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March 31, 2010

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PUBLIC SERVICE
COMMISSION

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HAND DELIVERED

Reggie Chaney
Director of Engineering
Public Service Commission of Kentