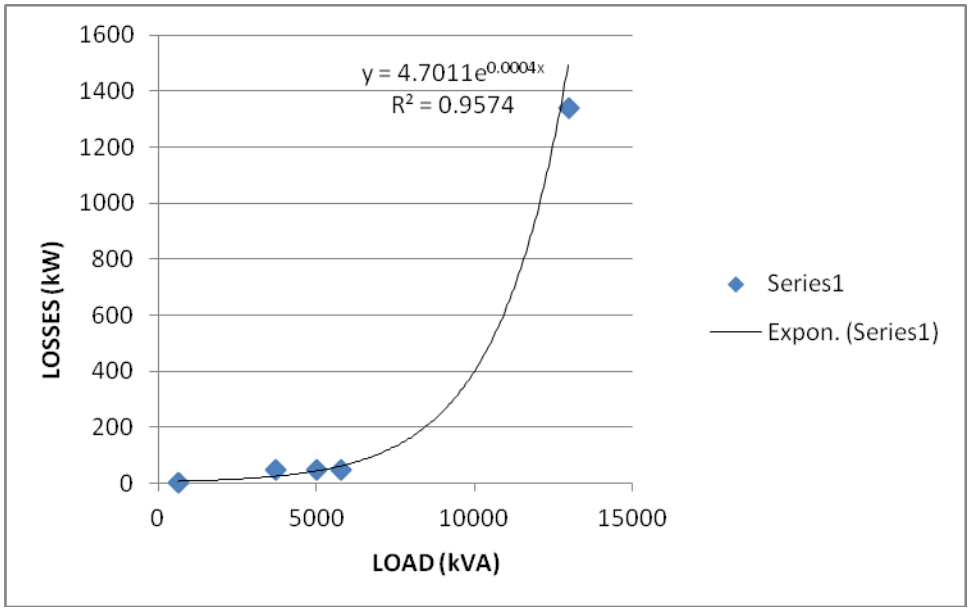

Figure 2-6. 13.80-kV Circuits - Calculated Losses and Regression Curve

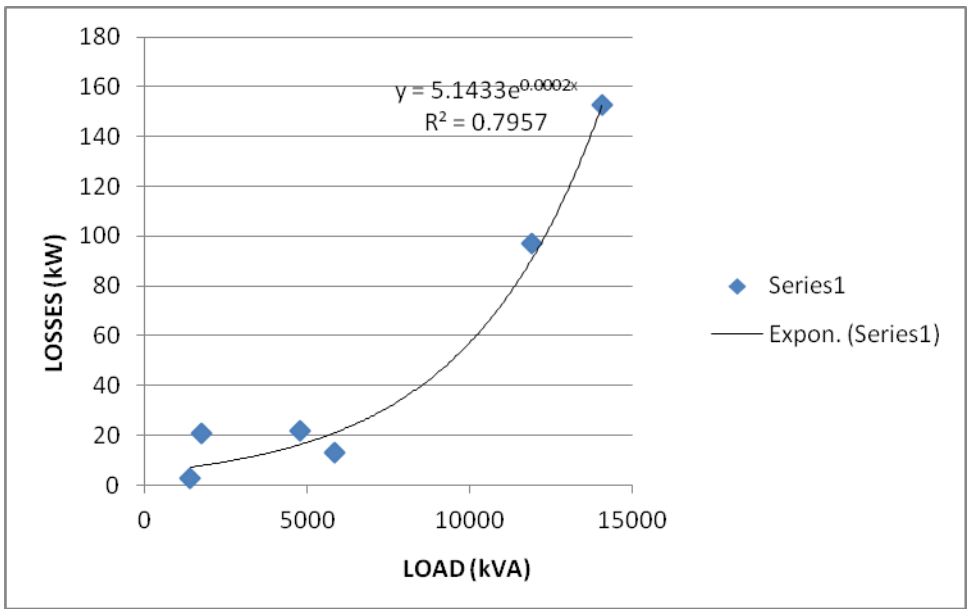

Figure 2-7. 24.90-kV Circuits - Calculated Losses and Regression Curve

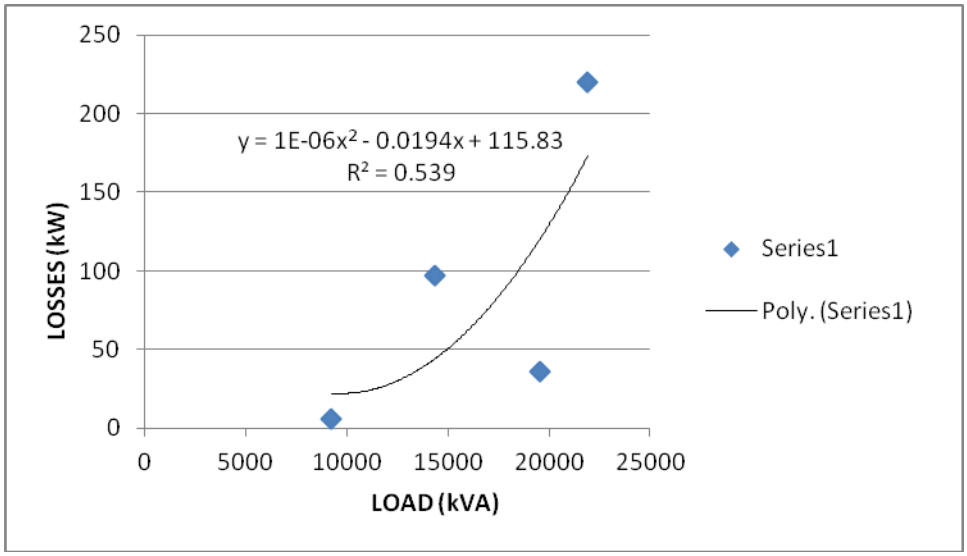

Figure 2-8. 34.50-kV Circuits - Calculated Losses and Regression Curve

2.6 Summary of Primary Distribution Line Losses

The calculated energy losses in the primary distribution lines are summarized in Table 2-6 by region and nominal voltage. The losses in the KCP&L system are broken down for Kansas and Missouri..

Table 2-6. Calculated Primary Distribution Losses by System and Nominal Voltage

Nominal Voltage kV	KCP&L- KS	KCP&L MO	KCP&L (KS + MO)	GMO
2.4	-	-	-	220,078
4.16	-	484,030	484,030	2,117,231
7.20	-	43,215	43,215	59,012
8.32	-	-	-	1,240,572
12.47	79,989,164	95,593,096	175,582,260	103,066,651
13.20	-	114,151,242	114,151,242	-
13.80	-	-	-	1,714,724
24.90	-	-	-	1,081,254
34.50	1,774,922	3,263,843	5,038,765	8,844,838
Totals	81,764,086	213,535,425	295,299,511	118,344,360

Section
3

Secondary Distribution Losses

The secondary distribution system is comprised of secondary transformers, secondary lines, service drops, and customer electric meters. Secondary transformers connect the primary and secondary distribution systems. Service drops connect the customers to the secondary distribution system. Demand losses were calculated for each of these components; the energy losses were determined from the demand losses, loss factors, and the number of hours in a year.

The electric energy utilized by customers connected to the secondary distribution system flows through all the other sub-systems, including transmission, primary transformers, primary distribution lines, secondary transformers, secondary distribution lines, service drops and customer meters. Due to the large number of customers at this service level and the very large number of equipment elements required to serve the load at this service level, metering of each customer load at small time increments, such as each hour, has been impractical so far.

The very large number of elements at the secondary service level, for which electric losses need to be calculated, dictates that loss calculation methods at this level be somewhat less rigorous than the loss calculation methods used for the other sub-systems. For the present study, Siemens PTI has used the best methodology to fit the data available.

Similar to the primary distribution transformers, secondary transformers have also a load and a no-load loss component. Siemens PTI calculated the no-load losses using the rated no-load characteristics provided by KCP&L for each transformer size. The no-load demand loss was calculated by multiplying the rated no-load value for each transformer size by the number of transformers in that size category. The energy no-load losses were determined by multiplying the no-load demand losses by 8,784 hours in the test year. Transformers were assumed to operate at constant nominal voltage throughout the year.

The most accurate method to calculate the peak demand loss of each secondary transformer is to consider the actual peak demand of the transformer. The peak demand of each secondary transformer was not known and an approximate method was used. Using he data supplied, for each region we calculated the average non-coincident peak demand kVA load per installed transformer kVA capacity. The average peak loading was 25% for KCP&L-KS, 21% for KCP&L-MO, and 26% for GMO. We used these average peak loadings to estimate the non-coincident peak demand supplied by the secondary transformers. However, the average peak demand is not the peak demand on all transformers as this number represent an average peak loading. For a group of transformers the peak demand load may be higher than the average and for other groups of transformers the peak demand may be lower. Therefore, we created a frequency distribution of the peak loading that had an average equal to the average peak loading observed in the load data. The purpose of the frequency distribution of transformer loadings is to capture the loadings above and below the average.

Additionally, the fact that the demand loss is proportional to the square of the load must also be considered in the calculation of the non-coincident peak demand losses.

Siemens PTI calculated the coincident peak demand losses my multiplying the non-coincident peak demand loss of each transformer by the coincident factor at the secondary distribution level. The energy losses were calculated by multiplying the non-coincident peak demand loss by the loss factor at the secondary distribution level and the number of hours in the test year. The coincident and loss factors, calculated using load research data, are shown in Table 3-.

Table 3-1. Secondary Distribution Loss and Coincident Factors

Region	Loss Factor	Coincident Factor
KCP&L-KS	0.1627	1.10
KCP&L-MO	0.3013	1.06
KCP&L (KS + MO)	0.2316	1.05
GMO	0.2560	1.025

The allocated load and no-load losses for the secondary transformers are summarized in Table 3-.

Table 3-2. Allocated Secondary Transformer Losses

	No-Load Losses		Load Losses	
Region	Demand kW	Energy kWh	Non-Coincident Peak Demand kW	Energy kWh
KCP&L-KS	7,859	69,031,863	5,654	8,080,104
KCP&L-MO	5,475	48,087,062	1,276	3,376,911
KCP&L (KS + MO)	13,334	117,118,925	6,930	11,457,015
GMO	6,489	57,002,664	5,811	11,728,011

3.1 Distribution Secondary Lines and Service Drops

Losses that occur on the secondary lines and service drops are the most difficult to calculate due to the sheer number of secondary lines and service drops in the secondary systems, and the lack of data measurements for each secondary line and service drop. Information such as configuration, conductor size, and length for each of the services to customers would be helpful in this type of studies, but this information is not usually kept on drawings because of the large number of drawings that would be required. As an alternative approach, drawing sets of secondary distribution installations were used. To a certain extent, each customer's electric service installation is unique and slightly different than the standard. As a result, installations are somewhat customized to fit each customer's needs and location.

Based on KCP&L standards, 12 different secondary and service drop configurations were used with the average non-coincident peak demands for each customer. The customer load was assumed to be unbalanced for the 240/120 volt configurations with 50 percent of the load on one leg, 40 percent on the other leg and 10 percent on the neutral. The non-coincident peak demand losses were calculated based on these loads and configurations.

Siemens PTI calculated the coincident peak demand and energy losses using the coincident and loss factors for the secondary level documented in Table 3- above and the number of hours in the test year. The allocated peak demand and energy losses are summarized in Table 3-.

Table 3-3. Allocated Secondary Distribution Lines and Service Drops Losses

Region	Non-Coincident Peak Demand Losses - kW	Energy Losses kWh
KCP&L-KS	12,780	18,261,151
KCP&L-MO	3,272	8,659,227
KCP&L (KS + MO)	16,052	26,920,378
GMO	14,551	30,827,707

3.2 Customer Electric Meters

Losses occur in each customer meter. KCP&L provided the customer meter inventory of single and three-phase meters, mechanical and electronic. Both the mechanical and electronic meters require very little energy to operate, with electronic meters being considerably more efficient.

The meter losses were quantified as no-load losses. The non-coincident and coincident peak demand losses of no-load losses are equal. The demand loss for electric meters was calculated by multiplying the number of meters by the loss of each meter type. The energy losses for each meter type were calculated by multiplying the corresponding demand losses by 8,784, the number of hours in 2016.

The allocated peak demand and energy losses are summarized in Table 3- below.

Table 3-4. Allocated Customer Meter Losses

Region	Non-Coincident Peak Demand Losses - kW	Energy Losses kWh
KCP&L-KS	48	429,199
KCP&L-MO	50	435,203
KCP&L (KS + MO)	98	864,402

Region	Non-Coincident Peak Demand Losses - kW	Energy Losses kWh
GMO	217	1,909,741

3.3 Non-Technical Losses

The two main components that make up the energy and demand that is unaccounted for are the Energy Diversion and Company Unmetered Use. In the KCP&L system, the unmetered company use is comprised of the light and power used by substations.

3.3.1 Energy Diversion

Energy diversion is the term used to describe energy that is stolen by customers tampering with the meter or bypassing the meter. Energy diversion in the United States is very small. Consistent with previous studies, KCP&L estimated the energy diversion as 0.002% of the sales to ultimate customers. Siemens PTI calculated the non-coincident and coincident peak demand losses from the estimated energy diversion losses and the load and loss factors at the residential level. The load and loss factors were determined from load research data.

The allocated energy diversion losses are summarized in Table 3- below.

Table 3-5. Allocated Energy Diversion Losses

Region	Non-Coincident Peak Demand Losses - kW	Energy Losses kWh
KCP&L-KS	19	56,885
KCP&L-MO	8	34,898
KCP&L (KC + MO)	27	91,783
GMO	20	62,238

3.4 Unaccounted Substation Station Light & Power

The only company unmetered use that is not in the calculated losses is the electric energy consumed by light and power service at the substations. Siemens PTI calculated the company unmetered use based on the number of substations and an estimated average non-coincident peak load consumption of 40 kW per substation. The coincident peak load consumption was calculated using the residential coincident factor determined from load research data. The energy consumption was calculated for a load factor of 60%.

The allocated Substation Station Light & Power consumption is summarized in Table 3- below.

Table 3-6. Allocated Company Unmetered Use

Region	Non-Coincident Peak Demand kW	Energy Consumption kWh
KCP&L-KS	1,444	7,610,789
KCP&L-MO	2,149	11,325,389
KCP&L (KS + MO)	3,593	18,936,178
GMO	2,603	13,718,460

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Section

4

Allocation Procedure and Loss Multipliers

Siemens PTI calculated the technical losses for the following categories: transmission lines and transformers, transmission corona, primary distribution transformers (substation transformers), distribution to distribution transformers, primary distribution lines, secondary distribution transformers, secondary lines, service drops, and customer electric meters. Adding the calculated energy losses of these categories should approximate the total recorded energy losses determined by taking the difference between the input to the systems and the sales. As it has been discussed in this report, the calculation methods use statistical approaches for the calculation of the losses of these subsystems. This approach usually results in differences between the recorded annual energy losses and the annual calculated values. Therefore, the loss difference needs to be allocated back to the calculated values so that the sum of the losses in these categories is equal to the recorded losses. The allocated losses for every region are included in the Executive Summary of this report. The calculated losses are documented in Appendix B.

Once the sum of the calculated losses was allocated to match the FERC reported losses, the demand and energy loss multipliers were determined. Loss multipliers are used to allocate losses to customers as a function of the service level. As an example, if a residential customer required one kWh of energy, the generation system would have to provide 1.061288 kWh to cover one kWh load plus the associated energy loss. Similarly, if the same residential customer placed a demand requirement of one kW, the generation system would have to provide, for example, 1.080868 kW to cover one kW load and the associated demand loss. The two numbers above are examples of demand and energy multipliers. Therefore, transmission customers are only responsible for their share of losses that result from their service on the transmission system. Primary service customers are responsible for losses resulting from their load on the primary system, and the transmission system. Secondary customers are responsible for losses that their load creates on all systems.

Siemens PTI calculated the demand and energy multipliers (also known as “loss factors”) for each service level based on the loss results. The loss multipliers are organized as a function of where customers can be connected to a designated voltage service level such as transmission, primary distribution and secondary distribution.

The Loss Multipliers for the KCP&L-KS, KCP&L-MO, KCP&L (KS + MO) and GMO are included in Appendix B.

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Appendix

A

Calculated Losses

A.1 KCP&L – Kansas

A.2 KCP&L – Missouri

A.3 KCP&L – KS + MO

A.4 GMO

Table A-1

KCP&L-KANSAS CALCULATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES KW	COINCIDENT PEAK LOSSES KW	ENERGY LOSSES KWH
TRANSMISSION SYSTEM			
Transmission Line	25,149	25,149	116,598,503
Line Corona	4,999	56	1,058,995
Transformer No-Load	874	874	7,676,610
Generator Step-Up No-Load	1,197	1,197	8,097,581
Sum	32,219	27,276	133,431,689
SUBSTATION SYSTEM			
Transmission to Distribution Load	9,204	8,790	26,388,626
Transmission to Distribution No-Load	3,694	3,694	32,209,884
Sum	12,898	12,484	58,598,510
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	342	327	973,863
Distribution to Distribution No-Load	349	349	3,104,050
Primary Lines	40,122	38,317	81,764,086
Sum	40,813	38,993	85,841,999
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	5,597	5,097	7,998,069
Transformer No-Load	7,779	7,779	68,331,003
Lines and Service Drops	12,650	11,521	18,075,751
Customer Meters	48	48	424,841
Sum	26,074	24,445	94,829,664
NON-TECHNICAL LOSSES			
Substation Station Light & Power	1,429	1,302	7,533,519
Energy Diversion	19	17	56,307
Sum	1,448	1,319	7,589,826
Total	113,452	104,517	380,291,688
TOTAL REPORTED FERC FORM 1 LOSSES			330,965,000
LOSSES ADJUSTMENT NECESSARY			-49,326,688

Table A-2

KCP&L-MISSOURI CALCULATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES KW	COINCIDENT PEAK LOSSES KW	ENERGY LOSSES KWH
TRANSMISSION SYSTEM			
Transmission Line	22,021	22,021	99,793,808
Line Corona	4,124	46	875,366
Transformer No-Load	653	653	5,731,824
Generator Step-Up No-Load	2,077	2,077	13,426,263
Sum	28,875	24,797	119,827,261
SUBSTATION SYSTEM			
Transmission to Distribution Load	8,319	8,174	23,859,860
Transmission to Distribution No-Load	3,414	3,414	29,873,256
Sum	11,732	11,588	53,733,117
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	95	94	274,772
Distribution to Distribution No-Load	163	163	1,442,103
Primary Lines	47,946	45,781	163,957,411
Sum	48,204	46,038	165,674,285
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	1,409	1,326	3,729,183
Transformer No-Load	6,046	6,046	53,103,404
Lines and Service Drops	3,613	3,401	9,562,539
Customer Meters	55	55	480,602
Sum	11,123	10,828	66,875,728
NON-TECHNICAL LOSSES			
Substation Station Light & Power	2,373	2,234	12,506,830
Energy Diversion	9	8	38,538
Sum	2,382	2,242	12,545,368
Total	102,317	95,492	418,655,759
TOTAL REPORTED FERC FORM 1 LOSSES			379,108,000
LOSSES ADJUSTMENT NECESSARY			-39,547,759

Table A-3

KCP&L-KS & MO TOTAL - CALCULATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES KW	COINCIDENT PEAK LOSSES KW	ENERGY LOSSES KWH
TRANSMISSION SYSTEM			
Line	47,170	47,170	216,392,311
Line Corona	9,123	102	1,934,361
Transformer No-Load	1,527	1,527	13,408,434
Generator Step-Up No-Load	3,274	3,274	21,523,844
Sum	61,094	52,073	253,258,950
SUBSTATION SYSTEM			
Transmission to Distribution Load	17,523	16,964	50,248,486
Transmission to Distribution No-Loa	7,108	7,108	62,083,140
Sum	24,630	24,072	112,331,627
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	437	421	1,248,635
Distribution to distribution No-Load	512	512	4,546,153
Primary Lines	88,068	84,098	245,721,497
Sum	89,017	85,031	251,516,284
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	7,006	6,423	11,727,252
Transformer No-Load	13,825	13,825	121,434,407
Lines and Service Drops	16,263	14,922	27,638,290
Customer Meters	103	103	905,443
Sum	37,197	35,273	161,705,392
NON-TECHNICAL LOSSES			
Substation Station Light & Power	3,802	3,536	20,040,349
Energy Diversion	28	25	94,845
Sum	3,830	3,561	20,135,194
Total	215,769	200,009	798,947,447
TOTAL REPORTED FERC FORM 1 LOSSES			710,073,000
LOSSES ADJUSTMENT NECESSARY			-88,874,447

Table A-4

GMO CALCULATED LOSSES - 2016			
	NON-COINCIDENT PEAK LOSSES	COINCIDENT PEAK LOSSES	ENERGY LOSSES
	KW	KW	KWH
TRANSMISSION SYSTEM			
Line	27,847	27,847	83,714,109
Line Corona	5,047	57	1,070,499
Transformer No-Load	1,668	1,668	14,655,805
Generator Step-Up No-Load	1,286	1,286	11,297,560
Sum	35,848	30,858	110,737,973
SUBSTATION SYSTEM			
Transmission to Distribution Load	1,990	1,968	4,299,778
Transmission to Distribution No-Loa	3,738	3,738	32,738,299
Sum	5,728	5,706	37,038,078
PRIMARY DISTRIBUTION SYSTEM			
Distribution to Distribution Load	305	297	708,916
Distribution to distribution No-Load	1,224	1,224	10,732,416
Primary Lines	55,256	54,750	118,344,360
Sum	56,785	56,271	129,785,692
DISTRIBUTION SECONDARY SYSTEM			
Transformer Load	6,468	6,394	13,131,362
Transformer No-Load	7,237	7,237	63,572,119
Lines and Service Drops	16,737	16,471	36,257,719
Customer Meters	241	241	2,118,676
Sum	30,683	30,343	115,079,876
NON-TECHNICAL LOSSES			
Substation Station Light & Power	3,003	2,954	15,825,527
Energy Diversion	21	19	68,772
Sum	3,024	2,973	15,894,299
Total	132,067	126,150	408,535,918
TOTAL REPORTED FERC FORM 1 LOSSES			356,410,000
LOSSES ADJUSTMENT NECESSARY			-52,125,918

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Appendix

B

Loss Multipliers

Table B-1

KCP&L-KANSAS ENERGY LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kWh	Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier
Secondary		1.022632								
Sales	3,938,498,757		3,938,498,757							
Losses + Diversion	89,134,913		89,134,913							
Input to Primary	4,027,633,670		4,027,633,670	1.022632						
Primary		1.019451	4,027,633,670							
Primary Sales	2,434,964,538				2,434,964,538					
Primary Losses	125,705,490		78,342,433		47,363,057					
Input to Transmission	6,588,303,699		4,105,976,103	1.019451	2,482,327,596	1.019451				
			4,105,976,103		2,482,327,596					
Transmission		1.016616								
Transmission Sales	400,389,095								400,389,095	
Losses	116,124,596		68,225,179		41,246,525				6,652,893	
System Input	7,104,817,390		4,174,201,282	1.059846	2,523,574,120	1.036391			407,041,988	1.016616
Losses + Diversion	330,964,999		235,702,525		88,609,582				6,652,893	

Table B-2

KCP&L- MISSOURI ENERGY LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kWh	Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier
Secondary		1.020115								
Sales	3,575,340,130		3,575,340,130							
Losses + Diversion	71,918,690		71,918,690							
Input to Primary	3,647,258,819		3,647,258,819	1.020115						
Primary		1.025098	3,647,258,819							
Primary Sales	4,268,953,790				4,268,953,790					
Primary Losses	198,681,374		91,539,026		107,142,348					
Input toTransmission	8,114,893,984		3,738,797,846	1.045718	4,376,096,138	1.025098				
			3,738,797,846		4,376,096,138					
Transmission		1.012865								
Transmission Sales	319,480,313								319,480,313	
Losses	108,507,939		48,099,507		56,298,328				4,110,103	
System Input	8,542,882,236		3,786,897,353	1.059171	4,432,394,466	1.038286			323,590,416	1.012865
Losses + Diversion	379,108,003		211,557,223		163,440,676				4,110,103	

Table B-3

KCP&L-KS & MO TOTAL - ENERGY LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kWh	Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier
Secondary		1.021366								
Sales	7,538,000,012		7,538,000,012							
Losses + Diversion	161,053,603		161,053,603							
Input to Primary	7,699,053,614		7,699,053,614	1.021366						
Primary		1.022522	7,699,053,614							
Primary Sales	6,703,918,328				6,703,918,328					
Primary Losses	324,386,864		173,399,759		150,987,105					
Input to Substation	14,727,358,807		7,872,453,373	1.022522	6,854,905,434	1.022522				
			7,872,453,373		6,854,905,434					
Transmission		1.014542								
Transmission Sales	719,869,408								719,869,408	
Losses	224,632,535		114,480,678		99,683,566				10,468,292	
System Input	15,671,860,750		7,986,934,051	1.059556	6,954,588,999	1.037392			730,337,700	1.014542
Losses + Diversion	710,073,002		448,934,040		250,670,671				10,468,292	

Table B-4

GMO ENERGY LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kWh	Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier	kWh	Cumulative Multiplier
Secondary		1.015438								
Sales	7,465,404,260		7,465,404,260							
Losses + Diversion	115,248,822		115,248,822							
Input to Primary	7,580,653,082		7,580,653,082	1.015438						
Primary		1.013245	7,580,653,082							
Primary Sales	993,090,804				993,090,804					
Primary Losses	113,561,665		100,407,896		13,153,769					
Input to Substation	8,687,305,550		7,681,060,978	1.028887	1,006,244,573	1.013245				
Substations		1.003266	7,681,060,978		1,006,244,573					
Substation Sales	757,529,728						757,529,728			
Substation Losses	30,843,798		25,083,877		3,286,072		2,473,849			
Input to Transmission	9,475,679,076		7,706,144,855	1.032247	1,009,530,644	1.016554	760,003,577	1.003266		
Transmission		1.010042	7,706,144,855		1,009,530,644		760,003,577			
Transmission Sales	159,532,453								159,532,453	
Losses	96,755,717		77,384,245		10,137,594		7,631,871		1,602,007	
System Input	9,731,967,246		7,783,529,100	1.042613	1,019,668,238	1.026762	767,635,448	1.013340	161,134,460	1.010042
Losses + Diversion	356,410,001		318,124,840		26,577,434		10,105,720		1,602,007	

Table B-5

KCP&L-KANSAS DEMAND LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kW	Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier
Secondary		1.020458								
Sales	1,096,057		1,096,057							
Losses + Diversion	22,423		22,423							
Input to Primary	1,118,480		1,118,480	1.020458						
Primary		1.029206	1,118,480							
Primary Sales	415,507				415,507					
Primary Losses	44,801		32,666		12,135					
Input to Transmission	1,578,788		1,151,146	1.029206	427,642	1.029206				
			1,151,146		427,642					
Transmission		1.014176								
Transmission Sales	95,822								95,822	
Losses	23,739		16,318		6,062				1,358	
System Input	1,698,349		1,167,464	1.065149	433,704	1.043795			97,180	1.014176
Losses + Diversion	90,963		71,407		18,197				1,358	

Table B-6

KCP&L- MISSOURI DEMAND LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kW	Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier
Secondary		1.016340								
Sales	724,300		724,300							
Losses + Diversion	11,835		11,835							
Input to Primary	736,135		736,135	1.016340						
Primary		1.037166	736,135							
Primary Sales	667,884				667,884					
Primary Losses	52,182		27,359		24,823					
Input to Transmission	1,456,201		763,494	1.054113	692,707	1.037166				
			763,494		692,707					
Transmission		1.014708								
Transmission Sales	70,510								70,510	
Losses	22,455		11,230		10,188				1,037	
System Input	92,965		774,724	1.069617	702,895	1.052421			71,547	1.014708
Losses + Diversion	86,472		50,424		35,011				1,037	

Table B-7

KCP&L-KS & MO TOTAL - DEMAND LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kW	Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier
Secondary		1.019196								
Sales	1,784,664		1,784,664							
Losses + Diversion	34,258		34,258							
Input to Primary	1,818,922		1,818,922	1.019196						
Primary		1.033374	1,818,922							
Primary Sales	1,087,061				1,087,061					
Primary Losses	96,983		60,704		36,279					
Input to Transmission	3,002,966		1,879,626	1.033374	1,123,341	1.033374				
			1,879,626		1,123,341					
		1.000115								
Transmission Sales	400,389,095								400,389,095	
Losses	46,194		215		129				45,850	
System Input	403,438,255		1,879,841	1.053331	1,123,469	1.033492			400,434,945	1.000115
Losses + Diversion	177,435		95,177		36,408				45,850	

Table B-8

GMO DEMAND LOSS MULTIPLIERS - 2016										
	Total System		Secondary Service		Primary Service		Substation Service		Transmission Service	
SERVICE LEVEL	kW	Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier	kW	Cumulative Multiplier
Secondary		1.016575								
Sales	1,776,214		1,776,214							
Losses + Diversion	29,441		29,441							
Input to Primary	1,805,655		1,805,655	1.016575						
Primary		1.024929	1,805,655							
Primary Sales	223,986				223,986					
Primary Losses	50,597		45,013		5,584					
Input to Transmission	2,080,238		1,850,668	1.041917	229,569	1.024929				
Substations		1.002161	1,850,668		229,569					
Substation Sales	161,078						161,078			
Substation Losses	4,843		3,999		496		348			
Input to Transmission	2,085,081		1,854,667	1.044169	230,066	1.027144	161,426	1.002161		
Transmission		1.012879	1,854,667		230,066		161,426			
Transmission Sales	28,310								28,310	
Losses	27,218		23,886		2,963		2,079		365	
System Input	2,140,608		1,878,553	1.057616	233,029	1.040372	163,505	1.015067	28,674	1.012879
Losses + Diversion	112,099		102,339		9,043		2,427		365	

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Appendix

C

Corona Losses

Table C-1

CORONA LOSSES for KCP&L-KS, KCP&L-MO and KCP&L (KS + MO) - 2016										
		LOSS			DEMAND LOSSES		ENERGY LOSSES		TOTAL LOSSES	
VOLTAGE	LENGTH OF CIRCUITS	NO RAIN	WITH RAIN	HOURS OF RAIN	COINCIDENT WITH NO RAIN	NON-COINCIDENT WITH RAIN	NO RAIN	RAIN	COINCIDENT DEMAND	ENERGY
KV	MILES	KW/MILE	KW/MILE	HOURS	KW	KW	KWH	KWH	KW	KWH
Kansas										
69	3.01	0	0.008	115	0.0	-	0	0	0.0	0
161	333.71	0.01	0.837	115	3.3	279.3	28,529	32,120	3.3	60,649
345	167.95	0.314	28.101	115	52.7	4,719.6	455,592	542,754	52.7	998,346
				SUBTOTAL	56	4,998.9	484,121	574,874	56.0	1,058,995
Missouri										
69	68.8	0	0.008	115	0.0	0.6	0	69	0.0	69
161	553.91	0.01	0.837	115	5.5	463.6	47,548	53,314	5.5	100,862
345	130.23	0.314	28.101	115	40.9	3,659.6	353,581	420,854	40.9	774,435
				SUBTOTAL	46.4	4,123.8	401,129	474,237	46.4	875,366
69	71.81	0	0.008	115	0.0	0.6	0	69	0.0	69
161	887.62	0.01	0.837	115	8.9	742.9	76,941	85,434	8.9	162,375
345	298.18	0.314	28.101	115	93.6	8,379.2	809,172	963,608	93.6	1,772,780
Total Kansas and Missouri										
				TOTALS	102.5	9,122.7	886,113	1,049,111	102.5	1,935,224

Table C-2

CORONA LOSSES for MPS, SJLP and Totals for GMO (MPS + SJLP)										
		LOSSES			DEMAND LOSSES		ENERGY LOSSES		TOTAL LOSSES	
VOLTAGE	LENGTH OF CIRCUITS	NO RAIN	WITH RAIN	HOURS OF RAIN	COINCIDENT WITH NO RAIN	NON-COINCIDENT WITH RAIN	NO RAIN	RAIN	COINCIDENT DEMAND	ENERGY
KV	MILES	KW/MILE	KW/MILE	HOURS	KW	KW	KWH	KWH	KW	KWH
MPS Corona Losses										
69	488.26	0	0.008	115	0.0	3.9	0	449	0.0	449
161	460.21	0.01	0.837	115	4.6	385.2	39,767	44,298	4.6	84,065
345	67.13	0.314	28.101	115	21.1	1,886.4	182,410	216,936	21.1	399,346
				SUBTOTAL	25.7	2,275.5	222,177	261,683	25.7	483,860
								No-coincident Demand	2,275.5	
SJLP Corona Losses										
69	127.65	0	0.008	115	0.0	1.0	0	115	0.0	115
161	109.35	0.01	0.837	115	1.1	91.5	9,510	10,523	1.1	20,033
345	95.31	0.314	28.101	115	29.9	2,678.3	258,486	308,005	29.9	566,491
				SUBTOTAL	31.0	2,770.8	267,996	318,643	31.0	586,639
								No-coincident Demand	2,770.8	
GMO (MPS +SJLP) TOTAL									56.7	1,070,499

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Appendix

D

Transformer Losses

D.1 KCP&L Transmission Transformer No-Load Losses

KCP&L TRANSMISSION TRANSFORMER NO-LOAD LOSSES					
	VOLTAGE				
SUBSTATION	HIGH SIDE	LOW SIDE	OA/FA/FOA	NO-LOAD LOSSES	ENERGY NO-LOAD LOSSES
	KV	KV	MVA	WATTS	KWH
Kansas					
CRAIG 7	345	161	330/440/550	79,267	696,281
CRAIG 7	345	161	330/440/551	186,840	1,641,203
CRAIG 7	345	161	240/320/400	140,986	1,238,421
ODESSA	161	69	20	40,500	355,752
STILWEL7	345	161	330/440/550	177,663	1,560,592
STILWEL7	345	161	330/440/550	73,448	645,167
W.GRDNR7	345	161	240/320/400	175,227	1,539,194
Total Kansas				873,931	7,676,610
Missouri					
DUNCAN 5	161	69	36/48/60	28,656	251,714
HAWTH 7	345	161	300/400/500	211,000	1,853,424
HAWTH 7	345	161	330/440/550	80,018	702,878
HAWTHRN5	161	69	30	53,200	467,309
HAWTHRN5	161	69	30	44,230	388,516
IATAN 11	345/161	13.8	390/520/650	112,206	985,618
LBRTYST5	161	69	36/48/61	22,090	194,039
Liberty South	161	69	60	60,630	532,574
SWAVRLY5	161	69	20	40,500	355,752
Total Missouri				652,530	5,731,824
TOTAL				1,526,461	13,408,433

D.2 GMO Transmission Transformers No-Load Losses

GMO TRANSMISSION TRANSFORMERS NO-LOAD LOSSES					
Substation	**High Side Voltage KV**	**Low Side Voltage KV**	**Rating OA/FA/FA/FOA MVA**	**No-Load Demand Loss KW**	**No-Load Energy Loss KWH**
MPS Transmission Transformers					
Nevada 161-69	161	69	30/40/50	44.9	394,226
Nevada 161-69	161	69	30/40/50	45.0	395,280
South Harper	161	69	30/40/50	28.4	249,466
North Warsaw	161	69	30/40/50	44.9	394,402
Belton South	161	69	60/80/100	31.3	274,939
Liberty South	161	69	60	60.6	532,574
Clinton	161	69	50	69.3	608,731
Clinton	161	69	50	38.2	335,549
Harrisonville	161	69	30/40/50	44.9	394,226
Lexington	161	69	30/50	20.2	176,998
Roanridge	161	69	30/40/50	46.8	410,916
Odessa	161	69	20/27/33	40.0	351,360
Warrensburg East	161	69	50	78.8	692,179
Pleasant Hill 345	345	161	240/320/400	87.5	768,512
Pleasant Hill 345	161	69	60/80/100	78.8	692,179
Longview	161	69	60/80/100	71.8	630,691
Martin City	161	69	30/40/50	39.8	349,603
Sedalia West	161	69	100	58.8	516,763
Sedalia West	161	69	100	44.9	394,753
Sibley	161	69	100	106.5	935,724
Sibley	161	345	400	85.9	754,106
Peculiar 345	161	345	400	85.9	754,546
Stranger Creek	345	161	214/285/357/400	109.2	959,301
			Subtotal	1,362.4	11,967,023
SJLP Transmission Transformers					
Lake road	161	35	67	44.8	393,435
Lake road	161	35	67	44.8	393,435
Maryville	161	69	30/40/50	32.4	284,602
Maryville	161	69	30/40/50	32.9	288,994
Midway	161	69	30/40/50/56	14.47	127,104
St Joseph	345	161	336	67.5	592,920
St Joseph	345	161	336	69.3	608,292
			Subtotal	306.1	2,688,782
GMO Total				1,668.5	14,655,805
Note:		Values are estimated			

D.3 KCP&L-KS Substation Transformer Losses

KCP&L KANSAS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Antioch	161/12	18	13.352	30,728	74,005	31	269,915	41	116,671
Antioch	161/12	18	9.758	30,728	74,005	31	269,915	22	62,315
BNSF	161/13	18	16.000	30,728	74,005	31	269,915	58	167,536
Brookridge	161/12	30	34.081	51,213	123,342	51	449,855	159	456,085
Brookridge	161/12	30	36.734	51,213	123,342	51	449,855	185	529,856
Brookridge	161/12	30	31.568	51,213	123,342	51	449,855	137	391,305
Brookridge	161/12	30	30.282	51,213	123,342	51	449,855	126	360,073
Brookridge	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Brookridge	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Brookridge	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Brookridge	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Bucyrus	161/12	18	4.454	30,728	74,005	31	269,915	5	12,983
Bucyrus	161/12	18	4.470	30,728	74,005	31	269,915	5	13,076
Cedar Creek	161/12	18	16.576	30,728	74,005	31	269,915	63	179,816
Cedar Creek	161/12	18	25.040	30,728	74,005	31	269,915	143	410,334
Cedar Niles	161/12	18	7.047	30,728	74,005	31	269,915	11	32,500
Cedar Niles	161/12	18	2.632	30,728	74,005	31	269,915	2	4,534
Centennial	161/12	18	9.614	30,728	74,005	31	269,915	21	60,489
Centennial	161/12	18	17.100	30,728	74,005	31	269,915	67	191,364
Centerville	161/34	15	13.000	25,607	61,671	26	224,932	46	132,721
Centerville	161/35	15	13.000	25,607	61,671	26	224,932	46	132,721
College	161/12	18	14.233	30,728	74,005	31	269,915	46	132,575
College	161/12	18	18.460	30,728	74,005	31	269,915	78	223,014
College	161/12	18	24.977	30,728	74,005	31	269,915	142	408,272

KCP&L KANSAS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
College	161/12	18	20.843	30,728	74,005	31	269,915	99	284,308
Greenwood	161/13	18	16.000	30,728	74,005	31	269,915	58	167,536
Greenwood	161/13	18	16.000	30,728	74,005	31	269,915	58	167,536
Greenwood	161/13	18	16.000	30,728	74,005	31	269,915	58	167,536
Kenilworth	161/12	30	36.333	51,213	123,342	51	449,855	181	518,351
Kenilworth	161/12	30	33.616	51,213	123,342	51	449,855	155	443,725
Kenilworth	161/12	30	27.697	51,213	123,342	51	449,855	105	301,222
Kenilworth	161/12	30	32.637	51,213	123,342	51	449,855	146	418,256
Kenilworth	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Kenilworth	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Kenilworth	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Kenilworth	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Lackman	161/12	18	7.143	30,728	74,005	31	269,915	12	33,391
Lenexa	161/12	18	5.250	30,728	74,005	31	269,915	6	18,038
Lenexa	161/12	15	16.541	25,607	61,671	26	224,932	75	214,870
Lenexa	161/12	30	34.138	51,213	123,342	51	449,855	160	457,612
Lenexa	161/12	15	23.516	25,607	61,671	26	224,932	152	434,289
Lenexa	161/13	15	13.000	25,607	61,671	26	224,932	46	132,721
Louisburg	161/13	6	5.000	10,243	24,668	10	89,975	17	49,082
Merriam	161/12	30	31.793	51,213	123,342	51	449,855	139	396,903
Merriam	161/12	30	44.557	51,213	123,342	51	449,855	272	779,567
Merriam	161/12	30	31.857	51,213	123,342	51	449,855	139	398,503
Merriam	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Merriam	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Merriam	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721

KCP&L KANSAS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Moonlight	161/12	18	13.074	30,728	74,005	31	269,915	39	111,863
Moonlight	161/12	18	17.403	30,728	74,005	31	269,915	69	198,206
Mur-Len	161/12	18	23.281	30,728	74,005	31	269,915	124	354,709
Mur-Len	161/12	18	24.195	30,728	74,005	31	269,915	134	383,107
Mur-Len	161/12	18	21.167	30,728	74,005	31	269,915	102	293,216
Murlen	161/12	18	16.000	30,728	74,005	31	269,915	58	167,536
North Louisburg	161/12	18	16.404	30,728	74,005	31	269,915	61	176,104
North Louisburg	161/13	18	16.000	30,728	74,005	31	269,915	58	167,536
Olathe	161/12	18	27.312	30,728	74,005	31	269,915	170	488,176
Olathe	161/12	18	22.792	30,728	74,005	31	269,915	119	339,965
Olathe	161/12	18	27.547	30,728	74,005	31	269,915	173	496,613
Olathe	161/12	15	21.592	25,607	61,671	26	224,932	128	366,132
Olathe	161/12	15	15.409	25,607	61,671	26	224,932	65	186,466
Olathe	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Olathe	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Overland Park	161/12	15	22.717	25,607	61,671	26	224,932	141	405,278
Overland Park	161/12	18	18.819	30,728	74,005	31	269,915	81	231,773
Overland Park	161/12	18	17.868	30,728	74,005	31	269,915	73	208,940
Oxford	161/12	18	18.255	30,728	74,005	31	269,915	76	218,088
Oxford	161/12	18	30.811	30,728	74,005	31	269,915	217	621,270
Oxford	161/12	18	23.593	30,728	74,005	31	269,915	127	364,280
Paola	161/34	18	10.649	30,728	74,005	31	269,915	26	74,214
Paola	161/34	18	10.198	30,728	74,005	31	269,915	24	68,061
Pflumm	161/12	18	18.919	30,728	74,005	31	269,915	82	234,242
Pflumm	161/12	18	10.264	30,728	74,005	31	269,915	24	68,945

KCP&L KANSAS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Pleasant Valley	161/34	18	8.062	30,728	74,005	31	269,915	15	42,536
Quarry	161/12	18	16.448	30,728	74,005	31	269,915	62	177,050
Quarry	161/13	18	16.000	30,728	74,005	31	269,915	58	167,536
Randolph	161/12	18	17.671	30,728	74,005	31	269,915	71	204,358
Randolph	161/12	18	12.423	30,728	74,005	31	269,915	35	101,000
Redel	161/12	18	16.716	30,728	74,005	31	269,915	64	182,866
Redel	161/12	18	13.069	30,728	74,005	31	269,915	39	111,777
Reeder	161/12	18	17.602	30,728	74,005	31	269,915	71	202,765
Reeder	161/12	18	21.989	30,728	74,005	31	269,915	110	316,432
Riley	161/12	18	23.191	30,728	74,005	31	269,915	123	351,972
Riley	161/12	18	27.683	30,728	74,005	31	269,915	175	501,528
Riley	161/12	18	26.698	30,728	74,005	31	269,915	163	466,473
Riley	161/12	18	18.457	30,728	74,005	31	269,915	78	222,942
Riley	161/12	24	30.170	40,970	98,674	41	359,880	156	446,770
Roeland Park	161/12	30	36.298	51,213	123,342	51	449,855	181	517,353
Roeland Park	161/12	30	29.343	51,213	123,342	51	449,855	118	338,089
Roeland Park	161/12	15	19.693	25,607	61,671	26	224,932	106	304,562
Roeland Park	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Roeland Park	161/12	15	13.000	25,607	61,671	26	224,932	46	132,721
Shawnee	161/12	15	13.899	25,607	61,671	26	224,932	53	151,712
Shawnee	161/12	15	16.569	25,607	61,671	26	224,932	75	215,598
Shawnee Mission	161/12	18	16.398	30,728	74,005	31	269,915	61	175,975
Shawnee Mission	161/12	18	19.779	30,728	74,005	31	269,915	89	256,022
Shawnee Mission	161/12	18	15.528	30,728	74,005	31	269,915	55	157,798
South Ottawa	161/34	18	20.810	30,728	74,005	31	269,915	99	283,409

KCP&L KANSAS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
South Ottawa	161/34	18	11.404	30,728	74,005	31	269,915	30	85,111
South Ottawa	161/34	18	11.404	30,728	74,005	31	269,915	30	85,111
Sprint	161/13	24	21.000	40,970	98,674	41	359,880	76	216,457
Sprint	161/13	24	21.000	40,970	98,674	41	359,880	76	216,457
Stilwell	161/12	18	9.663	30,728	74,005	31	269,915	21	61,107
Switzer	161/12	18	23.918	30,728	74,005	31	269,915	131	374,385
Switzer	161/12	18	13.729	30,728	74,005	31	269,915	43	123,352
Switzer	161/12	18	19.034	30,728	74,005	31	269,915	83	237,099
Switzer	161/12	18	21.823	30,728	74,005	31	269,915	109	311,672
Tomahawk	161/12	18	16.446	30,728	74,005	31	269,915	62	177,007
Tomahawk	161/12	15	22.832	25,607	61,671	26	224,932	143	409,392
Tomahawk	161/13	15	13.000	25,607	61,671	26	224,932	46	132,721
Tomahawk	161/13	15	13.000	25,607	61,671	26	224,932	46	132,721
Tomahawk	161/13	15	13.000	25,607	61,671	26	224,932	46	132,721
Wagstaff	161/34	15	5.385	25,607	61,671	26	224,932	8	22,773
West Gardner	161/12	15	14.130	25,607	61,671	26	224,932	55	156,796
Total		2,148	2,099			3,694	32,209,884	9,204	26,388,626
Coincident Peak								8,790	

D.4 KCP&L-MO Substation Transformer Losses

KCP&L MISSOURI SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Allied Signal	161/13/13	18	16.000	30,728	74,005	24	207,247	45	128,638
Allied Signal	161/13/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Avondale	161/12	18	10.931	30,728	74,005	24	207,247	21	60,041
Avondale	161/12	15	13.000	25,607	61,671	20	172,708	35	101,906
Avondale	161/12	15	13.000	25,607	61,671	20	172,708	35	101,906
Avondale	161/12/13	30	28.442	51,213	123,342	39	345,409	85	243,895
Avondale	161/12/13	30	42.921	51,213	123,342	39	345,409	193	555,421
Avondale	161/12/13	30	31.096	51,213	123,342	39	345,409	102	291,535
Barry	161/12	18	15.124	30,728	74,005	24	207,247	40	114,938
Barry	161/12	18	12.228	30,728	74,005	24	207,247	26	75,135
Barry	161/12	18	17.621	30,728	74,005	24	207,247	55	156,024
Birmingham	161/12	12	15.775	20,485	49,337	15	138,162	65	187,570
Blue Mills	161/12	12	6.459	20,485	49,337	15	138,162	11	31,445
Blue Mills	161/12	12	8.231	20,485	49,337	15	138,162	18	51,066
Blue Springs	69/12	3.33	2.169	5,685	13,691	5	38,343	5	12,779
Blue Valley	161/13	36	10.128	61,456	148,010	47	414,494	9	25,772
Blue Valley	161/13	15	19.597	25,607	61,671	20	172,708	81	231,575
Blue Valley	161/13	36	36.480	61,456	148,010	47	414,494	117	334,356
Blue Valley	161/13	36	31.000	61,456	148,010	47	414,494	84	241,448
Blue Valley	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Brunswick	161/34	10	7.850	17,071	41,114	13	115,137	19	55,737
Bunker Ridge	161/12	12	15.076	20,485	49,337	15	138,162	60	171,315
Bunker Ridge	161/12	12	4.143	20,485	49,337	15	138,162	5	12,938
Carrollton	161/34	18	12.374	30,728	74,005	24	207,247	27	76,940

KCP&L MISSOURI SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Carrollton	161/34	18	19.454	30,728	74,005	24	207,247	66	190,173
Chouteau	161/13	18	19.192	30,728	74,005	24	207,247	64	185,085
Claycomo	161/12	30	32.345	51,213	123,342	39	345,409	110	315,426
Claycomo	161/12	30	27.127	51,213	123,342	39	345,409	78	221,864
Claycomo	161/12	18	4.100	30,728	74,005	24	207,247	3	8,447
Claycomo	161/13/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Claycomo		30	26.000	51,213	123,342	39	345,409	71	203,812
Corder	69/12	7.5	2.507	12,803	30,836	10	86,351	2	7,580
Courtney	161/12	7.5	6.000	12,803	30,836	10	86,351	15	43,417
Courtney	69/12	7.5	8.200	12,803	30,836	10	86,351	28	81,092
Crosstown	161/13	30	35.492	51,213	123,342	39	345,409	133	379,790
Crosstown	161/13	30	33.461	51,213	123,342	39	345,409	117	337,567
Crosstown	161/13	30	35.101	51,213	123,342	39	345,409	130	371,468
Crosstown	161/13	30	29.284	51,213	123,342	39	345,409	91	258,549
Crosstown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Crosstown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Crosstown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Crosstown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Grandview West	69/8	12	9.089	20,485	49,337	15	138,162	21	62,267
Green Street	69/12	15	16.200	25,607	61,671	20	172,708	55	158,250
Forest	161/13	30	32.342	51,213	123,342	39	345,409	110	315,367
Forest	161/13	30	41.298	51,213	123,342	39	345,409	180	514,210
Forest	161/13	15	25.253	25,607	61,671	20	172,708	134	384,537
Forest	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Gladstone	161/12	30	44.628	51,213	123,342	39	345,409	210	600,478

KCP&L MISSOURI SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Gladstone	161/12	30	28.503	51,213	123,342	39	345,409	85	244,942
Gladstone	161/12	30	39.819	51,213	123,342	39	345,409	167	478,039
Gladstone	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Gladstone	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Gladstone	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Grand Avenue	161/13	24	22.301	40,970	98,674	31	276,324	65	187,432
Grand Avenue	161/13	24	23.843	40,970	98,674	31	276,324	74	214,248
Grand Avenue	161/13	24	18.113	40,970	98,674	31	276,324	43	123,645
Grand Avenue	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Grand Avenue	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Grand Avenue	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Hawthorn	161/13	40	12.223	68,284	164,456	52	460,546	12	33,783
Hawthorn	161/13	40	18.803	68,284	164,456	52	460,546	28	79,946
Hickman	161/12	18	23.766	30,728	74,005	24	207,247	99	283,820
Hickman	161/12	18	18.659	30,728	74,005	24	207,247	61	174,947
Hickman	161/12	15	15.796	25,607	61,671	20	172,708	52	150,455
Higginsville	69/12	2	0.313	3,414	8,223	2	23,026	-	443
Higginsville		15	13.000	25,607	61,671	20	172,708	35	101,906
Leeds	161/13	30	36.502	51,213	123,342	39	345,409	141	401,713
Leeds	161/13	15	24.909	25,607	61,671	20	172,708	131	374,133
Leeds	161/13	30	34.158	51,213	123,342	39	345,409	123	351,777
Leeds	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Leeds	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Leeds	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Line Creek	161/12	18	10.781	30,728	74,005	24	207,247	21	58,404

KCP&L MISSOURI SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Line Creek	161/12	18	25.269	30,728	74,005	24	207,247	112	320,853
Line Creek	161/12	18	14.427	30,728	74,005	24	207,247	37	104,588
Loma Vista	161/12	18	15.085	30,728	74,005	24	207,247	40	114,346
Loma Vista	161/12	18	29.546	30,728	74,005	24	207,247	153	438,660
Loma Vista	161/12	15	10.628	25,607	61,671	20	172,708	24	68,111
Loma Vista	161/12	15	13.000	25,607	61,671	20	172,708	35	101,906
Malta Bend	161/12	48	7.182	81,941	197,347	63	552,656	3	9,720
Martin City	161/12	18	15.894	30,728	74,005	24	207,247	45	126,940
Martin City	161/12	18	22.255	30,728	74,005	24	207,247	87	248,878
Martin City	161/12	18	16.727	30,728	74,005	24	207,247	49	140,594
Midtown	161/13	25	32.234	42,678	102,785	33	287,845	131	375,917
Midtown	161/13	30	38.118	51,213	123,342	39	345,409	153	438,069
Midtown	161/13	30	33.062	51,213	123,342	39	345,409	115	329,565
Midtown	161/13	30	51.363	51,213	123,342	39	345,409	278	795,396
Midtown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Midtown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Midtown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Navy	161/13	18	16.000	30,728	74,005	24	207,247	45	128,638
North Kansas City	161/13	18	9.330	30,728	74,005	24	207,247	15	43,741
North Kansas City	161/13	18	17.072	30,728	74,005	24	207,247	51	146,453
North Kansas City	161/13	18	14.365	30,728	74,005	24	207,247	36	103,691
North Kansas City	161/13	15	17.343	25,607	61,671	20	172,708	63	181,368
Northeast	161/13	30	42.610	51,213	123,342	39	345,409	191	547,401
Northeast	161/13	30	31.035	51,213	123,342	39	345,409	101	290,393
Northeast	161/13	25	10.206	42,678	102,785	33	287,845	13	37,686

KCP&L MISSOURI SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Northeast	161/13	18	23.159	30,728	74,005	24	207,247	94	269,507
Northeast	161/13	25	27.426	42,678	102,785	33	287,845	95	272,138
Norton	161/34	10	12.026	17,071	41,114	13	115,137	45	130,812
Riverside	161/12	12	16.925	20,485	49,337	15	138,162	75	215,914
Riverside	161/12	18	19.239	30,728	74,005	24	207,247	65	185,992
Salisbury	161/34	10	10.824	17,071	41,114	13	115,137	37	105,969
Salisbury	161/34	18	17.109	30,728	74,005	24	207,247	51	147,089
Shoal Creek	161/12	18	19.882	30,728	74,005	24	207,247	69	198,633
Shoal Creek	161/12	18	18.521	30,728	74,005	24	207,247	60	172,369
South Waverly	161/34	15	11.930	25,607	61,671	20	172,708	30	85,821
Southtown	161/13	25	17.789	42,678	102,785	33	287,845	40	114,490
Southtown	161/13	15	18.985	25,607	61,671	20	172,708	76	217,337
Southtown	161/13	25	20.224	42,678	102,785	33	287,845	51	147,978
Southtown	161/13	18	16.293	30,728	74,005	24	207,247	47	133,393
Southtown	161/13	30	35.843	51,213	123,342	39	345,409	135	387,339
Southtown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Southtown	161/13	15	13.000	25,607	61,671	20	172,708	35	101,906
Sugar Creek	69/4	3.75	1.600	6,402	15,418	5	43,179	2	6,175
Sugar Creek	69/4	1.5	0.770	2,561	6,167	2	17,273	2	3,575
Sugar Creek	69/4	3.75	3.130	6,402	15,418	5	43,179	8	23,631
Swope	161/12	18	11.453	30,728	74,005	24	207,247	23	65,913
Swope	161/12	18	11.731	30,728	74,005	24	207,247	24	69,151
Terrace	161/13	18	17.890	30,728	74,005	24	207,247	56	160,824
Terrace	161/13	18	19.438	30,728	74,005	24	207,247	66	189,860
Terrace	161/13	18	8.684	30,728	74,005	24	207,247	13	37,894

KCP&L MISSOURI SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Tiffany Springs	161/12	15	14.336	25,607	61,671	20	172,708	43	123,927
Tiffany Springs	161/12	18	12.504	30,728	74,005	24	207,247	28	78,565
Tiffany Springs	161/12	18	11.744	30,728	74,005	24	207,247	25	69,304
Tomahawk	161/12	18	40.582	30,728	74,005	24	207,247	289	827,556
Troost	161/13	18	16.000	30,728	74,005	24	207,247	45	128,638
Weatherby	161/12	18	12.968	30,728	74,005	24	207,247	29	84,504
Weatherby	161/12	15	14.269	25,607	61,671	20	172,708	43	122,772
Weatherby	161/12	30	35.555	51,213	123,342	39	345,409	133	381,140
Weatherby	161/12	15	13.000	25,607	61,671	20	172,708	35	101,906
Weatherby	161/12	15	13.000	25,607	61,671	20	172,708	35	101,906
West Higginsville	69/12	3.75	0.814	6,402	15,418	5	43,179	1	1,598
		2,595	2,473			3,414	29,873,256	8,319	23,859,860
Coincident Demand						3,414		8,174	

D.5 GMO-MPS Substation Transformers

MPS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Adrian	161/12	10	2.216	17,071	41,114	10	91,517	1	1,052
Adrian	161/25	18	5.001	30,728	74,005	45	396,738	1	2,976
Amoco (Service Pipel	69/2.4	3	2.340	5,121	12,334	3	27,454	2	3,910
Amoco (Service Pipel	69/2.4	3	0.180	5,121	12,334	3	27,454	-	23
Appleton City	69/12	7.5	2.976	12,803	30,836	8	68,637	1	2,529
Appleton City	69/34	3	1.438	5,121	12,334	3	27,454	1	1,476
Belton City	69/4	3.75	2.868	6,402	15,418	4	34,321	2	4,698
Belton South	161/12	18	8.223	30,728	74,005	19	164,732	4	8,046
Belton South	69/12	15	12.669	25,607	61,671	16	137,278	11	22,919
Belton South	69/12	15	18.254	25,607	61,671	16	137,278	23	47,580
Blue Ridge	69/12	7.5	2.752	12,803	30,836	8	68,637	1	2,163
Blue Springs East	161/12	15	12.871	25,607	61,671	16	137,278	12	23,656
Blue Springs East	161/12	15	16.440	25,607	61,671	16	137,278	19	38,594
Blue Springs East	161/12	15	14.188	25,607	61,671	16	137,278	14	28,744
Blue Springs South	161/12	18	11.761	30,728	74,005	19	164,732	8	16,459
Blue Springs South	161/12	18	0.779	30,728	74,005	19	164,732	-	72
Blue Springs West	161/12	15	17.832	25,607	61,671	16	137,278	22	45,406
Blue Springs West	161/12	15	17.825	25,607	61,671	16	137,278	22	45,370
Blythedale/Eagleville	34/12	3.75	1.528	6,402	15,418	4	34,321	1	1,334
Centerview	69/12	3	1.800	5,121	12,334	3	27,454	1	2,313
Clinton Plant	69/12	15	13.932	25,607	61,671	16	137,278	13	27,717
Clinton Plant	69/13	15	11.000	25,607	61,671	16	137,278	9	17,278
Clinton Plant	69/34/2.4	12.5	9.000	21,339	51,393	13	114,398	7	13,880
Cole Camp Jct	69/34	11.2	7.127	19,120	46,048	12	102,501	5	9,714
Concordia 69	69/12	15	6.283	25,607	61,671	16	137,278	2	5,637

MPS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Concordia 69	69/12	5	2.812	8,536	20,557	5	45,761	2	3,387
Concordia 69	69/34	6	2.615	10,243	24,668	6	54,913	1	2,441
Duncan Road	161/12	18	20.079	30,728	74,005	19	164,732	23	47,975
Duncan Road	161/12	18	21.847	30,728	74,005	19	164,732	27	56,795
Elm	69/12	5.6	4.139	9,560	23,024	6	51,251	3	6,552
Ferrelview	161/25	30	13.830	51,213	123,342	31	274,551	7	13,656
Ferrelview	161/25	30	25.596	51,213	123,342	31	274,551	23	46,777
Frost Road	161/12	25	15.358	42,678	102,785	26	228,795	10	20,209
Frost Road	161/12	25	20.319	42,678	102,785	26	228,795	17	35,373
Grain Valley	161/12	18	18.796	30,728	74,005	19	164,732	21	42,040
Grandview City	69/8	7.5	6.469	12,803	30,836	8	68,637	6	11,951
Grandview City	69/8	7.5	6.198	12,803	30,836	8	68,637	5	10,971
Grandview East	161/12	15	14.861	25,607	61,671	16	137,278	15	31,536
Grandview East	161/12	18	11.108	30,728	74,005	19	164,732	7	14,683
Grandview West	69/8	12	11.590	20,485	49,337	12	109,819	12	23,977
Grandview West	69/8	12	9.089	20,485	49,337	12	109,819	7	14,745
Green Street	69/12	15	16.200	25,607	61,671	16	137,278	18	37,475
Hallmark	161/12.47	15	15.553	25,607	61,671	16	137,278	17	34,542
Hallmark	161/12.47	15	1.655	25,607	61,671	16	137,278	-	391
Harris Road	161/12	15	5.835	25,607	61,671	16	137,278	2	4,862
Harrisonville Anaconc	69/4	1.5	1.728	2,561	6,167	2	13,730	2	4,264
Harrisonville West	69/12	7.5	1.870	12,803	30,836	8	68,637	1	998
Holden	69/4	7.5	5.376	12,803	30,836	8	68,637	4	8,254
Honeywell	161/12	18	4.305	30,728	74,005	19	164,732	1	2,205
Honeywell	161/12	18	4.202	30,728	74,005	19	164,732	1	2,101
Hook Road	161/12	15	14.321	25,607	61,671	16	137,278	14	29,286

MPS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Hook Road	161/12	18	18.750	30,728	74,005	19	164,732	20	41,834
Hwy 13 & 40 Jct.	69/12	1.5	1.255	2,561	6,167	2	13,730	1	2,249
Jamesport	69/12	7.5	2.528	12,803	30,836	8	68,637	1	1,825
KC South	161/12	15	12.224	25,607	61,671	16	137,278	10	21,337
KC South	161/12	18	4.633	30,728	74,005	19	164,732	1	2,554
KCI	161/12	15	4.766	25,607	61,671	16	137,278	2	3,244
KCI	161/12	15	7.434	25,607	61,671	16	137,278	4	7,891
Kelsey Hayes	69/4	7.5	3.961	12,803	30,836	8	68,637	2	4,481
Kelsey Hayes	69/4	3.5	2.798	5,975	14,390	4	32,031	2	4,791
Kelsey Hayes	69/4	3.5	3.342	5,975	14,390	4	32,031	3	6,835
Kelsey Hayes	69/4	3.5	1.777	5,975	14,390	4	32,031	1	1,932
Kelsey Hayes	69/4	3.5	1.777	5,975	14,390	4	32,031	1	1,932
Kingsville	69/12	3.75	5.328	6,402	15,418	4	34,321	8	16,215
Knob Noster	69/12	7.5	8.496	12,803	30,836	8	68,637	10	20,614
Lake Winnebago	161/12	15	7.228	25,607	61,671	16	137,278	4	7,460
Lake Winnebago	161/12	15	16.299	25,607	61,671	16	137,278	18	37,934
Lakewood	161/12	15	17.298	25,607	61,671	16	137,278	21	42,727
Lakewood	161/12	15	14.846	25,607	61,671	16	137,278	15	31,472
Lamar	69/34	3	3.729	5,121	12,334	3	27,454	5	9,928
Lamonte	69/12	5	1.656	8,536	20,557	5	45,761	1	1,175
Laredo	69/12	7.5	1.835	12,803	30,836	8	68,637	1	962
Lees Summit East	161/12	18	24.556	30,728	74,005	19	164,732	35	71,754
Lees Summit East	161/12	18	20.716	30,728	74,005	19	164,732	25	51,067
Lees Summit East	161/12	18	7.930	30,728	74,005	19	164,732	4	7,483
Lexington	69/12	12	17.723	20,485	49,337	12	109,819	27	56,065
Lexington	69/13	12	9.000	20,485	49,337	12	109,819	7	14,458

MPS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Liberty Moss St	69/12	12	10.073	20,485	49,337	12	109,819	9	18,111
Liberty Moss St	69/12	12	11.698	20,485	49,337	12	109,819	12	24,426
Liberty Moss St	69/12	12	11.094	20,485	49,337	12	109,819	11	21,969
Liberty South	161/12	15	10.740	25,607	61,671	16	137,278	8	16,471
Liberty South	161/12	18	5.757	30,728	74,005	19	164,732	2	3,944
Liberty West	161/12	15	18.760	25,607	61,671	16	137,278	24	50,255
Liberty West	161/12	18	21.964	30,728	74,005	19	164,732	28	57,406
Liberty West	161/12	18	3.035	30,728	74,005	19	164,732	1	1,096
Longview	161/12	15	13.596	25,607	61,671	16	137,278	13	26,396
Longview	161/12	15	17.357	25,607	61,671	16	137,278	21	43,019
Metz	69/34	10	1.148	17,071	41,114	10	91,517	-	283
Nevada 3M	69/12	12	13.106	20,485	49,337	12	109,819	15	30,660
Nevada 3M	69/12	12	13.515	20,485	49,337	12	109,819	16	32,603
Nevada Plant	69/12	12	0.004	20,485	49,337	12	109,819	-	-
Nevada Plant	69/12	15	14.115	25,607	61,671	16	137,278	14	28,450
Oak Grove	161/12	15	14.316	25,607	61,671	16	137,278	14	29,266
Oak Grove	161/12	15	3.387	25,607	61,671	16	137,278	1	1,638
Orrick	161/12	7.5	3.824	12,803	30,836	8	68,637	2	4,176
Osceola 161	161/34	18	5.649	30,728	74,005	19	164,732	2	3,797
Peculiar	161/12	18	9.523	30,728	74,005	19	164,732	5	10,791
Platte City	161/25	18	27.066	30,728	74,005	19	164,732	42	87,172
Platte City	161/25	18	13.000	30,728	74,005	19	164,732	10	20,110
Pope Lane	161/13.8	12	9.327	20,485	49,337	12	109,819	7	15,527
Pope Lane	161/25	30	1.586	51,213	123,342	31	274,551	-	179
Post Oak 69/34kV	69/34	10	4.899	17,071	41,114	10	91,517	2	5,141
Prairie Lee	161/12	15	6.890	25,607	61,671	16	137,278	3	6,779

MPS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Prairie Lee	161/12	15	15.841	25,607	61,671	16	137,278	18	35,832
Ralph Green	69/12	10	12.928	17,071	41,114	10	91,517	18	35,799
Ralph Green	69/12	15	7.935	25,607	61,671	16	137,278	4	8,991
Ralph Green	69/34	12	4.107	20,485	49,337	12	109,819	1	3,011
Raymore	69/12	15	13.638	25,607	61,671	16	137,278	13	26,559
Raymore	69/12	15	18.143	25,607	61,671	16	137,278	23	47,004
Raymore North	161/12	18	6.141	30,728	74,005	19	164,732	2	4,488
Raytown No. 1	161/12	21	18.108	35,849	86,339	22	192,185	16	33,444
Raytown No. 1	161/12	21	18.769	35,849	86,339	22	192,185	18	35,931
Rich Hill	69/12	3.75	2.481	6,402	15,418	4	34,321	2	3,516
Richard Gebaur	69/4	3.75	3.858	6,402	15,418	4	34,321	4	8,502
Richard Gebaur	69/4	3.75	3.000	6,402	15,418	4	34,321	2	5,141
Richmond	161/12	15	9.327	25,607	61,671	16	137,278	6	12,422
Richmond	161/12	15	12.046	25,607	61,671	16	137,278	10	20,721
Sedalia East	161/12	15	11.329	25,607	61,671	16	137,278	9	18,327
Sedalia East	161/12	15	10.727	25,607	61,671	16	137,278	8	16,431
Sedalia Pittsburg-Cor	69/12	5.6	4.248	9,560	23,024	6	51,251	4	6,902
Sedalia Plant, 9th & I	69/12	12	14.930	20,485	49,337	12	109,819	20	39,787
Sedalia West	161/12	15	16.078	25,607	61,671	16	137,278	18	36,913
Sedalia West	161/12	15	15.449	25,607	61,671	16	137,278	16	34,081
Sedalia West	161/12	18	21.693	30,728	74,005	19	164,732	27	55,998
Service Pipe Line	69/2.4	3.75	2.340	6,402	15,418	4	34,321	1	3,128
Service Pipe Line	69/2.4	1.5	0.180	2,561	6,167	2	13,730	-	46
Sheldon	69/12	1.5	1.692	2,561	6,167	2	13,730	2	4,088
Sibley	69/12	12	8.212	20,485	49,337	12	109,819	6	12,037
Smithville	161/13.8	12	11.061	20,485	49,337	12	109,819	10	21,838

MPS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Staley Road	69/12	15	16.111	25,607	61,671	16	137,278	18	37,065
Staley Road	69/12	15	14.059	25,607	61,671	16	137,278	13	28,224
Strother Road	161/12	15	18.475	25,607	61,671	16	137,278	24	48,739
Strother Road	161/12	18	13.000	30,728	74,005	19	164,732	10	20,110
Trenton	69/12	3.75	2.082	6,402	15,418	4	34,321	1	2,476
Trenton	69/34	7.5	0.813	12,803	30,836	8	68,637	-	189
Trenton	69/4	3.75	1.225	6,402	15,418	4	34,321	1	857
Turner Road	161/12	18	7.937	30,728	74,005	19	164,732	4	7,496
Turner Road	161/12	18	9.884	30,728	74,005	19	164,732	5	11,625
TWA	161/12	15	3.336	25,607	61,671	16	137,278	1	1,589
TWA	161/12	15	2.814	25,607	61,671	16	137,278	1	1,131
Urich	69/12	3.75	2.700	6,402	15,418	4	34,321	2	4,164
Warrensburg East	161/12	18	22.361	30,728	74,005	19	164,732	29	59,500
Warrensburg East	69/12	12	14.135	20,485	49,337	12	109,819	17	35,663
Warrensburg Plant	69/12	12	13.255	20,485	49,337	12	109,819	15	31,360
Warrensburg Plant	69/12	12	13.016	20,485	49,337	12	109,819	15	30,240
Warrensburg Plant	69/4	3.75	1.595	6,402	15,418	4	34,321	1	1,453
Warsaw	69/12	7.5	3.370	12,803	30,836	8	68,637	2	3,243
Warsaw	69/12	7.5	5.766	12,803	30,836	8	68,637	5	9,495
Western Electric	161/12	18	27.057	30,728	74,005	19	164,732	42	87,114
Western Electric	161/12	18	26.606	30,728	74,005	19	164,732	41	84,234
Western Electric	161/12	18	18.759	30,728	74,005	19	164,732	20	41,875
Western Electric	161/12	25	19.340	42,678	102,785	26	228,795	16	32,046
Whiteman AFB East	161/12	25	12.982	42,678	102,785	26	228,795	7	14,439
Whiteman AFB West	161/12	15	3.372	25,607	61,671	16	137,278	1	1,623
Windsor	161/12	18	6.028	30,728	74,005	19	164,732	2	4,324

MPS SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Total		1,994				2,123	18,546,093	1,470	3,022,088
Coincident Demad						2,123		1,470	

D.6 GMO-SJLP Substation Transformers

SJLP SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Alabama Street	161/12	18	11.906	30,728	74,005	45	396,736	8	20,174
Alabama Street	161/12	18	12.613	30,728	74,005	45	396,736	9	22,641
Brown's Curve	69/12	1.5	0.785	2,561	6,167	4	33,061	1	1,052
Brown's Curve	69/34	7.5	6.371	12,803	30,836	19	165,310	5	13,864
Burlington Junction	69/12	2.5	2.798	4,268	10,279	6	55,105	3	8,022
Cook Road	161/12	18	20.411	30,728	74,005	45	396,736	24	59,289
Cook Road	161/12	18	21.438	30,728	74,005	45	396,736	27	65,406
East Side	161/12	15	18.357	25,607	61,671	38	330,614	23	57,548
East Side	161/12	15	18.832	25,607	61,671	38	330,614	24	60,565
East Side	161/34	36	25.209	61,456	148,010	90	793,472	18	45,220
East Side	161/34	36	49.094	61,456	148,010	90	793,472	70	171,504
Edmond Street	161/12	18	9.369	30,728	74,005	45	396,736	5	12,492
Edmond Street	161/12	40	7.116	68,284	164,456	100	881,639	1	3,243
Edmond Street	161/34	18	2.971	30,728	74,005	45	396,736	1	1,256
Edmond Street	161/69	30	13.796	51,213	123,342	75	661,229	7	16,252
Fairfax	69/12	2.5	2.512	4,268	10,279	6	55,105	2	6,466
Fillmore Street	69/12	5	6.788	8,536	20,557	13	110,205	10	23,607
Fillmore Street	69/12	7.5	0.624	12,803	30,836	19	165,310	-	133
Fillmore Street	69/12	7.5	5.935	12,803	30,836	19	165,310	5	12,031
Fillmore Street	69/12	7.5	0.707	12,803	30,836	19	165,310	-	171
Industrial Park	161/34	20	20.694	34,142	82,228	50	440,819	23	54,850
Industrial Park	161/34	20	27.863	34,142	82,228	50	440,819	40	99,437
Kellog	69/12	7.5	3.237	12,803	30,836	19	165,310	1	3,579
Kellog	69/34	7.5	3.645	12,803	30,836	19	165,310	2	4,538
Lake Road	161/34	40	46.520	68,284	164,456	100	881,639	56	138,593
Lake Road	161/34	40	44.584	68,284	164,456	100	881,639	52	127,297
Maryville	161/12	18	8.069	30,728	74,005	45	396,736	4	9,266

SJLP SUBSTATION TRANSFORMERS

				Transformer		No-load		Load	
Substation	Voltage	OA Rating	Peak Load	Rated No-load Loss	Rated Load Loss	Peak Loss	Energy Loss	Non-coincident Peak Loss	Energy Loss
	kV	MVA	MVA	Watt	Watt	kW	kWh	kW	kWh
Maryville	161/69/13	30	19.000	51,213	123,342	75	661,229	13	30,825
Maryville	161/69/13	30	19.000	51,213	123,342	75	661,229	13	30,825
Maryville	69/12	8.4	5.067	14,340	34,536	21	185,145	3	7,830
Maryville	69/13	7.5	5.000	12,803	30,836	19	165,310	4	8,539
Maryville	69/34	7.5	4.766	12,803	30,836	19	165,310	3	7,758
Maryville	69/34	7.5	2.018	12,803	30,836	19	165,310	1	1,391
Mound City	69/12	3.75	2.829	6,402	15,418	9	82,655	2	5,467
Mound City	69/12	3.75	1.953	6,402	15,418	9	82,655	1	2,605
Nodaway	69/12	7.5	3.912	12,803	30,836	19	165,310	2	5,227
Nodaway	69/12	7.5	8.412	12,803	30,836	19	165,310	10	24,169
North Ward (Craig)	69/12	1.5	0.833	2,561	6,167	4	33,061	1	1,185
Pickering	69/12	1.5	1.924	2,561	6,167	4	33,061	2	6,322
Savannah	69/12	7.5	7.381	12,803	30,836	19	165,310	7	18,608
Savannah	69/12	7.5	3.354	12,803	30,836	19	165,310	2	3,842
Savannah	69/12	7.5	4.515	12,803	30,836	19	165,310	3	6,962
Tarkio	69/12	3.75	1.873	6,402	15,418	9	82,655	1	2,397
Tarkio	69/12	5	4.102	8,536	20,557	13	110,205	4	8,621
Woodbine	161/12	18	21.188	30,728	74,005	45	396,736	26	63,889
Woodbine		3.75	2.000	6,402	15,418	9	82,655	1	2,732
		644				1,615	14,192,207	520	1,277,690
Coincident Demand						1,615		498	

Appendix

E

Distribution Circuits Losses

E.1 KCP&L-KS Distribution Circuits Losses

KCP&L-Kansas Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
1421	KCPL-KS	South District	Drexel Corners	Distribution Feeder	12.47	396	18	35,974
47812	KCPL-KS	South District	Michigan Valley	Distribution Feeder	12.47	443	18	36,479
7621	KCPL-KS	South District	Rock Creek	Distribution Feeder	12.47	456	18	36,631
7622	KCPL-KS	South District	Rock Creek	Distribution Feeder	12.47	456	18	36,631
4013	KCPL-KS	South District	Richland	Distribution Feeder	12.47	509	18	37,211
1411	KCPL-KS	South District	Drexel Corners	Distribution Feeder	12.47	519	18	37,326
1412	KCPL-KS	South District	Drexel Corners	Distribution Feeder	12.47	519	18	37,326
1413	KCPL-KS	South District	Drexel Corners	Distribution Feeder	12.47	519	18	37,326
5131	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	10412	356	726,097
11532	KCPL-KS	Southland	Redel	Distribution Feeder	12.47	10397	355	722,726
4751	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	10370	352	716,921
9161	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	10352	350	713,110
1963	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	10142	329	669,628
2941	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	10140	328	669,212
4713	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	10112	326	663,631
2932	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	10016	316	644,750
6811	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	10005	315	642,563
6813	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	9905	306	623,517
5132	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	622	19	38,502
476T18 -	KCPL-KS	South District	Prescott	Distribution Feeder	12.47	629	19	38,574
1964	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	9733	291	592,230
1942	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	9721	290	590,022
9031	KCPL-KS	JOCO	College	Distribution Feeder	12.47	9630	282	574,134
5142	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	9612	280	571,115
1954	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	9492	270	550,929
12113	KCPL-KS	South District	North Louisburg	Distribution Feeder	12.47	9481	269	549,080
5052	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	9354	259	528,499
8011	KCPL-KS	South District	Greeley	Distribution Feeder	12.47	701	19	39,421
8012	KCPL-KS	South District	Greeley	Distribution Feeder	12.47	701	19	39,421
8013	KCPL-KS	South District	Greeley	Distribution Feeder	12.47	701	19	39,421
8015	KCPL-KS	South District	Greeley	Distribution Feeder	12.47	701	19	39,421
47711	KCPL-KS	South District	Ransomville	Distribution Feeder	12.47	707	19	39,494
47712	KCPL-KS	South District	Ransomville	Distribution Feeder	12.47	707	19	39,494
6941	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	9290	254	518,592
5072	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	9271	253	515,545
8212	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	9243	251	511,245
4752	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	9217	249	507,296
9042	KCPL-KS	JOCO	College	Distribution Feeder	12.47	9213	249	506,667
3834	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	9185	247	502,506
11522	KCPL-KS	Southland	Redel	Distribution Feeder	12.47	9132	243	494,555
9122	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	740	20	39,888
4123	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	8997	233	474,861
6512	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	8963	231	470,025
4154	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	8952	230	468,569
5081	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	8918	228	463,797
8223	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	8889	226	459,786
1233	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	8759	217	442,162
3822	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	8718	214	436,709
9142	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	8682	212	432,128
2213	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	8678	212	431,582
2942	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	8671	211	430,656
2014	KCPL-KS	JOCO	Reeder	Distribution Feeder	12.47	8626	208	424,818
1933	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	8589	206	420,230
7323	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	8581	206	419,215
9012	KCPL-KS	JOCO	College	Distribution Feeder	12.47	8557	204	416,209
495T12B	KCPL-KS	South District	Beagle	Distribution Feeder	12.47	848	20	41,199
2021	KCPL-KS	JOCO	Reeder	Distribution Feeder	12.47	8542	203	414,277
1952	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	8532	203	413,106
4011	KCPL-KS	South District	Richland	Distribution Feeder	12.47	852	20	41,247
4012	KCPL-KS	South District	Richland	Distribution Feeder	12.47	852	20	41,247
5112	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	8428	196	400,379
495T12A	KCPL-KS	South District	Beagle	Distribution Feeder	12.47	883	20	41,630
1962	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	8346	192	390,687
2961	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	8338	191	389,719
6541	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	8308	190	386,228

KCP&L-Kansas Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
3821	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	8272	187	382,035
1242	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	915	21	42,035
4142	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	8176	182	371,194
3824	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	8135	180	366,730
4171	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	8104	178	363,333
6511	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	8085	177	361,198
2242	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	8080	177	360,638
9141	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	8074	177	360,079
2023	KCPL-KS	JOCO	Reeder	Distribution Feeder	12.47	8066	176	359,187
1914	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	8051	175	357,519
4121	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	8005	173	352,673
2962	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	975	21	42,795
9112	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	976	21	42,807
1913	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	7980	172	350,057
4113	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	7959	171	347,784
2963	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	7942	170	346,062
9114	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	7936	169	345,419
4712	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	7884	167	340,091
106T03B	KCPL-KS	South District	Edgerton	Distribution Feeder	12.47	1007	21	43,212
1321	KCPL-KS	JOCO	Shawnee	Distribution Feeder	12.47	7851	165	336,743
4143	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	7836	164	335,230
2232	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	7813	163	332,901
6854	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	7782	162	329,817
8231	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	7781	162	329,715
2221	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	7759	161	327,574
482T37B	KCPL-KS	South District	Chiles	Distribution Feeder	12.47	1034	21	43,562
482T37B	KCPL-KS	South District	Chiles	Distribution Feeder	12.47	1034	21	43,562
482T37B	KCPL-KS	South District	Chiles	Distribution Feeder	12.47	1034	21	43,562
46T10A -	KCPL-KS	South District	South Ottawa	Distribution Feeder	12.47	1034	21	43,562
46T10B -	KCPL-KS	South District	South Ottawa	Distribution Feeder	12.47	1034	21	43,562
8213	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	7721	159	323,836
2964	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	7715	159	323,233
2233	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	7636	155	315,702
7321	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	7592	153	311,519
1281	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	1076	22	44,119
5013	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	7556	151	308,251
5141	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	7482	148	301,443
9343	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	7479	148	301,132
5041	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	7448	146	298,373
4114	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	7448	146	298,373
5082	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	7448	146	298,371
480T36A	KCPL-KS	South District	Wellsville	Distribution Feeder	12.47	1117	22	44,656
480T36A	KCPL-KS	South District	Wellsville	Distribution Feeder	12.47	1117	22	44,656
480T36A	KCPL-KS	South District	Wellsville	Distribution Feeder	12.47	1117	22	44,656
2241	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	7419	145	295,792
9041	KCPL-KS	JOCO	College	Distribution Feeder	12.47	7383	144	292,598
9033	KCPL-KS	JOCO	College	Distribution Feeder	12.47	7379	143	292,236
1943	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	7367	143	291,240
9043	KCPL-KS	JOCO	College	Distribution Feeder	12.47	7275	139	283,310
12534	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	1169	22	45,357
3814	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	7231	137	279,556
1931	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	7229	137	279,382
1322	KCPL-KS	JOCO	Shawnee	Distribution Feeder	12.47	7220	137	278,690
11722	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	7195	136	276,603
8242	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	7192	136	276,366
1331	KCPL-KS	JOCO	Shawnee	Distribution Feeder	12.47	7167	135	274,231
49711	KCPL-KS	South District	Six Mile	Distribution Feeder	12.47	1197	22	45,750
49712	KCPL-KS	South District	Six Mile	Distribution Feeder	12.47	1197	22	45,750
5143	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	7113	132	269,817
9324	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	7106	132	269,257
3823	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	7085	131	267,592
1911	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	7085	131	267,592
9362	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	7052	130	264,949

KCP&L-Kansas Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
1932	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	7036	129	263,719
10521	KCPL-KS	South District	Sand Creek	Distribution Feeder	12.47	1238	23	46,307
10522	KCPL-KS	South District	Sand Creek	Distribution Feeder	12.47	1238	23	46,307
5031	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	6990	128	260,063
13213	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	6922	125	254,862
5063	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	6922	125	254,793
8221	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	6806	121	246,093
10711	KCPL-KS	South District	Holly Street	Distribution Feeder	12.47	1309	23	47,309
10712	KCPL-KS	South District	Holly Street	Distribution Feeder	12.47	1309	23	47,309
2212	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	6790	120	244,951
1271	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	6783	120	244,419
9151	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	6735	118	240,957
12834	KCPL-KS	JOCO	Quarry	Distribution Feeder	12.47	6735	118	240,957
4112	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	6728	118	240,434
9342	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	6706	117	238,873
9143	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	6690	117	237,690
3832	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	6671	116	236,367
12112	KCPL-KS	South District	North Louisburg	Distribution Feeder	12.47	6657	115	235,361
6824	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	6582	113	230,144
1241	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	6575	113	229,645
9022	KCPL-KS	JOCO	College	Distribution Feeder	12.47	6555	112	228,225
3831	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	6540	112	227,236
1282	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	6513	111	225,411
6843	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	6496	110	224,225
9153	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	6480	110	223,184
1243	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	6475	109	222,838
6821	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	6475	109	222,838
4711	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	6473	109	222,700
12831	KCPL-KS	JOCO	Quarry	Distribution Feeder	12.47	6473	109	222,700
11521	KCPL-KS	Southland	Redel	Distribution Feeder	12.47	6472	109	222,631
9711	KCPL-KS	South District	Welda	Distribution Feeder	12.47	1425	24	48,981
1283	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	6459	109	221,804
7313	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	6440	108	220,500
5022	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	6437	108	220,295
10511	KCPL-KS	South District	Sand Creek	Distribution Feeder	12.47	1447	24	49,301
10512	KCPL-KS	South District	Sand Creek	Distribution Feeder	12.47	1447	24	49,301
3311	KCPL-KS	South District	Center Street	Distribution Feeder	12.47	1448	24	49,317
3312	KCPL-KS	South District	Center Street	Distribution Feeder	12.47	1448	24	49,317
6912	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	6370	106	215,965
2211	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	6352	105	214,762
1224	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	6336	105	213,766
6853	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	6298	104	211,326
1921	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	6257	102	208,720
49721	KCPL-KS	South District	Six Mile	Distribution Feeder	12.47	1508	25	50,212
49722	KCPL-KS	South District	Six Mile	Distribution Feeder	12.47	1508	25	50,212
9113	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	6211	101	205,891
1273	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	6152	99	202,282
6831	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	6147	99	201,969
3813	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	6126	98	200,720
3811	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	6096	98	198,922
9021	KCPL-KS	JOCO	College	Distribution Feeder	12.47	6089	97	198,491
4731	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	6043	96	195,739
4733	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	6043	96	195,739
2222	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	6021	95	194,468
4141	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	6016	95	194,167
47813	KCPL-KS	South District	Michigan Valley	Distribution Feeder	12.47	1606	25	51,714
47814	KCPL-KS	South District	Michigan Valley	Distribution Feeder	12.47	1606	25	51,714
2913	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	5996	95	193,026
6942	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	5985	94	192,368
2022	KCPL-KS	JOCO	Reeder	Distribution Feeder	12.47	5970	94	191,532
5042	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5961	94	191,001
9032	KCPL-KS	JOCO	College	Distribution Feeder	12.47	5952	93	190,468
1941	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5952	93	190,468
9123	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	5944	93	190,055
9363	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	5882	92	186,551

KCP&L-Kansas Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
1232	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	1684	26	52,947
6844	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	5783	89	181,077
12531	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	1708	26	53,326
8241	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	5752	88	179,400
9322	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	5727	87	178,069
1621	KCPL-KS	Southland	Stilwell	Distribution Feeder	12.47	5714	87	177,376
4172	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5705	87	176,858
8222	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	5680	86	175,583
1261	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5676	86	175,329
1213	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5675	86	175,274
12521	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	5673	86	175,166
5111	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	1767	27	54,277
1254	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	1768	27	54,294
5051	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5616	85	172,203
5071	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5593	84	171,031
6852	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	5583	84	170,502
5073	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5582	84	170,449
8211	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	5560	83	169,342
4131	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5559	83	169,289
4152	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5505	82	166,581
5011	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	1825	27	55,236
6943	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	1844	27	55,548
485T15 -	KCPL-KS	South District	South Wellsville	Distribution Feeder	12.47	1847	27	55,590
5021	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5437	80	163,205
1934	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5437	80	163,205
47311	KCPL-KS	South District	Pressonville	Distribution Feeder	12.47	1861	27	55,832
47312	KCPL-KS	South District	Pressonville	Distribution Feeder	12.47	1861	27	55,832
47313	KCPL-KS	South District	Pressonville	Distribution Feeder	12.47	1861	27	55,832
4122	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5390	79	160,943
5044	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5334	78	158,269
9132	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	5303	77	156,803
4153	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5298	77	156,570
4732	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	5253	76	154,438
1263	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5237	75	153,721
124T1 - 1	KCPL-KS	South District	Lane	Distribution Feeder	12.47	1963	28	57,555
124T1 - 1	KCPL-KS	South District	Lane	Distribution Feeder	12.47	1963	28	57,555
5064	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	1974	28	57,752
9023	KCPL-KS	JOCO	College	Distribution Feeder	12.47	5196	75	151,825
1223	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5175	74	150,886
9131	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	5173	74	150,793
12833	KCPL-KS	JOCO	Quarry	Distribution Feeder	12.47	5172	74	150,746
12533	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	5171	74	150,699
1333	KCPL-KS	JOCO	Shawnee	Distribution Feeder	12.47	5160	74	150,186
6833	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	2013	29	58,427
106T03B	KCPL-KS	South District	Edgerton	Distribution Feeder	12.47	2016	29	58,491
1961	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5108	73	147,892
6513	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	5084	72	146,816
6514	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	5084	72	146,816
6543	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	5084	72	146,816
6544	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	5084	72	146,816
16113	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	5084	72	146,816
16114	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	5084	72	146,816
16121	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	5084	72	146,816
16122	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	5084	72	146,816
16123	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	5084	72	146,816
16124	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	5084	72	146,816
1221	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5084	72	146,816
1251	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5084	72	146,816
1274	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5084	72	146,816
1284	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5084	72	146,816
11721	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	5084	72	146,816
11723	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	5084	72	146,816
11724	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	5084	72	146,816
11732	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	5084	72	146,816
11734	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	5084	72	146,816

KCP&L-Kansas Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
12301	KCPL-KS	South District	Bush City	Distribution Feeder	12.47	5084	72	146,816
5134	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	5084	72	146,816
5144	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	5084	72	146,816
13212	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	5084	72	146,816
13214	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	5084	72	146,816
13231	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	5084	72	146,816
13233	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	5084	72	146,816
13234	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	5084	72	146,816
7311	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	5084	72	146,816
7312	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	5084	72	146,816
7322	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	5084	72	146,816
9013	KCPL-KS	JOCO	College	Distribution Feeder	12.47	5084	72	146,816
9014	KCPL-KS	JOCO	College	Distribution Feeder	12.47	5084	72	146,816
9024	KCPL-KS	JOCO	College	Distribution Feeder	12.47	5084	72	146,816
9034	KCPL-KS	JOCO	College	Distribution Feeder	12.47	5084	72	146,816
9044	KCPL-KS	JOCO	College	Distribution Feeder	12.47	5084	72	146,816
7211	KCPL-KS	JOCO	Craig	Distribution Feeder	12.47	5084	72	146,816
5012	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5084	72	146,816
5015	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5084	72	146,816
5032	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5084	72	146,816
5043	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5084	72	146,816
5061	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	5084	72	146,816
9911	KCPL-KS	South District	Lacygne	Distribution Feeder	12.47	5084	72	146,816
9913	KCPL-KS	South District	Lacygne	Distribution Feeder	12.47	5084	72	146,816
2912	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	5084	72	146,816
2914	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	5084	72	146,816
2943	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	5084	72	146,816
2944	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	5084	72	146,816
9121	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	5084	72	146,816
9144	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	5084	72	146,816
6913	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	5084	72	146,816
6944	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	5084	72	146,816
8224	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	5084	72	146,816
8232	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	5084	72	146,816
8233	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	5084	72	146,816
8234	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	5084	72	146,816
12114	KCPL-KS	South District	North Louisburg	Distribution Feeder	12.47	5084	72	146,816
4133	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5084	72	146,816
4134	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5084	72	146,816
4144	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5084	72	146,816
4151	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5084	72	146,816
4173	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	5084	72	146,816
4714	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	5084	72	146,816
4734	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	5084	72	146,816
4754	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	5084	72	146,816
3812	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	5084	72	146,816
3841	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	5084	72	146,816
3842	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	5084	72	146,816
3843	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	5084	72	146,816
3844	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	5084	72	146,816
47111	KCPL-KS	South District	Parker	Distribution Feeder	12.47	5084	72	146,816
47112	KCPL-KS	South District	Parker	Distribution Feeder	12.47	5084	72	146,816
47113	KCPL-KS	South District	Parker	Distribution Feeder	12.47	5084	72	146,816
12524	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	5084	72	146,816
12532	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	5084	72	146,816
476T18 -	KCPL-KS	South District	Prescott	Distribution Feeder	12.47	5084	72	146,816
12832	KCPL-KS	JOCO	Quarry	Distribution Feeder	12.47	5084	72	146,816
11533	KCPL-KS	Southland	Redel	Distribution Feeder	12.47	5084	72	146,816
2011	KCPL-KS	JOCO	Reeder	Distribution Feeder	12.47	5084	72	146,816
1912	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5084	72	146,816
1922	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5084	72	146,816
1923	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5084	72	146,816
1951	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5084	72	146,816
9124	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	5084	72	146,816
7623	KCPL-KS	South District	Rock Creek	Distribution Feeder	12.47	5084	72	146,816

KCP&L-Kansas Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
6814	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	5084	72	146,816
6822	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	5084	72	146,816
6834	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	5084	72	146,816
6842	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	5084	72	146,816
6851	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	5084	72	146,816
1323	KCPL-KS	JOCO	Shawnee	Distribution Feeder	12.47	5084	72	146,816
1334	KCPL-KS	JOCO	Shawnee	Distribution Feeder	12.47	5084	72	146,816
9321	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	5084	72	146,816
9361	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	5084	72	146,816
KPL23201	KCPL-KS	South District	Spring Hill	Distribution Feeder	12.47	5084	72	146,816
2224	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	5084	72	146,816
2231	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	5084	72	146,816
2234	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	5084	72	146,816
2244	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	5084	72	146,816
16111	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	5084	72	146,816
1234	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	5076	72	146,459
6832	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	2045	29	59,001
9125	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	5067	72	146,051
9133	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	5059	72	145,734
2921	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	5045	71	145,103
16112	KCPL-KS	JOCO	BNSF	Distribution Feeder	12.47	2068	29	59,405
5053	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	2075	29	59,534
4132	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	2077	29	59,559
9341	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	5007	70	143,447
2013	KCPL-KS	JOCO	Reeder	Distribution Feeder	12.47	4984	70	142,471
9011	KCPL-KS	JOCO	College	Distribution Feeder	12.47	4958	69	141,371
6914	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	2145	30	60,800
1262	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	4837	67	136,332
1272	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	4814	66	135,405
1252	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	4761	65	133,238
1211	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	4749	65	132,784
3833	KCPL-KS	Southland	Oxford	Distribution Feeder	12.47	4746	65	132,661
1622	KCPL-KS	Southland	Stilwell	Distribution Feeder	12.47	4652	63	128,968
8243	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	4630	63	128,131
2922	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	4622	63	127,813
6812	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	4614	63	127,496
13232	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	4589	62	126,554
5133	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	2345	32	64,555
4753	KCPL-KS	JOCO	Overland Park	Distribution Feeder	12.47	2373	32	65,098
5034	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	4506	61	123,449
6911	KCPL-KS	JOCO	Moonlight	Distribution Feeder	12.47	4462	60	121,822
1222	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	4453	60	121,511
7314	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	4443	59	121,136
9152	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	2435	33	66,322
2923	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	4420	59	120,311
2911	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	2462	33	66,858
47221	KCPL-KS	South District	Baldwin	Distribution Feeder	12.47	2495	33	67,522
5024	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	4322	57	116,817
12522	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	4267	56	114,913
106T03A	KCPL-KS	South District	Edgerton	Distribution Feeder	12.47	2557	34	68,793
106T03A	KCPL-KS	South District	Edgerton	Distribution Feeder	12.47	2557	34	68,793
6823	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	4245	56	114,131
5114	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	4184	55	112,061
2243	KCPL-KS	Southland	Switzer	Distribution Feeder	12.47	4169	55	111,576
1953	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	2643	35	70,591
9323	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	2660	35	70,960
480T36B	KCPL-KS	South District	Wellsville	Distribution Feeder	12.47	2680	35	71,380
9111	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	4075	53	108,470
9134	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	2694	35	71,668
2924	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	2717	35	72,181
9154	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	4034	53	107,133
47811	KCPL-KS	South District	Michigan Valley	Distribution Feeder	12.47	2769	36	73,310
12302	KCPL-KS	South District	Bush City	Distribution Feeder	12.47	2792	36	73,812
5113	KCPL-KS	JOCO	Cedar Creek	Distribution Feeder	12.47	2792	36	73,812
9163	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	2798	36	73,949

KCP&L-Kansas Distribution Feeder Losses								
KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
5033	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	2832	37	74,710
4111	KCPL-KS	Southland	Olathe	Distribution Feeder	12.47	3871	50	102,040
8244	KCPL-KS	Southland	Mur-Len	Distribution Feeder	12.47	3863	50	101,787
474T1 - 4	KCPL-KS	South District	Linn Valley	Distribution Feeder	12.47	2884	37	75,878
474T2 - 4	KCPL-KS	South District	Linn Valley	Distribution Feeder	12.47	2884	37	75,878
1332	KCPL-KS	JOCO	Shawnee	Distribution Feeder	12.47	3822	49	100,532
1944	KCPL-KS	Southland	Riley	Distribution Feeder	12.47	3800	49	99,866
9162	KCPL-KS	JOCO	Merriam	Distribution Feeder	12.47	2955	38	77,519
2933	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	2978	38	78,054
6542	KCPL-KS	Southland	Antioch	Distribution Feeder	12.47	3658	47	95,726
47211	KCPL-KS	South District	Baldwin	Distribution Feeder	12.47	3049	39	79,741
13211	KCPL-KS	South District	Cedar Niles	Distribution Feeder	12.47	3053	39	79,837
1253	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	3607	46	94,250
1212	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	3591	46	93,813
1231	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	3591	46	93,813
5062	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	3586	46	93,667
6841	KCPL-KS	JOCO	Roeland Park	Distribution Feeder	12.47	3586	46	93,667
482T37A	KCPL-KS	South District	Chiles	Distribution Feeder	12.47	3102	40	81,010
479T35 -	KCPL-KS	South District	Mound City	Distribution Feeder	12.47	3102	40	81,010
7611	KCPL-KS	South District	Rock Creek	Distribution Feeder	12.47	3114	40	81,292
7324	KCPL-KS	South District	Centennial	Distribution Feeder	12.47	3558	46	92,878
5054	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	3534	45	92,225
12523	KCPL-KS	JOCO	Pflumm	Distribution Feeder	12.47	3159	40	82,404
11731	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	3505	45	91,421
12111	KCPL-KS	South District	North Louisburg	Distribution Feeder	12.47	3170	41	82,681
11733	KCPL-KS	South District	Bucyrus	Distribution Feeder	12.47	3182	41	82,969
11531	KCPL-KS	Southland	Redel	Distribution Feeder	12.47	3428	44	89,326
9364	KCPL-KS	JOCO	Shawnee Mission	Distribution Feeder	12.47	3245	41	84,554
1214	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	3252	42	84,737
5083	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	3389	43	88,298
1244	KCPL-KS	JOCO	Brookridge	Distribution Feeder	12.47	3291	42	85,742
11523	KCPL-KS	Southland	Redel	Distribution Feeder	12.47	3363	43	87,606
2012	KCPL-KS	JOCO	Reeder	Distribution Feeder	12.47	3313	42	86,302
2931	KCPL-KS	JOCO	Lenexa	Distribution Feeder	12.47	3321	42	86,517
5023	KCPL-KS	JOCO	Kenilworth	Distribution Feeder	12.47	3338	43	86,947
55602	KCPL-KS	South District	Paola	Sub-Transmission	34.50	913	99	201,645
55705	KCPL-KS	South District	Paola	Sub-Transmission	34.50	1648	87	176,431
46101	KCPL-KS	South District	South Ottawa	Sub-Transmission	34.50	24037	227	463,191
55704	KCPL-KS	South District	Paola	Sub-Transmission	34.50	4891	45	91,426
46303	KCPL-KS	South District	South Ottawa	Sub-Transmission	34.50	20008	128	260,858
108102	KCPL-KS	South District	Centerville	Sub-Transmission	34.50	7253	28	56,505
55601	KCPL-KS	South District	Paola	Sub-Transmission	34.50	15881	60	122,166
81707	KCPL-KS	South District	West Gardner	Sub-Transmission	34.50	15724	58	118,250
113151	KCPL-KS	South District	Wagstaff	Sub-Transmission	34.50	7746	26	52,081
108201	KCPL-KS	South District	Centerville	Sub-Transmission	34.50	8502	23	47,228
46404	KCPL-KS	South District	South Ottawa	Sub-Transmission	34.50	9015	22	45,261
55703	KCPL-KS	South District	Paola	Sub-Transmission	34.50	9079	22	45,088
108103	KCPL-KS	South District	Centerville	Sub-Transmission	34.50	9646	22	44,310
137252	KCPL-KS	South District	Pleasant Valley	Sub-Transmission	34.50	11441	25	50,482
						TOTAL NC Loss	**40,122**	**81,764,086**

E.2 KCP&L-MO Distribution Circuits Losses

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
578	KCPL-MO	East Jackson	Sugar Creek	Distribution Feeder	4.16	1950	82	279,586
568	KCPL-MO	East Jackson	Sugar Creek	Distribution Feeder	4.16	1642	39	133,511
579	KCPL-MO	East Jackson	Sugar Creek	Distribution Feeder	4.16	1263	16	53,656
479	KCPL-MO	East Jackson	Sugar Creek	Distribution Feeder	4.16	790	5	17,275
10912	KCPL-MO	East District	Moss Creek	Distribution Feeder	7.20	3	0	529
10913	KCPL-MO	East District	Moss Creek	Distribution Feeder	7.20	250	12	42,686
10011	KCPL-MO	East District	Bowdry	Distribution Feeder	12.47	2	0	354
8442	KCPL-MO	Dodson	Bunker Ridge	Distribution Feeder	12.47	24	1	4,067
12011	KCPL-MO	East District	West Higginsville	Distribution Feeder	12.47	51	3	8,663
3411	KCPL-MO	East District	Corder	Distribution Feeder	12.47	73	4	12,552
10012	KCPL-MO	East District	Bowdry	Distribution Feeder	12.47	103	5	17,679
4222	KCPL-MO	East District	Brunswick	Distribution Feeder	12.47	114	6	19,447
2111	KCPL-MO	East District	Keytesville	Distribution Feeder	12.47	136	7	23,337
8412	KCPL-MO	Dodson	Bunker Ridge	Distribution Feeder	12.47	15416	771	2,635,826
2611	KCPL-MO	East District	Blackburn	Distribution Feeder	12.47	223	11	38,187
2822	KCPL-MO	East District	Sweet Springs	Distribution Feeder	12.47	242	12	41,370
7931	KCPL-MO	East Jackson	Blue Mills	Distribution Feeder	12.47	13482	674	2,305,083
3212	KCPL-MO	East District	Mt. Leonard	Distribution Feeder	12.47	297	15	50,740
2613	KCPL-MO	East District	Blackburn	Distribution Feeder	12.47	299	15	51,093
3213	KCPL-MO	East District	Mt. Leonard	Distribution Feeder	12.47	329	17	59,160
7042	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	12436	654	2,235,803
7051	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	12250	618	2,114,387
9813	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	12244	617	2,110,455
3613	KCPL-MO	East District	Orange Street	Distribution Feeder	12.47	347	17	59,491
7111	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	11620	512	1,750,416
6332	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	11602	509	1,741,210
2612	KCPL-MO	East District	Blackburn	Distribution Feeder	12.47	403	18	60,496
11012	KCPL-MO	East District	Higginsville	Distribution Feeder	12.47	422	18	60,834
3553	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	436	18	61,096
6613	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	10912	414	1,415,579
1161	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	10895	412	1,408,329
1811	KCPL-MO	East District	Leta	Distribution Feeder	12.47	505	18	62,363
12012	KCPL-MO	East District	West Higginsville	Distribution Feeder	12.47	528	18	62,809
2762	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	10398	355	1,213,124
3022	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	10312	346	1,182,256
1813	KCPL-MO	East District	Leta	Distribution Feeder	12.47	579	19	63,771
9842	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	10016	316	1,081,918
2771	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	10013	316	1,080,911
9843	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	10005	315	1,078,232
4824	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	9772	294	1,005,324
3931	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	9625	281	962,212
4943	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	9435	266	908,831
5263	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	9429	265	907,141
7052	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	9414	264	902,930
9841	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	9357	260	887,655
6341	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	9298	255	872,098
4841	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	9191	247	844,517
12013	KCPL-MO	East District	West Higginsville	Distribution Feeder	12.47	726	19	66,643
3413	KCPL-MO	East District	Corder	Distribution Feeder	12.47	756	20	67,245
4842	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	9000	233	797,499
2732	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	8946	230	784,804
4912	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	8903	227	774,646
7851	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	8823	221	756,363
12212	KCPL-MO	East District	Waverly	Distribution Feeder	12.47	798	20	68,106
6331	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	8793	219	749,589
7823	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	8780	218	746,572
4952	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	8749	216	739,657
3211	KCPL-MO	East District	Mt. Leonard	Distribution Feeder	12.47	814	20	68,424
11612	KCPL-MO	East District	Bogard	Distribution Feeder	12.47	827	20	68,700
13611	KCPL-MO	East District	Malta Bend	Distribution Feeder	12.47	8523	202	691,293
4812	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	8477	199	681,733
4311	KCPL-MO	East District	West Marshall	Distribution Feeder	12.47	883	20	69,861
3612	KCPL-MO	East District	Orange Street	Distribution Feeder	12.47	901	21	70,230
7861	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	8280	188	642,693
3941	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	8247	186	636,345

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
6621	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	8220	185	631,164
4823	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	8213	184	629,902
4951	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	8185	183	624,610
4313	KCPL-MO	East District	West Marshall	Distribution Feeder	12.47	932	21	70,887
3012	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	8166	182	620,998
1111	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	8088	177	606,661
1812	KCPL-MO	East District	Leta	Distribution Feeder	12.47	965	21	71,594
1162	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	7997	173	590,324
7863	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	7987	172	588,496
6624	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	7963	171	584,284
1022	KCPL-MO	Northland	Birmingham	Distribution Feeder	12.47	7951	170	582,322
2521	KCPL-MO	East District	Glasgow	Distribution Feeder	12.47	1005	21	72,465
6333	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	7818	164	559,480
4811	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	7815	163	558,986
1144	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	7806	163	557,401
7813	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	7804	163	557,055
6634	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	7738	160	546,209
7143	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	1046	21	73,370
6623	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	7686	157	537,822
3544	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	7599	153	523,941
4962	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	7561	151	517,893
10431	KCPL-MO	East District	Carrollton	Distribution Feeder	12.47	1090	22	74,332
3913	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	7420	145	496,499
1021	KCPL-MO	Northland	Birmingham	Distribution Feeder	12.47	7400	144	493,581
3532	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	7376	143	489,925
4813	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	7351	142	486,382
5642	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	7340	142	484,695
3511	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	1158	22	75,863
4961	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	7173	135	461,021
3552	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	7123	133	454,117
7862	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6992	128	436,662
3542	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	6978	127	434,815
7142	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	6928	125	428,344
2112	KCPL-MO	East District	Keytesville	Distribution Feeder	12.47	1283	23	78,771
7822	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6817	121	414,360
4853	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	6756	119	406,890
7911	KCPL-MO	East Jackson	Blue Mills	Distribution Feeder	12.47	6751	119	406,209
5663	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	6674	116	396,893
7812	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6572	113	384,990
6614	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	6571	113	384,817
3611	KCPL-MO	East District	Orange Street	Distribution Feeder	12.47	1390	24	81,329
6632	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	6564	112	384,078
7831	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6533	111	380,479
12211	KCPL-MO	East District	Waverly	Distribution Feeder	12.47	1416	24	81,962
7811	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6487	110	375,321
7113	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	1446	24	82,703
7832	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6386	106	364,083
4312	KCPL-MO	East District	West Marshall	Distribution Feeder	12.47	1481	24	83,580
7852	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6236	102	348,070
7842	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	1517	25	84,492
5251	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	6198	101	344,098
5912	KCPL-MO	East District	Gilliam	Distribution Feeder	12.47	1526	25	84,728
7824	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	6190	100	343,245
6312	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	6161	100	340,277
3911	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	6157	99	339,960
4854	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	6116	98	335,765
4953	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	6101	98	334,209
5261	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	6077	97	331,833
7041	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	5975	94	321,898
3512	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5930	93	317,549
6012	KCPL-MO	East District	Chariton	Distribution Feeder	12.47	1639	26	87,642
6342	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	5795	89	304,889
3513	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5759	88	301,668
5612	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5723	87	298,426
5262	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	5694	87	295,852

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
5621	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5587	84	286,526
4913	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	5542	83	282,664
2511	KCPL-MO	East District	Glasgow	Distribution Feeder	12.47	1813	27	92,330
6311	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	5531	82	281,701
11611	KCPL-MO	East District	Bogard	Distribution Feeder	12.47	1828	27	92,761
1023	KCPL-MO	Northland	Birmingham	Distribution Feeder	12.47	1879	28	94,182
3412	KCPL-MO	East District	Corder	Distribution Feeder	12.47	1891	28	94,533
2811	KCPL-MO	East District	Sweet Springs	Distribution Feeder	12.47	1916	28	95,239
7912	KCPL-MO	East Jackson	Blue Mills	Distribution Feeder	12.47	5303	77	263,082
2812	KCPL-MO	East District	Sweet Springs	Distribution Feeder	12.47	1927	28	95,565
8411	KCPL-MO	Dodson	Bunker Ridge	Distribution Feeder	12.47	5248	76	258,813
2723	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	5211	75	255,954
1142	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	5209	75	255,795
4941	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	1986	28	97,270
9812	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	5152	74	251,468
5644	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5100	72	247,519
3932	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	5041	71	243,183
2522	KCPL-MO	East District	Glasgow	Distribution Feeder	12.47	2064	29	99,559
2763	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	5003	70	240,446
2773	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	5003	70	240,446
2774	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	5003	70	240,446
1113	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	5003	70	240,446
1141	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	5003	70	240,446
1143	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	5003	70	240,446
1163	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	5003	70	240,446
1164	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	5003	70	240,446
1011	KCPL-MO	Northland	Birmingham	Distribution Feeder	12.47	5003	70	240,446
1012	KCPL-MO	Northland	Birmingham	Distribution Feeder	12.47	5003	70	240,446
1013	KCPL-MO	Northland	Birmingham	Distribution Feeder	12.47	5003	70	240,446
1024	KCPL-MO	Northland	Birmingham	Distribution Feeder	12.47	5003	70	240,446
7932	KCPL-MO	East Jackson	Blue Mills	Distribution Feeder	12.47	5003	70	240,446
5253	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	5003	70	240,446
5254	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	5003	70	240,446
5264	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	5003	70	240,446
7814	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	5003	70	240,446
7833	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	5003	70	240,446
7854	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	5003	70	240,446
7864	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	5003	70	240,446
5611	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5613	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5622	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5631	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5632	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5633	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5634	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5643	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5651	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5652	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5653	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5654	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5662	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
5664	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	5003	70	240,446
6313	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	5003	70	240,446
6314	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	5003	70	240,446
6334	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	5003	70	240,446
6343	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	5003	70	240,446
6344	KCPL-MO	Northland	Line Creek	Distribution Feeder	12.47	5003	70	240,446
3521	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5003	70	240,446
3522	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5003	70	240,446
3523	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5003	70	240,446
3524	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5003	70	240,446
3534	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5003	70	240,446
3541	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5003	70	240,446
3554	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	5003	70	240,446
6611	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	5003	70	240,446

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
6612	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	5003	70	240,446
6622	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	5003	70	240,446
6633	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	5003	70	240,446
49811	KCPL-MO	Northland	Plummer	Distribution Feeder	12.47	5003	70	240,446
49813	KCPL-MO	Northland	Plummer	Distribution Feeder	12.47	5003	70	240,446
49814	KCPL-MO	Northland	Plummer	Distribution Feeder	12.47	5003	70	240,446
7144	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	5003	70	240,446
9814	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	5003	70	240,446
9844	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	5003	70	240,446
7044	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	5003	70	240,446
7053	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	5003	70	240,446
7054	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	5003	70	240,446
3013	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	5003	70	240,446
3014	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	5003	70	240,446
3023	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	5003	70	240,446
3024	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	5003	70	240,446
3914	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	5003	70	240,446
3933	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	5003	70	240,446
3934	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	5003	70	240,446
3943	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	5003	70	240,446
3944	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	5003	70	240,446
4814	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4821	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4831	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4832	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4833	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4834	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4843	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4844	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	5003	70	240,446
4911	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	5003	70	240,446
4914	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	5003	70	240,446
4944	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	5003	70	240,446
4954	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	5003	70	240,446
4963	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	5003	70	240,446
4964	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	5003	70	240,446
2722	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	4999	70	240,184
6011	KCPL-MO	East District	Chariton	Distribution Feeder	12.47	2100	29	100,646
3021	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	4862	67	230,469
2764	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	2165	30	102,632
8613	KCPL-MO	East Jackson	Blue Springs	Distribution Feeder	12.47	2171	30	102,823
5641	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	4830	67	228,306
2821	KCPL-MO	East District	Sweet Springs	Distribution Feeder	12.47	2212	30	104,075
2734	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	2214	30	104,139
8441	KCPL-MO	Dodson	Bunker Ridge	Distribution Feeder	12.47	4763	65	223,725
7841	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	4756	65	223,298
1114	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	4750	65	222,883
2761	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	4723	65	221,093
7843	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	2272	31	105,964
7141	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	4670	64	217,555
7844	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	4587	62	212,223
14012	KCPL-MO	East District	Show Me	Distribution Feeder	12.47	2337	32	108,055
7112	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	4556	61	210,257
2721	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	4465	60	204,595
5911	KCPL-MO	East District	Gilliam	Distribution Feeder	12.47	2441	33	111,494
5712	KCPL-MO	East Jackson	Courtney	Distribution Feeder	12.47	4405	59	200,947
2731	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	4360	58	198,284
49812	KCPL-MO	Northland	Plummer	Distribution Feeder	12.47	4359	58	198,223
2772	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	2623	34	117,751
3531	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	4155	55	186,415
7043	KCPL-MO	Northland	Shoal Creek	Distribution Feeder	12.47	2635	35	118,153
5623	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	4129	54	185,016
1112	KCPL-MO	Northland	Barry	Distribution Feeder	12.47	4128	54	184,917
5713	KCPL-MO	East Jackson	Courtney	Distribution Feeder	12.47	4105	54	183,659
5624	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	4087	53	182,699
5661	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	4026	52	179,338

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
3514	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	3979	52	176,873
7821	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	2766	36	122,901
3912	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	2786	36	123,627
3543	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	3928	51	174,157
4942	KCPL-MO	Northland	Weatherby	Distribution Feeder	12.47	3917	51	173,578
4852	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	3913	51	173,398
7834	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	2833	37	125,404
3533	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	2835	37	125,485
4221	KCPL-MO	East District	Brunswick	Distribution Feeder	12.47	2895	37	127,760
4851	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	2993	38	131,579
9811	KCPL-MO	Northland	Riverside	Distribution Feeder	12.47	2997	39	131,703
2724	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	3014	39	132,399
3551	KCPL-MO	Dodson	Loma Vista	Distribution Feeder	12.47	3019	39	132,607
3011	KCPL-MO	Dodson	Swope	Distribution Feeder	12.47	3658	47	160,605
7114	KCPL-MO	Northland	Randolph	Distribution Feeder	12.47	3620	46	158,793
3942	KCPL-MO	Northland	Tiffany Springs	Distribution Feeder	12.47	3081	40	135,096
5614	KCPL-MO	Dodson	Hickman	Distribution Feeder	12.47	3565	46	156,198
4822	KCPL-MO	Dodson	Tomahawk	Distribution Feeder	12.47	3538	45	154,918
5252	KCPL-MO	Northland	Claycomo	Distribution Feeder	12.47	3163	40	138,448
6631	KCPL-MO	Dodson	Martin City	Distribution Feeder	12.47	3474	44	152,006
2733	KCPL-MO	Northland	Avondale	Distribution Feeder	12.47	3474	44	151,997
7853	KCPL-MO	Northland	Gladstone	Distribution Feeder	12.47	3442	44	150,543
14011	KCPL-MO	East District	Show Me	Distribution Feeder	12.47	3276	42	143,209
7563	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	14837	742	2,536,782
5313	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	14767	738	2,524,935
7451	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	12831	642	2,193,818
2484	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	12424	621	2,124,235
9623	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	11570	579	1,978,256
3134	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	11561	578	1,976,790
4414	KCPL-MO	F&M	Chouteau	Distribution Feeder	13.20	11409	570	1,950,794
2343	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	10449	522	1,786,574
9444	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	9990	499	1,708,070
3732	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	9886	494	1,690,312
7573	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	9692	485	1,657,073
6113	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	9677	484	1,654,554
3713	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	9475	474	1,620,090
7533	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	9431	472	1,612,572
5371	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	9407	470	1,608,465
9611	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	9346	467	1,597,951
9421	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	9185	459	1,570,533
3122	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	9180	459	1,569,522
6143	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	2	0	411
5332	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	9109	455	1,557,504
4413	KCPL-MO	F&M	Chouteau	Distribution Feeder	13.20	9053	453	1,547,919
3132	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	9046	452	1,546,740
6152	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	9016	451	1,541,601
9614	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	8901	445	1,521,942
2752	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	8840	442	1,511,488
3144	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	8820	441	1,508,014
7473	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	8799	440	1,504,436
2743	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	8756	438	1,497,168
6112	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	8645	432	1,478,165
6132	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	8626	431	1,474,832
7562	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	8624	431	1,474,604
2421	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	8622	431	1,474,137
5338	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	8611	431	1,472,314
5337	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	8457	423	1,445,985
2741	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	8408	420	1,437,593
2431	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	8383	419	1,433,355
7446	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	8369	418	1,430,965
9411	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	8299	440	1,505,163
5382	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	8290	436	1,492,104
7483	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	8077	360	1,232,489
3114	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	8056	354	1,209,290
2713	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	8053	353	1,206,149

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
3151	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	8029	345	1,180,419
2742	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	8018	342	1,168,586
2394	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	7993	334	1,142,276
7571	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	7970	327	1,119,475
2393	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	7968	327	1,117,520
6123	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	7845	292	999,932
2413	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	7689	254	869,144
6164	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	7670	250	854,127
7433	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	7592	233	796,323
5374	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	7507	216	737,611
2354	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	7505	215	736,145
5384	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	7455	206	704,002
2433	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	7433	202	690,430
7431	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	7430	201	688,100
7452	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	7418	199	680,776
3152	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	7319	182	623,130
3153	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	7313	181	619,666
7582	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	7308	180	616,648
7404	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	7275	175	598,867
2352	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	7252	171	586,460
6122	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	7231	168	575,513
7491	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	7190	162	554,675
3143	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	7184	161	551,808
7534	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	7172	160	545,794
2341	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	7171	159	545,402
2391	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	7162	158	540,718
3121	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	7144	156	532,225
7424	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	7127	153	524,113
2751	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	7090	148	506,704
9414	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	6958	132	450,225
2461	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	6889	124	422,926
2355	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	6824	117	398,961
2411	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	6795	114	388,663
7522	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6787	113	386,050
2303	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	6785	113	385,178
2372	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	6755	110	374,853
6162	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	6707	105	359,186
2434	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	6704	105	358,087
13943	KCPL-MO	F&M	Troost	Distribution Feeder	13.20	6694	104	354,805
2463	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	6690	103	353,462
1561	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	6688	103	353,021
7574	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6683	103	351,489
9612	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	6664	101	345,540
2452	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	6631	98	335,189
2444	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	6602	96	326,641
3711	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	6579	94	320,124
7521	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6579	94	320,105
7581	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6572	93	317,906
7553	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6550	91	311,675
5381	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	6530	90	306,073
5383	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	6505	88	299,314
4412	KCPL-MO	F&M	Chouteau	Distribution Feeder	13.20	6467	85	289,262
7412	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6465	84	288,775
3722	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	6452	83	285,477
2753	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	6431	82	280,107
7494	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6415	81	276,192
3724	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	6384	78	268,413
7544	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6362	77	263,253
7512	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6334	75	256,602
7432	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6309	73	250,942
1522	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	6297	73	248,319
6151	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	6278	71	244,066
7443	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6278	71	244,002
2334	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	6268	71	241,919
7423	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6247	69	237,416

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
1564	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	6217	68	230,964
7414	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6205	67	228,525
7413	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6193	66	226,087
7422	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	6179	65	223,245
3714	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	6143	63	216,045
1562	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	6107	61	209,258
2333	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	6082	60	204,508
9624	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	6048	58	198,476
6133	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	6007	56	191,173
7532	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	6006	56	191,151
7411	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5995	55	189,111
7493	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5925	52	177,696
7444	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5917	52	176,350
7453	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5860	49	167,479
6111	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	5804	47	159,263
2422	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	5799	46	158,574
2424	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	5796	46	158,219
9422	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	5777	45	155,422
6131	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	5758	45	152,827
2373	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	5750	44	151,769
2374	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	5692	42	144,038
2744	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	5669	41	141,080
2754	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	5669	41	141,080
5311	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5312	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5314	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5315	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5321	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5322	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5323	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5324	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5325	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5331	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5334	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5335	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5336	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5339	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5391	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5391-1	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
5391-2	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	5669	41	141,080
4411	KCPL-MO	F&M	Chouteau	Distribution Feeder	13.20	5669	41	141,080
2474	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	5669	41	141,080
3113	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	5669	41	141,080
3124	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	5669	41	141,080
3133	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	5669	41	141,080
3154	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	5669	41	141,080
1513	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	5669	41	141,080
1551	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	5669	41	141,080
1566	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	5669	41	141,080
1571	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	5669	41	141,080
1581	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	5669	41	141,080
6124	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	5669	41	141,080
6161	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	5669	41	141,080
7511	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	5669	41	141,080
7572	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	5669	41	141,080
7583	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	5669	41	141,080
1744	KCPL-MO	F&M	Navy	Distribution Feeder	13.20	5669	41	141,080
9424	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	5669	41	141,080
9442	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	5669	41	141,080
7403	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
7441	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
7442	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
7461	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
7462	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
7463	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
7464	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
7474	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
7481	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5669	41	141,080
13944	KCPL-MO	F&M	Troost	Distribution Feeder	13.20	5669	41	141,080
7402	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	5626	40	135,687
6121	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	5597	39	132,242
13941	KCPL-MO	F&M	Troost	Distribution Feeder	13.20	5574	38	129,533
7514	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	5413	33	112,034
2301	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	5313	30	102,399
6142	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	5207	27	93,092
2442	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	5191	27	91,736
7584	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	5180	27	90,880
2483	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	5178	27	90,659
7542	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	5168	26	89,888
1565	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	5111	25	85,379
7543	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	5084	24	83,335
5372	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	4929	21	72,452
3723	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	4879	20	69,280
7434	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	4869	20	68,700
2441	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4863	20	68,317
7561	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	4787	19	63,782
9441	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	4754	18	61,920
3123	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	4737	18	61,004
4442	KCPL-MO	F&M	Chouteau	Distribution Feeder	13.20	4727	18	60,440
7541	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	4704	17	59,204
1523	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	4676	17	57,746
1576	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	4653	17	56,558
2443	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4595	16	53,641
2332	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	4558	15	51,891
2462	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4533	15	50,773
9423	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	4516	15	49,990
3734	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	84	0	926
2453	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4498	14	49,183
3712	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	4491	14	48,888
2412	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4466	14	47,787
7454	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	4437	14	46,529
5333	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	4420	13	45,826
7471	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	4415	13	45,617
2471	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4382	13	44,287
7445	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	4324	12	42,064
13942	KCPL-MO	F&M	Troost	Distribution Feeder	13.20	4323	12	41,996
2482	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4271	12	40,096
9622	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	4267	12	39,931
9443	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	4230	11	38,631
2342	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	4110	10	34,667
2464	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4107	10	34,578
3721	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	4087	10	33,963
7482	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	4016	9	31,874
2414	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	4007	9	31,604
2454	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	3988	9	31,070
9412	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	3967	9	30,499
2473	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	3956	9	30,183
1512	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	3945	9	29,891
4441	KCPL-MO	F&M	Chouteau	Distribution Feeder	13.20	3900	8	28,709
9613	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	3847	8	27,375
7401	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	3827	8	26,876
2711	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	3788	8	25,964
1563	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	3734	7	24,714
2481	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	3711	7	24,221
1524	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	3710	7	24,187
7492	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	3687	7	23,709
1567	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	3655	7	23,036
2335	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	3620	7	22,310
3142	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	3609	6	22,085
7472	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	3600	6	21,914

KCP&L-Missouri Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
3111	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	3573	6	21,385
7421	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	3497	6	19,979
3141	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	3488	6	19,818
7484	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	3381	5	17,995
2304	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	3376	5	17,910
2451	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	3298	5	16,696
7554	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	3254	5	16,059
1741	KCPL-MO	F&M	Navy	Distribution Feeder	13.20	3218	5	15,540
7531	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	3193	4	15,189
4443	KCPL-MO	F&M	Chouteau	Distribution Feeder	13.20	3192	4	15,177
9621	KCPL-MO	F&M	Hawthorn	Distribution Feeder	13.20	3183	4	15,054
2432	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	3098	4	13,948
1743	KCPL-MO	F&M	Navy	Distribution Feeder	13.20	3043	4	13,277
2714	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	3007	4	12,849
1572	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	2998	4	12,744
7551	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	2980	4	12,548
2712	KCPL-MO	Northland	Avondale	Distribution Feeder	13.20	2959	4	12,310
9413	KCPL-MO	Northland	North Kansas City	Distribution Feeder	13.20	2934	4	12,038
3131	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	2811	3	10,769
7552	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	294	0	1,118
1577	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	2742	3	10,127
1573	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	2701	3	9,759
1568	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	2692	3	9,679
1742	KCPL-MO	F&M	Navy	Distribution Feeder	13.20	2596	3	8,876
7523	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	2434	2	7,674
1575	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	2318	2	6,912
1514	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	2237	2	6,427
3112	KCPL-MO	Dodson	Forest	Distribution Feeder	13.20	2227	2	6,371
7485	KCPL-MO	F&M	Northeast	Distribution Feeder	13.20	2175	2	6,077
3731	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	2160	2	5,995
6134	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	2158	2	5,988
7513	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	2083	2	5,597
2472	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	2036	2	5,365
1574	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	2012	2	5,251
1511	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	1897	1	4,734
1521	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	1866	1	4,603
6163	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	1841	1	4,500
2302	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	616	0	1,494
1578	KCPL-MO	F&M	Grand Avenue	Distribution Feeder	13.20	1757	1	4,171
3733	KCPL-MO	F&M	Terrace	Distribution Feeder	13.20	1742	1	4,117
2353	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	1634	1	3,736
6141	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	1633	1	3,731
6153	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	1599	1	3,619
2392	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	760	0	1,701
7564	KCPL-MO	Dodson	Midtown	Distribution Feeder	13.20	1480	1	3,253
2344	KCPL-MO	Dodson	Southtown	Distribution Feeder	13.20	1352	1	2,898
6154	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	1202	1	2,532
6144	KCPL-MO	Dodson	Leeds	Distribution Feeder	13.20	1191	1	2,506
5373	KCPL-MO	F&M	Blue Valley	Distribution Feeder	13.20	1179	1	2,479
2423	KCPL-MO	F&M	Crosstown	Distribution Feeder	13.20	1151	1	2,418
Brun R.T.	KCPL-MO	East District	Brunswick	Sub-Transmission	34.00	613	31	104,873
PO 268	KCPL-MO	East District	Carrollton	Sub-Transmission	34.00	1943	82	280,115
42105	KCPL-MO	East District	Brunswick	Sub-Transmission	34.00	2807	69	236,824
PO 450	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	3217	64	218,088
PO 460	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	3356	62	211,977
95102	KCPL-MO	East District	Norton	Sub-Transmission	34.00	3790	57	193,768
127202	KCPL-MO	East District	South Waverly	Sub-Transmission	34.00	3964	55	186,854
PO 2308	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	4829	45	155,481
42106	KCPL-MO	East District	Brunswick	Sub-Transmission	34.00	5354	41	138,933
83104	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	19637	120	412,003
CO 1284	KCPL-MO	East District	Norton	Sub-Transmission	34.00	6087	35	118,985
83101	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	6606	31	107,086
104202	KCPL-MO	East District	Carrollton	Sub-Transmission	34.00	15750	58	199,503
83102	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	7629	26	89,009
104101	KCPL-MO	East District	Carrollton	Sub-Transmission	34.00	15095	51	173,871

KCP&L-Missouri Distribution Feeder Losses								
KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
83103	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	8689	23	77,838
95103	KCPL-MO	East District	Norton	Sub-Transmission	34.00	8980	22	76,115
127203	KCPL-MO	East District	South Waverly	Sub-Transmission	34.00	9024	22	75,906
83301	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	12610	30	103,306
83B3	KCPL-MO	East District	Salisbury	Sub-Transmission	34.00	12610	30	103,306
						TOTAL NC Loss	**62,444**	**213,535,425**

E.3 GMO-MPS Distribution Circuits Losses

MPS Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
33412	GMO-MPS	Trenton	Ridgeway	Distribution Feeder	2.40	1065	53	109,410
33411	GMO-MPS	Trenton	Ridgeway	Distribution Feeder	2.40	771	39	79,228
35411	GMO-MPS	Platte	Smithville 2.4	Distribution Feeder	2.40	548	12	24,580
36311	GMO-MPS	Trenton	Tindall	Distribution Feeder	2.40	271	2	3,625
30211	GMO-MPS	Trenton	Modena	Distribution Feeder	2.40	101	1	1,118
26611	GMO-MPS	Nevada	Iantha	Distribution Feeder	2.40	193	1	2,116
22511	GMO-MPS	Sedalia	Cole Camp City	Distribution Feeder	4.16	2413	121	248,037
22512	GMO-MPS	Sedalia	Cole Camp City	Distribution Feeder	4.16	2387	119	245,294
27421	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	2053	105	215,004
26311	GMO-MPS	Warrensburg	Holden	Distribution Feeder	4.16	2002	92	190,085
26312	GMO-MPS	Warrensburg	Holden	Distribution Feeder	4.16	2001	92	189,617
22621	GMO-MPS	Sedalia	Cole Camp Jct	Distribution Feeder	4.16	1794	56	115,560
28711	GMO-MPS	Nevada	Liberal	Distribution Feeder	4.16	1774	54	110,004
34511	GMO-MPS	Sedalia	Sedalia 6th & Kentucky	Distribution Feeder	4.16	1745	50	102,671
27424	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	1642	39	80,251
32911	GMO-MPS	Lee's Summit	Raytown No. 2	Distribution Feeder	4.16	1413	22	46,214
26313	GMO-MPS	Warrensburg	Holden	Distribution Feeder	4.16	1365	20	41,262
37234	GMO-MPS	Warrensburg	Warrensburg Plant	Distribution Feeder	4.16	1355	20	40,258
20812	GMO-MPS	Belton	Belton City	Distribution Feeder	4.16	1283	16	33,881
33112	GMO-MPS	Belton	Richard Gebaur	Distribution Feeder	4.16	1260	16	32,039
34812	GMO-MPS	Sedalia	Sedalia 10th & Porter	Distribution Feeder	4.16	1258	15	31,857
22712	GMO-MPS	Warrensburg	Concordia 34/4	Distribution Feeder	4.16	1173	13	26,029
21811	GMO-MPS	Trenton	Cainsville	Distribution Feeder	4.16	95	1	1,954
33111	GMO-MPS	Belton	Richard Gebaur	Distribution Feeder	4.16	1117	11	22,731
27433	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	1088	10	21,216
27422	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	1068	10	20,195
20811	GMO-MPS	Belton	Belton City	Distribution Feeder	4.16	1047	9	19,224
32912	GMO-MPS	Lee's Summit	Raytown No. 2	Distribution Feeder	4.16	973	8	16,093
33114	GMO-MPS	Belton	Richard Gebaur	Distribution Feeder	4.16	973	8	16,093
33115	GMO-MPS	Belton	Richard Gebaur	Distribution Feeder	4.16	973	8	16,093
34512	GMO-MPS	Sedalia	Sedalia 6th & Kentucky	Distribution Feeder	4.16	973	8	16,093
36533	GMO-MPS	Trenton	Trenton	Distribution Feeder	4.16	973	8	16,093
36534	GMO-MPS	Trenton	Trenton	Distribution Feeder	4.16	973	8	16,093
22711	GMO-MPS	Warrensburg	Concordia 34/4	Distribution Feeder	4.16	877	6	12,771
30411	GMO-MPS	Trenton	Mt. Moriah	Distribution Feeder	4.16	160	1	2,288
36532	GMO-MPS	Trenton	Trenton	Distribution Feeder	4.16	854	6	12,098
27434	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	852	6	12,038
27435	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	852	6	12,038
33113	GMO-MPS	Belton	Richard Gebaur	Distribution Feeder	4.16	843	6	11,786
27443	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	821	5	11,180
34811	GMO-MPS	Sedalia	Sedalia 10th & Porter	Distribution Feeder	4.16	808	5	10,828
33812	GMO-MPS	Clinton	Rockville	Distribution Feeder	4.16	197	1	2,498
33811	GMO-MPS	Clinton	Rockville	Distribution Feeder	4.16	214	1	2,602
27423	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	719	4	8,739
27444	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	698	4	8,319
26511	GMO-MPS	Nevada	Hume	Distribution Feeder	4.16	657	4	7,538
37231	GMO-MPS	Warrensburg	Warrensburg Plant	Distribution Feeder	4.16	246	1	2,814
36535	GMO-MPS	Trenton	Trenton	Distribution Feeder	4.16	255	1	2,870
24311	GMO-MPS	Trenton	Gilman City	Distribution Feeder	4.16	624	3	6,961
22713	GMO-MPS	Warrensburg	Concordia 34/4	Distribution Feeder	4.16	605	3	6,648
20813	GMO-MPS	Belton	Belton City	Distribution Feeder	4.16	604	3	6,632
35811	GMO-MPS	Trenton	Spickard	Distribution Feeder	4.16	591	3	6,438
27431	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	565	3	6,039
27412	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	513	3	5,339
27413	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	513	3	5,339
21812	GMO-MPS	Trenton	Cainsville	Distribution Feeder	4.16	497	2	5,131
34311	GMO-MPS	Sedalia	Sedalia 11th & Grand	Distribution Feeder	4.16	493	2	5,082
27445	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	462	2	4,720
34312	GMO-MPS	Sedalia	Sedalia 11th & Grand	Distribution Feeder	4.16	431	2	4,384
27411	GMO-MPS	Sedalia	Kelsey Hayes	Distribution Feeder	4.16	411	2	4,173
23911	GMO-MPS	Belton	Freeman	Distribution Feeder	7.20	205	10	21,099
23912	GMO-MPS	Belton	Freeman	Distribution Feeder	7.20	825	18	37,914
24723	GMO-MPS	Belton	Grandview West	Distribution Feeder	8.32	8103	164	336,525
24721	GMO-MPS	Belton	Grandview West	Distribution Feeder	8.32	7065	120	246,433

MPS Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
24811	GMO-MPS	Belton	Grandview City	Distribution Feeder	8.32	1684	24	49,048
24812	GMO-MPS	Belton	Grandview City	Distribution Feeder	8.32	1783	25	50,528
24711	GMO-MPS	Belton	Grandview West	Distribution Feeder	8.32	2065	27	55,001
24815	GMO-MPS	Belton	Grandview City	Distribution Feeder	8.32	2179	28	56,904
24722	GMO-MPS	Belton	Grandview West	Distribution Feeder	8.32	3933	47	96,305
24712	GMO-MPS	Belton	Grandview West	Distribution Feeder	8.32	3849	46	93,929
24814	GMO-MPS	Belton	Grandview City	Distribution Feeder	8.32	3763	45	91,536
24813	GMO-MPS	Belton	Grandview City	Distribution Feeder	8.32	3532	42	85,405
24713	GMO-MPS	Belton	Grandview West	Distribution Feeder	8.32	3271	38	78,957
25913	GMO-MPS	Nevada	Harwood	Distribution Feeder	12.47	15	1	1,578
25912	GMO-MPS	Nevada	Harwood	Distribution Feeder	12.47	49	2	5,083
21611	GMO-MPS	Trenton	Blythedale/Eagleville	Distribution Feeder	12.47	56	3	5,767
25121	GMO-MPS	Belton	Honeywell	Distribution Feeder	12.47	19243	962	1,977,665
25911	GMO-MPS	Nevada	Harwood	Distribution Feeder	12.47	101	5	10,342
33211	GMO-MPS	Nevada	Rich Hill	Distribution Feeder	12.47	115	6	11,784
37112	GMO-MPS	Nevada	Walker	Distribution Feeder	12.47	170	9	17,473
27821	GMO-MPS	Nevada	Lamar	Distribution Feeder	12.47	199	10	20,403
32312	GMO-MPS	Warrensburg	Post Oak Rural	Distribution Feeder	12.47	217	11	22,316
27213	GMO-MPS	Warrensburg	Kingsville	Distribution Feeder	12.47	218	11	22,422
25611	GMO-MPS	Lee's Summit	Harrisonville Lake	Distribution Feeder	12.47	221	11	22,741
38011	GMO-MPS	Warrensburg	Whiteman AFB East Dist	Distribution Feeder	12.47	13932	697	1,431,799
23211	GMO-MPS	Clinton	Deepwater	Distribution Feeder	12.47	233	12	23,910
30313	GMO-MPS	Clinton	Montrose City	Distribution Feeder	12.47	274	14	28,131
37642	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	13095	655	1,345,860
28721	GMO-MPS	Nevada	Liberal	Distribution Feeder	12.47	331	17	35,582
35011	GMO-MPS	Nevada	Sheldon	Distribution Feeder	12.47	341	17	35,692
36113	GMO-MPS	Blue Springs	Strother Road	Distribution Feeder	12.47	12149	600	1,233,119
29123	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	12022	578	1,187,074
11823	GMO-MPS	Blue Springs	Duncan Road	Distribution Feeder	12.47	11982	571	1,172,898
20321	GMO-MPS	Belton	Adrian	Distribution Feeder	12.47	372	18	36,026
37623	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	11912	559	1,148,321
30311	GMO-MPS	Clinton	Montrose City	Distribution Feeder	12.47	374	18	36,050
31113	GMO-MPS	Blue Springs	Oak Grove	Distribution Feeder	12.47	414	18	36,476
28212	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	11370	475	976,121
21521	GMO-MPS	Blue Springs	Blue Springs South	Distribution Feeder	12.47	432	18	36,675
31011	GMO-MPS	Henrietta	Norborne	Distribution Feeder	12.47	443	18	36,794
26112	GMO-MPS	Warrensburg	Hwy 13 & 40 Jct.	Distribution Feeder	12.47	447	18	36,840
34151	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	11141	443	911,378
28221	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	11084	436	895,874
32722	GMO-MPS	Belton	Raymore	Distribution Feeder	12.47	11055	432	888,031
24022	GMO-MPS	Lee's Summit	Frost Road	Distribution Feeder	12.47	11033	429	882,172
29112	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	10901	413	848,094
30722	GMO-MPS	Nevada	Nevada 3M	Distribution Feeder	12.47	10869	409	839,978
32311	GMO-MPS	Warrensburg	Post Oak Rural	Distribution Feeder	12.47	490	18	37,323
21711	GMO-MPS	Clinton	Brownington	Distribution Feeder	12.47	496	18	37,392
37322	GMO-MPS	Warrensburg	Warrensburg East	Distribution Feeder	12.47	10744	394	809,033
25412	GMO-MPS	Belton	Harrisonville West	Distribution Feeder	12.47	507	18	37,508
35912	GMO-MPS	Liberty	Staley Road	Distribution Feeder	12.47	10661	384	788,960
22011	GMO-MPS	Warrensburg	Centerview	Distribution Feeder	12.47	509	18	37,537
26421	GMO-MPS	Lee's Summit	Hook Road	Distribution Feeder	12.47	10572	374	768,191
27211	GMO-MPS	Warrensburg	Kingsville	Distribution Feeder	12.47	518	18	37,637
32521	GMO-MPS	Blue Springs	Prairie Lee	Distribution Feeder	12.47	10162	331	679,402
34141	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	10133	328	673,517
30312	GMO-MPS	Clinton	Montrose City	Distribution Feeder	12.47	593	19	38,488
34711	GMO-MPS	Sedalia	Sedalia Plant, 9th & Ingram	Distribution Feeder	12.47	9926	308	633,002
37611	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	9926	308	633,002
37111	GMO-MPS	Nevada	Walker	Distribution Feeder	12.47	616	19	38,757
26423	GMO-MPS	Lee's Summit	Hook Road	Distribution Feeder	12.47	9827	299	614,319
28121	GMO-MPS	Blue Springs	Lakewood	Distribution Feeder	12.47	9793	296	608,177
26712	GMO-MPS	Trenton	Jamesport	Distribution Feeder	12.47	628	19	38,895
27612	GMO-MPS	Clinton	Lakeland School	Distribution Feeder	12.47	633	19	38,955
21311	GMO-MPS	Blue Springs	Blue Springs West	Distribution Feeder	12.47	9720	289	594,924
24512	GMO-MPS	Blue Springs	Grain Valley	Distribution Feeder	12.47	9670	285	586,173
28011	GMO-MPS	Trenton	Laredo	Distribution Feeder	12.47	645	19	39,100
31511	GMO-MPS	Clinton	Osceola	Distribution Feeder	12.47	661	19	39,283

MPS Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
11832	GMO-MPS	Blue Springs	Duncan Road	Distribution Feeder	12.47	9533	274	562,617
34131	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	9529	273	561,919
21421	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	9513	272	559,137
29042	GMO-MPS	Liberty	Liberty Moss St	Distribution Feeder	12.47	9487	270	554,818
34013	GMO-MPS	Nevada	Schell City	Distribution Feeder	12.47	685	19	39,568
28412	GMO-MPS	Warrensburg	Leeton	Distribution Feeder	12.47	687	19	39,588
32812	GMO-MPS	Belton	Raymore North	Distribution Feeder	12.47	9380	261	537,278
20925	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	9340	258	530,963
29611	GMO-MPS	Clinton	Lowry City	Distribution Feeder	12.47	700	19	39,745
31111	GMO-MPS	Blue Springs	Oak Grove	Distribution Feeder	12.47	9306	256	525,502
25321	GMO-MPS	Liberty	Hallmark	Distribution Feeder	12.47	9296	255	523,875
37313	GMO-MPS	Warrensburg	Warrensburg East	Distribution Feeder	12.47	9139	243	499,902
30713	GMO-MPS	Nevada	Nevada 3M	Distribution Feeder	12.47	9083	239	491,446
28112	GMO-MPS	Blue Springs	Lakewood	Distribution Feeder	12.47	9077	239	490,684
23513	GMO-MPS	Clinton	East Lynn	Distribution Feeder	12.47	749	20	40,336
29113	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	9023	235	482,683
21312	GMO-MPS	Blue Springs	Blue Springs West	Distribution Feeder	12.47	8996	233	478,806
36012	GMO-MPS	Warrensburg	Strasburg	Distribution Feeder	12.47	768	20	40,571
34132	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	8934	229	469,977
37212	GMO-MPS	Warrensburg	Warrensburg Plant	Distribution Feeder	12.47	8934	229	469,977
32633	GMO-MPS	Lee's Summit	Ralph Green	Distribution Feeder	12.47	8917	228	467,650
21423	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	8880	225	462,457
37613	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	8878	225	462,248
20913	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	8864	224	460,281
29612	GMO-MPS	Clinton	Lowry City	Distribution Feeder	12.47	789	20	40,826
37321	GMO-MPS	Warrensburg	Warrensburg East	Distribution Feeder	12.47	8792	219	450,422
28224	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	8776	218	448,213
32522	GMO-MPS	Blue Springs	Prairie Lee	Distribution Feeder	12.47	8758	217	445,899
21111	GMO-MPS	Clinton	Blairstown	Distribution Feeder	12.47	809	20	41,066
26411	GMO-MPS	Lee's Summit	Hook Road	Distribution Feeder	12.47	8717	214	440,337
21431	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	8624	208	428,214
27022	GMO-MPS	Platte	KCI	Distribution Feeder	12.47	860	20	41,706
27721	GMO-MPS	Lee's Summit	Lake Winnebago	Distribution Feeder	12.47	8457	198	407,307
25413	GMO-MPS	Belton	Harrisonville West	Distribution Feeder	12.47	870	20	41,823
37622	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	8415	196	402,213
20941	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	8412	196	401,894
27722	GMO-MPS	Lee's Summit	Lake Winnebago	Distribution Feeder	12.47	8401	195	400,620
29312	GMO-MPS	Sedalia	Lincoln	Distribution Feeder	12.47	890	20	42,083
36621	GMO-MPS	Belton	Turner Road	Distribution Feeder	12.47	8353	192	394,777
28211	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	8303	189	389,013
32721	GMO-MPS	Belton	Raymore	Distribution Feeder	12.47	8263	187	384,338
37632	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	8230	185	380,527
24013	GMO-MPS	Lee's Summit	Frost Road	Distribution Feeder	12.47	8189	183	375,906
24511	GMO-MPS	Blue Springs	Grain Valley	Distribution Feeder	12.47	8144	180	370,847
34222	GMO-MPS	Sedalia	Sedalia East	Distribution Feeder	12.47	8140	180	370,351
31611	GMO-MPS	Belton	Peculiar	Distribution Feeder	12.47	8137	180	370,020
33322	GMO-MPS	Henrietta	Richmond	Distribution Feeder	12.47	8126	179	368,860
28231	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	8122	179	368,371
26412	GMO-MPS	Lee's Summit	Hook Road	Distribution Feeder	12.47	8096	178	365,557
32631	GMO-MPS	Lee's Summit	Ralph Green	Distribution Feeder	12.47	8085	177	364,280
37323	GMO-MPS	Warrensburg	Warrensburg East	Distribution Feeder	12.47	8066	176	362,283
35922	GMO-MPS	Liberty	Staley Road	Distribution Feeder	12.47	8048	175	360,266
25111	GMO-MPS	Belton	Honeywell	Distribution Feeder	12.47	8002	173	355,358
21212	GMO-MPS	Lee's Summit	Blue Ridge	Distribution Feeder	12.47	990	21	43,362
27113	GMO-MPS	Lee's Summit	KC South	Distribution Feeder	12.47	7869	166	341,442
34212	GMO-MPS	Sedalia	Sedalia East	Distribution Feeder	12.47	7858	166	340,385
33013	GMO-MPS	Lee's Summit	Raytown No. 1	Distribution Feeder	12.47	7807	163	335,146
27215	GMO-MPS	Warrensburg	Kingsville	Distribution Feeder	12.47	1026	21	43,828
25211	GMO-MPS	Lee's Summit	Harris Road	Distribution Feeder	12.47	7757	161	330,187
26111	GMO-MPS	Warrensburg	Hwy 13 & 40 Jct.	Distribution Feeder	12.47	1033	21	43,924
32611	GMO-MPS	Lee's Summit	Ralph Green	Distribution Feeder	12.47	1034	21	43,937
28321	GMO-MPS	Lee's Summit	Longview	Distribution Feeder	12.47	7652	156	319,909
25411	GMO-MPS	Belton	Harrisonville West	Distribution Feeder	12.47	1059	22	44,266
24011	GMO-MPS	Lee's Summit	Frost Road	Distribution Feeder	12.47	7594	153	314,400
29012	GMO-MPS	Liberty	Liberty Moss St	Distribution Feeder	12.47	7536	150	309,024

MPS Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
21511	GMO-MPS	Blue Springs	Blue Springs South	Distribution Feeder	12.47	7477	148	303,610
28311	GMO-MPS	Lee's Summit	Longview	Distribution Feeder	12.47	7445	146	300,665
27212	GMO-MPS	Warrensburg	Kingsville	Distribution Feeder	12.47	1117	22	45,041
33313	GMO-MPS	Henrietta	Richmond	Distribution Feeder	12.47	7431	146	299,455
23213	GMO-MPS	Clinton	Deepwater	Distribution Feeder	12.47	1132	22	45,251
23712	GMO-MPS	Warrensburg	Elm	Distribution Feeder	12.47	1137	22	45,322
33011	GMO-MPS	Lee's Summit	Raytown No. 1	Distribution Feeder	12.47	7362	143	293,296
33022	GMO-MPS	Lee's Summit	Raytown No. 1	Distribution Feeder	12.47	7321	141	289,679
33023	GMO-MPS	Lee's Summit	Raytown No. 1	Distribution Feeder	12.47	7321	141	289,679
25312	GMO-MPS	Liberty	Hallmark	Distribution Feeder	12.47	7305	140	288,334
34221	GMO-MPS	Sedalia	Sedalia East	Distribution Feeder	12.47	7246	138	283,281
23511	GMO-MPS	Clinton	East Lynn	Distribution Feeder	12.47	1187	22	45,997
29211	GMO-MPS	Liberty	Liberty South	Distribution Feeder	12.47	7146	134	274,884
36111	GMO-MPS	Blue Springs	Strother Road	Distribution Feeder	12.47	7130	133	273,608
11801	GMO-MPS	Blue Springs	Duncan Road	Distribution Feeder	12.47	7114	132	272,253
37311	GMO-MPS	Warrensburg	Warrensburg East	Distribution Feeder	12.47	6971	127	260,815
24621	GMO-MPS	Belton	Grandview East	Distribution Feeder	12.47	6968	127	260,567
11831	GMO-MPS	Blue Springs	Duncan Road	Distribution Feeder	12.47	6938	126	258,268
28411	GMO-MPS	Warrensburg	Leeton	Distribution Feeder	12.47	1276	23	47,245
28111	GMO-MPS	Blue Springs	Lakewood	Distribution Feeder	12.47	6876	123	253,506
32513	GMO-MPS	Blue Springs	Prairie Lee	Distribution Feeder	12.47	6851	122	251,580
36611	GMO-MPS	Belton	Turner Road	Distribution Feeder	12.47	6849	122	251,438
33021	GMO-MPS	Lee's Summit	Raytown No. 1	Distribution Feeder	12.47	6845	122	251,158
37631	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	6773	120	245,763
37612	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	6750	119	244,120
22123	GMO-MPS	Clinton	Green Street	Distribution Feeder	12.47	6725	118	242,259
20921	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	6715	118	241,536
34142	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	6700	117	240,484
22122	GMO-MPS	Clinton	Green Street	Distribution Feeder	12.47	6684	116	239,341
28214	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	6634	115	235,777
34712	GMO-MPS	Sedalia	Sedalia Plant, 9th & Ingram	Distribution Feeder	12.47	6618	114	234,590
24023	GMO-MPS	Lee's Summit	Frost Road	Distribution Feeder	12.47	6545	112	229,551
24622	GMO-MPS	Belton	Grandview East	Distribution Feeder	12.47	6529	111	228,416
27513	GMO-MPS	Warrensburg	Knob Noster	Distribution Feeder	12.47	6493	110	226,018
27023	GMO-MPS	Platte	KCI	Distribution Feeder	12.47	6492	110	225,948
28012	GMO-MPS	Trenton	Laredo	Distribution Feeder	12.47	1439	24	49,618
20422	GMO-MPS	Clinton	Appleton City	Distribution Feeder	12.47	1440	24	49,622
28512	GMO-MPS	Henrietta	Lexington	Distribution Feeder	12.47	6397	107	219,595
36722	GMO-MPS	Platte	TWA	Distribution Feeder	12.47	1452	24	49,803
31012	GMO-MPS	Henrietta	Norborne	Distribution Feeder	12.47	1482	24	50,253
24212	GMO-MPS	Clinton	Garden City	Distribution Feeder	12.47	1482	24	50,258
21321	GMO-MPS	Blue Springs	Blue Springs West	Distribution Feeder	12.47	6307	104	213,744
21322	GMO-MPS	Blue Springs	Blue Springs West	Distribution Feeder	12.47	6307	104	213,744
27712	GMO-MPS	Lee's Summit	Lake Winnebago	Distribution Feeder	12.47	6245	102	209,779
36712	GMO-MPS	Platte	TWA	Distribution Feeder	12.47	1526	25	50,928
37624	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	6154	99	204,153
25322	GMO-MPS	Liberty	Hallmark	Distribution Feeder	12.47	6110	98	201,448
24912	GMO-MPS	Warrensburg	Greenridge	Distribution Feeder	12.47	1563	25	51,500
37621	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	6055	96	198,163
37711	GMO-MPS	Warrensburg	Whiteman AFB West Dist	Distribution Feeder	12.47	6039	96	197,182
22313	GMO-MPS	Clinton	Clinton Plant	Distribution Feeder	12.47	6035	96	197,000
37521	GMO-MPS	Sedalia	Warsaw	Distribution Feeder	12.47	6030	96	196,693
28122	GMO-MPS	Blue Springs	Lakewood	Distribution Feeder	12.47	6022	95	196,206
21112	GMO-MPS	Clinton	Blairstown	Distribution Feeder	12.47	1598	25	52,045
32811	GMO-MPS	Belton	Raymore North	Distribution Feeder	12.47	5955	94	192,328
29221	GMO-MPS	Liberty	Liberty South	Distribution Feeder	12.47	5948	93	191,872
21513	GMO-MPS	Blue Springs	Blue Springs South	Distribution Feeder	12.47	5931	93	190,922
35913	GMO-MPS	Liberty	Staley Road	Distribution Feeder	12.47	5894	92	188,802
25612	GMO-MPS	Lee's Summit	Harrisonville Lake	Distribution Feeder	12.47	1653	26	52,909
29122	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	5873	91	187,634
37644	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	5857	91	186,738
22012	GMO-MPS	Warrensburg	Centerview	Distribution Feeder	12.47	1678	26	53,304
28312	GMO-MPS	Lee's Summit	Longview	Distribution Feeder	12.47	5811	90	184,174
21512	GMO-MPS	Blue Springs	Blue Springs South	Distribution Feeder	12.47	5792	89	183,107
35012	GMO-MPS	Nevada	Sheldon	Distribution Feeder	12.47	1706	26	53,753

MPS Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
21414	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	5713	87	178,810
27111	GMO-MPS	Lee's Summit	KC South	Distribution Feeder	12.47	5677	86	176,895
22312	GMO-MPS	Clinton	Clinton Plant	Distribution Feeder	12.47	5634	85	174,645
36112	GMO-MPS	Blue Springs	Strother Road	Distribution Feeder	12.47	5599	84	172,839
36011	GMO-MPS	Warrensburg	Strasburg	Distribution Feeder	12.47	1784	27	55,018
27911	GMO-MPS	Warrensburg	Lamonte	Distribution Feeder	12.47	1787	27	55,069
30614	GMO-MPS	Nevada	Nevada Plant	Distribution Feeder	12.47	5584	84	172,025
37211	GMO-MPS	Warrensburg	Warrensburg Plant	Distribution Feeder	12.47	5584	84	172,025
32712	GMO-MPS	Belton	Raymore	Distribution Feeder	12.47	5583	84	172,007
29021	GMO-MPS	Liberty	Liberty Moss St	Distribution Feeder	12.47	1794	27	55,195
25323	GMO-MPS	Liberty	Hallmark	Distribution Feeder	12.47	1816	27	55,549
21612	GMO-MPS	Trenton	Blythedale/Eagleville	Distribution Feeder	12.47	1817	27	55,579
30612	GMO-MPS	Nevada	Nevada Plant	Distribution Feeder	12.47	5509	82	168,225
31512	GMO-MPS	Clinton	Osceola	Distribution Feeder	12.47	1853	27	56,173
24611	GMO-MPS	Belton	Grandview East	Distribution Feeder	12.47	5408	79	163,188
31112	GMO-MPS	Blue Springs	Oak Grove	Distribution Feeder	12.47	5377	79	161,677
29121	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	5375	79	161,576
28511	GMO-MPS	Henrietta	Lexington	Distribution Feeder	12.47	5331	78	159,480
28323	GMO-MPS	Lee's Summit	Longview	Distribution Feeder	12.47	5325	77	159,188
24211	GMO-MPS	Clinton	Garden City	Distribution Feeder	12.47	1918	28	57,276
11824	GMO-MPS	Blue Springs	Duncan Road	Distribution Feeder	12.47	5314	77	158,661
24612	GMO-MPS	Belton	Grandview East	Distribution Feeder	12.47	5285	77	157,263
20423	GMO-MPS	Clinton	Appleton City	Distribution Feeder	12.47	1935	28	57,581
27312	GMO-MPS	Warrensburg	Kingsville Rural	Distribution Feeder	12.47	1937	28	57,600
24613	GMO-MPS	Belton	Grandview East	Distribution Feeder	12.47	5266	76	156,405
27011	GMO-MPS	Platte	KCI	Distribution Feeder	12.47	1944	28	57,728
25313	GMO-MPS	Liberty	Hallmark	Distribution Feeder	12.47	1946	28	57,764
11822	GMO-MPS	Blue Springs	Duncan Road	Distribution Feeder	12.47	5217	75	154,092
25311	GMO-MPS	Liberty	Hallmark	Distribution Feeder	12.47	5158	74	151,387
31121	GMO-MPS	Blue Springs	Oak Grove	Distribution Feeder	12.47	5144	73	150,772
21211	GMO-MPS	Lee's Summit	Blue Ridge	Distribution Feeder	12.47	2017	29	59,015
21412	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	5089	72	148,320
20322	GMO-MPS	Belton	Adrian	Distribution Feeder	12.47	5049	71	146,535
20421	GMO-MPS	Clinton	Appleton City	Distribution Feeder	12.47	5049	71	146,535
20942	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	5049	71	146,535
20943	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	5049	71	146,535
20944	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	5049	71	146,535
21213	GMO-MPS	Lee's Summit	Blue Ridge	Distribution Feeder	12.47	5049	71	146,535
21413	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	5049	71	146,535
21422	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	5049	71	146,535
21514	GMO-MPS	Blue Springs	Blue Springs South	Distribution Feeder	12.47	5049	71	146,535
21523	GMO-MPS	Blue Springs	Blue Springs South	Distribution Feeder	12.47	5049	71	146,535
21313	GMO-MPS	Blue Springs	Blue Springs West	Distribution Feeder	12.47	5049	71	146,535
21912	GMO-MPS	Warrensburg	Calhoun	Distribution Feeder	12.47	5049	71	146,535
21913	GMO-MPS	Warrensburg	Calhoun	Distribution Feeder	12.47	5049	71	146,535
23212	GMO-MPS	Clinton	Deepwater	Distribution Feeder	12.47	5049	71	146,535
11833	GMO-MPS	Blue Springs	Duncan Road	Distribution Feeder	12.47	5049	71	146,535
24012	GMO-MPS	Lee's Summit	Frost Road	Distribution Feeder	12.47	5049	71	146,535
24514	GMO-MPS	Blue Springs	Grain Valley	Distribution Feeder	12.47	5049	71	146,535
24623	GMO-MPS	Belton	Grandview East	Distribution Feeder	12.47	5049	71	146,535
25213	GMO-MPS	Lee's Summit	Harris Road	Distribution Feeder	12.47	5049	71	146,535
25214	GMO-MPS	Lee's Summit	Harris Road	Distribution Feeder	12.47	5049	71	146,535
26413	GMO-MPS	Lee's Summit	Hook Road	Distribution Feeder	12.47	5049	71	146,535
26422	GMO-MPS	Lee's Summit	Hook Road	Distribution Feeder	12.47	5049	71	146,535
26424	GMO-MPS	Lee's Summit	Hook Road	Distribution Feeder	12.47	5049	71	146,535
27112	GMO-MPS	Lee's Summit	KC South	Distribution Feeder	12.47	5049	71	146,535
27122	GMO-MPS	Lee's Summit	KC South	Distribution Feeder	12.47	5049	71	146,535
27123	GMO-MPS	Lee's Summit	KC South	Distribution Feeder	12.47	5049	71	146,535
27124	GMO-MPS	Lee's Summit	KC South	Distribution Feeder	12.47	5049	71	146,535
27012	GMO-MPS	Platte	KCI	Distribution Feeder	12.47	5049	71	146,535
28113	GMO-MPS	Blue Springs	Lakewood	Distribution Feeder	12.47	5049	71	146,535
28123	GMO-MPS	Blue Springs	Lakewood	Distribution Feeder	12.47	5049	71	146,535
28213	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	5049	71	146,535
28222	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	5049	71	146,535
28223	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	5049	71	146,535

MPS Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
28233	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	5049	71	146,535
28234	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	5049	71	146,535
28811	GMO-MPS	Liberty	Liberty Arrowhead	Distribution Feeder	12.47	5049	71	146,535
29213	GMO-MPS	Liberty	Liberty South	Distribution Feeder	12.47	5049	71	146,535
29222	GMO-MPS	Liberty	Liberty South	Distribution Feeder	12.47	5049	71	146,535
29223	GMO-MPS	Liberty	Liberty South	Distribution Feeder	12.47	5049	71	146,535
29224	GMO-MPS	Liberty	Liberty South	Distribution Feeder	12.47	5049	71	146,535
29111	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	5049	71	146,535
29124	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	5049	71	146,535
29132	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	5049	71	146,535
29133	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	5049	71	146,535
29134	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	5049	71	146,535
30111	GMO-MPS	Trenton	Mill Grove	Distribution Feeder	12.47	5049	71	146,535
31122	GMO-MPS	Blue Springs	Oak Grove	Distribution Feeder	12.47	5049	71	146,535
31123	GMO-MPS	Blue Springs	Oak Grove	Distribution Feeder	12.47	5049	71	146,535
31124	GMO-MPS	Blue Springs	Oak Grove	Distribution Feeder	12.47	5049	71	146,535
31613	GMO-MPS	Belton	Peculiar	Distribution Feeder	12.47	5049	71	146,535
32313	GMO-MPS	Warrensburg	Post Oak Rural	Distribution Feeder	12.47	5049	71	146,535
32512	GMO-MPS	Blue Springs	Prairie Lee	Distribution Feeder	12.47	5049	71	146,535
32523	GMO-MPS	Blue Springs	Prairie Lee	Distribution Feeder	12.47	5049	71	146,535
32632	GMO-MPS	Lee's Summit	Ralph Green	Distribution Feeder	12.47	5049	71	146,535
32713	GMO-MPS	Belton	Raymore	Distribution Feeder	12.47	5049	71	146,535
32723	GMO-MPS	Belton	Raymore	Distribution Feeder	12.47	5049	71	146,535
32813	GMO-MPS	Belton	Raymore North	Distribution Feeder	12.47	5049	71	146,535
32814	GMO-MPS	Belton	Raymore North	Distribution Feeder	12.47	5049	71	146,535
33311	GMO-MPS	Henrietta	Richmond	Distribution Feeder	12.47	5049	71	146,535
33314	GMO-MPS	Henrietta	Richmond	Distribution Feeder	12.47	5049	71	146,535
33323	GMO-MPS	Henrietta	Richmond	Distribution Feeder	12.47	5049	71	146,535
34223	GMO-MPS	Sedalia	Sedalia East	Distribution Feeder	12.47	5049	71	146,535
34713	GMO-MPS	Sedalia	Sedalia Plant, 9th & Ingram	Distribution Feeder	12.47	5049	71	146,535
34153	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	5049	71	146,535
34154	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	5049	71	146,535
35911	GMO-MPS	Liberty	Staley Road	Distribution Feeder	12.47	5049	71	146,535
35924	GMO-MPS	Liberty	Staley Road	Distribution Feeder	12.47	5049	71	146,535
36122	GMO-MPS	Blue Springs	Strother Road	Distribution Feeder	12.47	5049	71	146,535
36522	GMO-MPS	Trenton	Trenton	Distribution Feeder	12.47	5049	71	146,535
36613	GMO-MPS	Belton	Turner Road	Distribution Feeder	12.47	5049	71	146,535
36614	GMO-MPS	Belton	Turner Road	Distribution Feeder	12.47	5049	71	146,535
36623	GMO-MPS	Belton	Turner Road	Distribution Feeder	12.47	5049	71	146,535
36713	GMO-MPS	Platte	TWA	Distribution Feeder	12.47	5049	71	146,535
36721	GMO-MPS	Platte	TWA	Distribution Feeder	12.47	5049	71	146,535
37312	GMO-MPS	Warrensburg	Warrensburg East	Distribution Feeder	12.47	5049	71	146,535
37633	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	5049	71	146,535
37634	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	5049	71	146,535
37643	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	5049	71	146,535
37651	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	5049	71	146,535
33012	GMO-MPS	Lee's Summit	Raytown No. 1	Distribution Feeder	12.47	5036	71	145,946
20611	GMO-MPS	Belton	Archie	Distribution Feeder	12.47	2099	29	60,477
21911	GMO-MPS	Warrensburg	Calhoun	Distribution Feeder	12.47	2109	30	60,665
36521	GMO-MPS	Trenton	Trenton	Distribution Feeder	12.47	2116	30	60,778
27121	GMO-MPS	Lee's Summit	KC South	Distribution Feeder	12.47	4898	68	140,060
20922	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	2151	30	61,435
36121	GMO-MPS	Blue Springs	Strother Road	Distribution Feeder	12.47	2163	30	61,642
37221	GMO-MPS	Warrensburg	Warrensburg Plant	Distribution Feeder	12.47	4839	67	137,592
24021	GMO-MPS	Lee's Summit	Frost Road	Distribution Feeder	12.47	4818	67	136,741
37511	GMO-MPS	Sedalia	Warsaw	Distribution Feeder	12.47	4765	65	134,553
33321	GMO-MPS	Henrietta	Richmond	Distribution Feeder	12.47	4750	65	133,970
26711	GMO-MPS	Trenton	Jamesport	Distribution Feeder	12.47	2235	31	63,005
32711	GMO-MPS	Belton	Raymore	Distribution Feeder	12.47	4735	65	133,345
37652	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	4720	65	132,751
37641	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	4715	64	132,565
23711	GMO-MPS	Warrensburg	Elm	Distribution Feeder	12.47	4702	64	132,031
34213	GMO-MPS	Sedalia	Sedalia East	Distribution Feeder	12.47	2275	31	63,752
37522	GMO-MPS	Sedalia	Warsaw	Distribution Feeder	12.47	2283	31	63,911
36622	GMO-MPS	Belton	Turner Road	Distribution Feeder	12.47	2285	31	63,955

MPS Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
21323	GMO-MPS	Blue Springs	Blue Springs West	Distribution Feeder	12.47	4653	63	130,120
31312	GMO-MPS	Henrietta	Orrick	Distribution Feeder	12.47	2302	31	64,284
27021	GMO-MPS	Platte	KCI	Distribution Feeder	12.47	4616	63	128,675
32612	GMO-MPS	Lee's Summit	Ralph Green	Distribution Feeder	12.47	4590	62	127,681
22812	GMO-MPS	Warrensburg	Concordia 69	Distribution Feeder	12.47	2378	32	65,761
29311	GMO-MPS	Sedalia	Lincoln	Distribution Feeder	12.47	4459	60	122,749
37614	GMO-MPS	Lee's Summit	Western Electric	Distribution Feeder	12.47	4452	60	122,501
21522	GMO-MPS	Blue Springs	Blue Springs South	Distribution Feeder	12.47	2441	33	67,017
21432	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	2471	33	67,622
38112	GMO-MPS	Warrensburg	Windsor	Distribution Feeder	12.47	4369	58	119,478
35111	GMO-MPS	Blue Springs	Sibley	Distribution Feeder	12.47	4359	58	119,135
22811	GMO-MPS	Warrensburg	Concordia 69	Distribution Feeder	12.47	4343	58	118,558
34211	GMO-MPS	Sedalia	Sedalia East	Distribution Feeder	12.47	4343	58	118,558
30711	GMO-MPS	Nevada	Nevada 3M	Distribution Feeder	12.47	4318	57	117,678
24513	GMO-MPS	Blue Springs	Grain Valley	Distribution Feeder	12.47	2580	34	69,861
28322	GMO-MPS	Lee's Summit	Longview	Distribution Feeder	12.47	4188	55	113,168
37222	GMO-MPS	Warrensburg	Warrensburg Plant	Distribution Feeder	12.47	4136	54	111,426
22121	GMO-MPS	Clinton	Green Street	Distribution Feeder	12.47	4098	54	110,159
29212	GMO-MPS	Liberty	Liberty South	Distribution Feeder	12.47	2695	35	72,309
37013	GMO-MPS	Clinton	Urich	Distribution Feeder	12.47	4057	53	108,830
21433	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	3971	52	106,031
35921	GMO-MPS	Liberty	Staley Road	Distribution Feeder	12.47	2769	36	73,942
22311	GMO-MPS	Clinton	Clinton Plant	Distribution Feeder	12.47	3967	52	105,915
29041	GMO-MPS	Liberty	Liberty Moss St	Distribution Feeder	12.47	3955	51	105,538
36612	GMO-MPS	Belton	Turner Road	Distribution Feeder	12.47	2784	36	74,278
27511	GMO-MPS	Warrensburg	Knob Noster	Distribution Feeder	12.47	2796	36	74,540
25212	GMO-MPS	Lee's Summit	Harris Road	Distribution Feeder	12.47	2799	36	74,611
31513	GMO-MPS	Clinton	Osceola	Distribution Feeder	12.47	3921	51	104,464
34411	GMO-MPS	Sedalia	Sedalia Pittsburg-Corning	Distribution Feeder	12.47	3909	51	104,075
34152	GMO-MPS	Sedalia	Sedalia West	Distribution Feeder	12.47	3870	50	102,892
31612	GMO-MPS	Belton	Peculiar	Distribution Feeder	12.47	2851	37	75,786
33312	GMO-MPS	Henrietta	Richmond	Distribution Feeder	12.47	3866	50	102,760
33212	GMO-MPS	Nevada	Rich Hill	Distribution Feeder	12.47	2876	37	76,344
27711	GMO-MPS	Lee's Summit	Lake Winnebago	Distribution Feeder	12.47	2880	37	76,453
27311	GMO-MPS	Warrensburg	Kingsville Rural	Distribution Feeder	12.47	2897	37	76,827
30613	GMO-MPS	Nevada	Nevada Plant	Distribution Feeder	12.47	3784	49	100,273
30611	GMO-MPS	Nevada	Nevada Plant	Distribution Feeder	12.47	3722	48	98,424
36723	GMO-MPS	Platte	TWA	Distribution Feeder	12.47	3722	48	98,424
35112	GMO-MPS	Blue Springs	Sibley	Distribution Feeder	12.47	3720	48	98,343
36711	GMO-MPS	Platte	TWA	Distribution Feeder	12.47	2978	38	78,723
27214	GMO-MPS	Warrensburg	Kingsville	Distribution Feeder	12.47	3708	48	97,997
28513	GMO-MPS	Henrietta	Lexington	Distribution Feeder	12.47	3046	39	80,357
30721	GMO-MPS	Nevada	Nevada 3M	Distribution Feeder	12.47	3621	46	95,477
28232	GMO-MPS	Lee's Summit	Lees Summit East	Distribution Feeder	12.47	3134	40	82,498
32511	GMO-MPS	Blue Springs	Prairie Lee	Distribution Feeder	12.47	3147	40	82,816
20914	GMO-MPS	Belton	Belton South	Distribution Feeder	12.47	3152	40	82,935
21411	GMO-MPS	Blue Springs	Blue Springs East	Distribution Feeder	12.47	3517	45	92,554
27013	GMO-MPS	Platte	KCI	Distribution Feeder	12.47	3169	41	83,373
35923	GMO-MPS	Liberty	Staley Road	Distribution Feeder	12.47	3171	41	83,425
31311	GMO-MPS	Henrietta	Orrick	Distribution Feeder	12.47	3218	41	84,597
29011	GMO-MPS	Liberty	Liberty Moss St	Distribution Feeder	12.47	3230	41	84,902
29131	GMO-MPS	Liberty	Liberty West	Distribution Feeder	12.47	3365	43	88,407
29022	GMO-MPS	Liberty	Liberty Moss St	Distribution Feeder	12.47	3303	42	86,794
38111	GMO-MPS	Warrensburg	Windsor	Distribution Feeder	12.47	3306	42	86,864
32132	GMO-MPS	Platte	Pope Lane	Distribution Feeder	13.80	13064	653	1,342,611
32131	GMO-MPS	Platte	Pope Lane	Distribution Feeder	13.80	601	6	12,287
247111	GMO-MPS	Trenton	Bethany Sub NWEC	Distribution Feeder	13.80	622	6	12,392
35511	GMO-MPS	Platte	Smithville 13.8	Distribution Feeder	13.80	5801	48	98,357
35512	GMO-MPS	Platte	Smithville 13.8	Distribution Feeder	13.80	5046	35	72,736
32133	GMO-MPS	Platte	Pope Lane	Distribution Feeder	13.80	4817	32	66,360
35513	GMO-MPS	Platte	Smithville 13.8	Distribution Feeder	13.80	4817	32	66,360
35522	GMO-MPS	Platte	Smithville 13.8	Distribution Feeder	13.80	3768	21	43,620
31921	GMO-MPS	Platte	Platte City	Distribution Feeder	24.90	14568	95	194,759
23812	GMO-MPS	Platte	Ferrelview	Distribution Feeder	24.90	14123	87	178,176
23813	GMO-MPS	Platte	Ferrelview	Distribution Feeder	24.90	1375	7	13,919

MPS Distribution Feeder Losses								
KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
23822	GMO-MPS	Platte	Ferrelview	Distribution Feeder	24.90	11747	54	110,795
32111	GMO-MPS	Platte	Pope Lane	Distribution Feeder	24.90	1821	7	15,218
31922	GMO-MPS	Platte	Platte City	Distribution Feeder	24.90	9145	32	65,842
20312	GMO-MPS	Belton	Adrian	Distribution Feeder	24.90	2675	9	18,052
14221	GMO-MPS	Platte	North Congress	Distribution Feeder	24.90	2740	9	18,288
20311	GMO-MPS	Belton	Adrian	Distribution Feeder	24.90	6471	19	38,569
20313	GMO-MPS	Belton	Adrian	Distribution Feeder	24.90	6201	18	36,539
23814	GMO-MPS	Platte	Ferrelview	Distribution Feeder	24.90	6201	18	36,539
23821	GMO-MPS	Platte	Ferrelview	Distribution Feeder	24.90	6201	18	36,539
31923	GMO-MPS	Platte	Platte City	Distribution Feeder	24.90	6201	18	36,539
31924	GMO-MPS	Platte	Platte City	Distribution Feeder	24.90	6201	18	36,539
32112	GMO-MPS	Platte	Pope Lane	Distribution Feeder	24.90	6201	18	36,539
32113	GMO-MPS	Platte	Pope Lane	Distribution Feeder	24.90	6201	18	36,539
23823	GMO-MPS	Platte	Ferrelview	Distribution Feeder	24.90	5829	17	33,920
23811	GMO-MPS	Platte	Ferrelview	Distribution Feeder	24.90	4693	13	27,024
43812	GMO-MPS	Platte	Weston	Distribution Feeder	25.00	1293	7	13,692
43813	GMO-MPS	Platte	Weston	Distribution Feeder	25.00	6201	18	36,539
43814	GMO-MPS	Platte	Weston	Distribution Feeder	25.00	6201	18	36,539
43811	GMO-MPS	Platte	Weston	Distribution Feeder	25.00	4129	12	24,144
204112	GMO-MPS	Clinton	Appleton City	Sub-Transmission	34.00	869	43	89,354
300111	GMO-MPS	Nevada	Metz	Sub-Transmission	34.00	1615	87	179,056
204111	GMO-MPS	Clinton	Appleton City	Sub-Transmission	34.00	1688	86	176,630
322111	GMO-MPS	Warrensburg	Post Oak 69/34kV	Sub-Transmission	34.00	1893	83	169,961
3526R22	GMO-MPS	Lee's Summit	Ralph Green	Sub-Transmission	34.00	1893	83	169,961
278111	GMO-MPS	Nevada	Lamar	Sub-Transmission	34.00	2302	76	157,192
326R24	GMO-MPS	Lee's Summit	Ralph Green	Sub-Transmission	34.00	2391	75	154,489
322112	GMO-MPS	Warrensburg	Post Oak 69/34kV	Sub-Transmission	34.00	3189	64	131,810
223331	GMO-MPS	Clinton	Clinton Plant	Sub-Transmission	34.00	3849	56	115,053
223332	GMO-MPS	Clinton	Clinton Plant	Sub-Transmission	34.00	3849	56	115,053
22822	GMO-MPS	Warrensburg	Concordia 69	Sub-Transmission	34.00	3849	56	115,053
226112	GMO-MPS	Sedalia	Cole Camp Jct	Sub-Transmission	34.00	5011	44	89,875
226111	GMO-MPS	Sedalia	Cole Camp Jct	Sub-Transmission	34.00	7061	29	58,999
31411	GMO-MPS	Clinton	Osceola 161	Sub-Transmission	34.00	7589	26	53,845
22821	GMO-MPS	Warrensburg	Concordia 69	Sub-Transmission	34.00	8353	24	48,414
33511	GMO-MPS	Trenton	Ridgeway 34 NWEC	Sub-Transmission	34.50	3711	58	118,423
241111	GMO-MPS	Clinton	Garden City 69	Sub-Transmission	34.50	6320	33	68,169
						TOTAL NC Loss	**43,429**	**89,267,151**

E.4 GMO-SJLP Distribution Circuits Losses

SJLP Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
40311	GMO-SJLP	St Joe	Krause Mills	Distribution Feeder	2.4	0	0	0
38323	GMO-SJLP	St Joe	Alabama Street	Distribution Feeder	12.47	4062	53	130,357
38711	GMO-SJLP	Maryville	Burlington Junction	Distribution Feeder	12.47	315	17	42,354
42511	GMO-SJLP	St Joe	Rosecrans	Distribution Feeder	12.47	343	17	42,720
43411	GMO-SJLP	Maryville	Worth	Distribution Feeder	12.47	387	18	43,288
38832	GMO-SJLP	St Joe	Cook Road	Distribution Feeder	12.47	10786	399	979,812
38211	GMO-SJLP	St Joe	Ajax	Distribution Feeder	12.47	9949	310	762,353
39421	GMO-SJLP	Maryville	Fillmore Street	Distribution Feeder	12.47	616	19	46,365
39043	GMO-SJLP	St Joe	East Side	Distribution Feeder	12.47	9702	288	707,878
38521	GMO-SJLP	St Joe	Belt Junction	Distribution Feeder	12.47	9678	286	702,846
43612	GMO-SJLP	St Joe	Eastowne	Distribution Feeder	12.47	9378	261	642,380
39712	GMO-SJLP	St Joe	Hwy 48	Distribution Feeder	12.47	715	19	47,763
38911	GMO-SJLP	Maryville	North Ward (Craig)	Distribution Feeder	12.47	717	19	47,786
40011	GMO-SJLP	St Joe	Industrial Park 12	Distribution Feeder	12.47	9159	245	601,495
43021	GMO-SJLP	Maryville	Tarkio	Distribution Feeder	12.47	736	20	48,056
43022	GMO-SJLP	Maryville	Tarkio	Distribution Feeder	12.47	766	20	48,491
39162	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	771	20	48,574
43324	GMO-SJLP	St Joe	Woodbine	Distribution Feeder	12.47	8928	228	561,119
42711	GMO-SJLP	St Joe	Savannah	Distribution Feeder	12.47	8882	225	553,513
39033	GMO-SJLP	St Joe	East Side	Distribution Feeder	12.47	8849	223	548,045
39812	GMO-SJLP	St Joe	Snow Creek	Distribution Feeder	12.47	865	20	49,957
41521	GMO-SJLP	Maryville	Nodaway	Distribution Feeder	12.47	8333	191	469,453
39154	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	907	21	50,588
42412	GMO-SJLP	St Joe	Rochester	Distribution Feeder	12.47	1029	21	52,484
39042	GMO-SJLP	St Joe	East Side	Distribution Feeder	12.47	7698	158	388,039
39611	GMO-SJLP	Maryville	Grant City	Distribution Feeder	12.47	1072	22	53,154
38611	GMO-SJLP	Maryville	Brown's Curve	Distribution Feeder	12.47	1094	22	53,510
38833	GMO-SJLP	St Joe	Cook Road	Distribution Feeder	12.47	7482	148	363,680
38231	GMO-SJLP	St Joe	Ajax	Distribution Feeder	12.47	7479	148	363,342
4210151	GMO-SJLP	St Joe	Quaker Oats	Distribution Feeder	12.47	7443	146	359,419
38321	GMO-SJLP	St Joe	Alabama Street	Distribution Feeder	12.47	7422	145	357,196
41811	GMO-SJLP	Maryville	Parnell	Distribution Feeder	12.47	1152	22	54,457
43312	GMO-SJLP	St Joe	Woodbine	Distribution Feeder	12.47	7292	140	343,504
39431	GMO-SJLP	Maryville	Fillmore Street	Distribution Feeder	12.47	7232	137	337,379
42411	GMO-SJLP	St Joe	Rochester	Distribution Feeder	12.47	1209	23	55,386
41611	GMO-SJLP	St Joe	Oak Street	Distribution Feeder	12.47	7099	132	324,246
41911	GMO-SJLP	Maryville	Pickering	Distribution Feeder	12.47	1216	23	55,508
39032	GMO-SJLP	St Joe	East Side	Distribution Feeder	12.47	7082	131	322,540
39612	GMO-SJLP	Maryville	Grant City	Distribution Feeder	12.47	1256	23	56,171
40122	GMO-SJLP	St Joe	Kellog	Distribution Feeder	12.47	1296	23	56,847
38322	GMO-SJLP	St Joe	Alabama Street	Distribution Feeder	12.47	6834	122	299,400
41641	GMO-SJLP	St Joe	Oak Street	Distribution Feeder	12.47	6680	116	285,877
42521	GMO-SJLP	St Joe	Rosecrans	Distribution Feeder	12.47	1418	24	58,966
38821	GMO-SJLP	St Joe	Cook Road	Distribution Feeder	12.47	6471	109	268,513
38831	GMO-SJLP	St Joe	Cook Road	Distribution Feeder	12.47	6282	103	253,695
40021	GMO-SJLP	St Joe	Industrial Park 12	Distribution Feeder	12.47	6227	102	249,559
42213	GMO-SJLP	Maryville	Ravenwood	Distribution Feeder	12.47	1570	25	61,719
38311	GMO-SJLP	St Joe	Alabama Street	Distribution Feeder	12.47	6075	97	238,434
PO2475-11	GMO-SJLP	Maryville	Phelps City	Distribution Feeder	12.47	1637	26	62,980
42611	GMO-SJLP	St Joe	Rushville	Distribution Feeder	12.47	1638	26	62,997

SJLP Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
38221	GMO-SJLP	St Joe	Ajax	Distribution Feeder	12.47	5880	91	224,927
39412	GMO-SJLP	Maryville	Fillmore Street	Distribution Feeder	12.47	5878	91	224,736
38531	GMO-SJLP	St Joe	Belt Junction	Distribution Feeder	12.47	5805	89	219,891
40911	GMO-SJLP	St Joe	Messanie Street	Distribution Feeder	12.47	5781	89	218,328
42212	GMO-SJLP	Maryville	Ravenwood	Distribution Feeder	12.47	1701	26	64,205
43031	GMO-SJLP	Maryville	Tarkio	Distribution Feeder	12.47	1706	26	64,300
41631	GMO-SJLP	St Joe	Oak Street	Distribution Feeder	12.47	1709	26	64,356
39711	GMO-SJLP	St Joe	Hwy 48	Distribution Feeder	12.47	1744	26	65,023
39161	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	5600	84	206,792
40761	GMO-SJLP	Maryville	Maryville	Distribution Feeder	12.47	5570	83	204,940
41411	GMO-SJLP	St Joe	Muddy Creek	Distribution Feeder	12.47	5514	82	201,515
41412	GMO-SJLP	St Joe	Muddy Creek	Distribution Feeder	12.47	1838	27	66,892
38312	GMO-SJLP	St Joe	Alabama Street	Distribution Feeder	12.47	5449	80	197,635
4210152	GMO-SJLP	St Joe	Quaker Oats	Distribution Feeder	12.47	5396	79	194,533
38822	GMO-SJLP	St Joe	Cook Road	Distribution Feeder	12.47	5281	76	187,891
40212	GMO-SJLP	St Joe	King City	Distribution Feeder	12.47	2010	29	70,436
38823	GMO-SJLP	St Joe	Cook Road	Distribution Feeder	12.47	5098	72	177,853
40211	GMO-SJLP	St Joe	King City	Distribution Feeder	12.47	2047	29	71,227
43311	GMO-SJLP	St Joe	Woodbine	Distribution Feeder	12.47	5014	71	173,440
39511	GMO-SJLP	St Joe	Gower	Distribution Feeder	12.47	5010	70	173,225
42731	GMO-SJLP	St Joe	Savannah	Distribution Feeder	12.47	4965	70	170,929
39031	GMO-SJLP	St Joe	East Side	Distribution Feeder	12.47	4952	69	170,242
38541	GMO-SJLP	St Joe	Belt Junction	Distribution Feeder	12.47	2133	30	73,085
43611	GMO-SJLP	St Joe	Eastowne	Distribution Feeder	12.47	4891	68	167,154
40611	GMO-SJLP	Maryville	Maitland	Distribution Feeder	12.47	2189	30	74,311
40941	GMO-SJLP	St Joe	Messanie Street	Distribution Feeder	12.47	4799	66	162,603
42612	GMO-SJLP	St Joe	Rushville	Distribution Feeder	12.47	2262	31	75,959
39163	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	2287	31	76,542
38712	GMO-SJLP	Maryville	Burlington Junction	Distribution Feeder	12.47	2308	31	77,016
39311	GMO-SJLP	Maryville	Fairfax	Distribution Feeder	12.47	2312	31	77,111
38313	GMO-SJLP	St Joe	Alabama Street	Distribution Feeder	12.47	2330	32	77,521
42721	GMO-SJLP	St Joe	Savannah	Distribution Feeder	12.47	4561	62	151,406
41321	GMO-SJLP	Maryville	Mound City	Distribution Feeder	12.47	2380	32	78,709
39411	GMO-SJLP	Maryville	Fillmore Street	Distribution Feeder	12.47	2401	32	79,192
38824	GMO-SJLP	St Joe	Cook Road	Distribution Feeder	12.47	4310	57	140,413
40931	GMO-SJLP	St Joe	Messanie Street	Distribution Feeder	12.47	4240	56	137,524
40782	GMO-SJLP	Maryville	Maryville	Distribution Feeder	12.47	4175	55	134,863
43323	GMO-SJLP	St Joe	Woodbine	Distribution Feeder	12.47	4160	55	134,237
38241	GMO-SJLP	St Joe	Ajax	Distribution Feeder	12.47	4159	55	134,195
38561	GMO-SJLP	St Joe	Belt Junction	Distribution Feeder	12.47	2637	35	85,003
41621	GMO-SJLP	St Joe	Oak Street	Distribution Feeder	12.47	4083	53	131,191
39815	GMO-SJLP	St Joe	Snow Creek	Distribution Feeder	12.47	2693	35	86,451
43613	GMO-SJLP	St Joe	Eastowne	Distribution Feeder	12.47	4062	53	130,357
43614	GMO-SJLP	St Joe	Eastowne	Distribution Feeder	12.47	4062	53	130,357
39164	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	4062	53	130,357
40431	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4062	53	130,357
40433	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4062	53	130,357
40434	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4062	53	130,357
40461	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4062	53	130,357
40462	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4062	53	130,357
40463	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4062	53	130,357
40464	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4062	53	130,357
40751	GMO-SJLP	Maryville	Maryville	Distribution Feeder	12.47	4062	53	130,357
40783	GMO-SJLP	Maryville	Maryville	Distribution Feeder	12.47	4062	53	130,357
40784	GMO-SJLP	Maryville	Maryville	Distribution Feeder	12.47	4062	53	130,357
PO2475-12	GMO-SJLP	Maryville	Phelps City	Distribution Feeder	12.47	4062	53	130,357
43313	GMO-SJLP	St Joe	Woodbine	Distribution Feeder	12.47	4062	53	130,357
43321	GMO-SJLP	St Joe	Woodbine	Distribution Feeder	12.47	4062	53	130,357
43322	GMO-SJLP	St Joe	Woodbine	Distribution Feeder	12.47	4062	53	130,357
41711	GMO-SJLP	Maryville	Oregon	Distribution Feeder	12.47	2707	35	86,813
40432	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	12.47	4013	52	128,452
41511	GMO-SJLP	Maryville	Nodaway	Distribution Feeder	12.47	3970	52	126,790
39151	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	2808	36	89,494

SJLP Distribution Feeder Losses

KCPL ID	Region	DISTRICT	Substation	Item Type	Voltage	Circuit Demand Loading (kVA)	Non-Coincident Peak Loss (kW)	Circuit Energy Loss (kWh)
39521	GMO-SJLP	St Joe	Gower	Distribution Feeder	12.47	2836	37	90,247
43032	GMO-SJLP	Maryville	Tarkio	Distribution Feeder	12.47	2905	37	92,137
40121	GMO-SJLP	St Joe	Kellog	Distribution Feeder	12.47	2911	38	92,285
40921	GMO-SJLP	St Joe	Messanie Street	Distribution Feeder	12.47	3788	49	120,053
41311	GMO-SJLP	Maryville	Mound City	Distribution Feeder	12.47	2992	38	94,575
39041	GMO-SJLP	St Joe	East Side	Distribution Feeder	12.47	2997	39	94,692
39153	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	3680	47	116,242
38511	GMO-SJLP	St Joe	Belt Junction	Distribution Feeder	12.47	3066	39	96,681
39441	GMO-SJLP	Maryville	Fillmore Street	Distribution Feeder	12.47	3127	40	98,460
39442	GMO-SJLP	Maryville	Fillmore Street	Distribution Feeder	12.47	3254	42	102,303
40781	GMO-SJLP	Maryville	Maryville	Distribution Feeder	12.47	3271	42	102,805
42211	GMO-SJLP	Maryville	Ravenwood	Distribution Feeder	12.47	3271	42	102,822
39152	GMO-SJLP	St Joe	Edmond Street	Distribution Feeder	12.47	3387	43	106,473
41721	GMO-SJLP	Maryville	Oregon	Distribution Feeder	12.47	3319	42	104,315
39141	GMO-SJLP	St Joe	Edmond Street	Sub-Transmission	34.5	1360	91	224,449
39142	GMO-SJLP	St Joe	Edmond Street	Sub-Transmission	34.5	1894	83	203,281
386221	GMO-SJLP	Maryville	Brown's Curve	Sub-Transmission	34.5	1991	81	199,558
407771	GMO-SJLP	Maryville	Maryville	Distribution Feeder	34.5	2434	75	183,249
39022	GMO-SJLP	St Joe	East Side	Sub-Transmission	34.5	40556	974	2,394,370
40423	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	34.5	23968	225	553,952
39011	GMO-SJLP	St Joe	East Side	Distribution Feeder	34.5	22012	173	426,159
401222	GMO-SJLP	St Joe	Kellog	Sub-Transmission	34.5	5310	41	100,830
39922	GMO-SJLP	St Joe	Industrial Park 34	Sub-Transmission	34.5	21636	164	403,756
39911	GMO-SJLP	St Joe	Industrial Park 34	Sub-Transmission	34.5	20950	148	364,622
404R3	GMO-SJLP	St Joe	Lake Road	Sub-Transmission	34.5	5773	37	91,365
40422	GMO-SJLP	St Joe	Lake Road	Distribution Feeder	34.5	19849	125	306,692
40414	GMO-SJLP	St Joe	Lake Road	Mix Trs & Fdr	34.5	19304	114	280,235
386222	GMO-SJLP	Maryville	Brown's Curve	Sub-Transmission	34.5	6024	35	86,675
407441	GMO-SJLP	Maryville	Maryville	Sub-Transmission	34.5	7421	27	66,220
39012	GMO-SJLP	St Joe	East Side	Mix Trs & Fdr	34.5	7728	26	63,017
39145	GMO-SJLP	St Joe	Edmond Street	Sub-Transmission	34.5	14634	46	113,311
40413	GMO-SJLP	St Joe	Lake Road	Mix Trs & Fdr	34.5	14537	45	110,966
39021	GMO-SJLP	St Joe	East Side	Mix Trs & Fdr	34.5	13518	36	89,299
39921	GMO-SJLP	St Joe	Industrial Park 34	Distribution Feeder	34.5	9005	22	54,639
39143	GMO-SJLP	St Joe	Edmond Street	Sub-Transmission	34.5	12854	32	77,909
39144	GMO-SJLP	St Joe	Edmond Street	Sub-Transmission	34.5	12854	32	77,909
401221	GMO-SJLP	St Joe	Kellog	Sub-Transmission	34.5	12854	32	77,909
40411	GMO-SJLP	St Joe	Lake Road	Sub-Transmission	34.5	12854	32	77,909
40421	GMO-SJLP	St Joe	Lake Road	Sub-Transmission	34.5	12854	32	77,909
404R6	GMO-SJLP	St Joe	Lake Road	Sub-Transmission	34.5	12501	30	72,745
40412	GMO-SJLP	St Joe	Lake Road	Sub-Transmission	34.5	10375	22	54,570
						TOTAL NC Loss	**11,827**	**29,077,209**

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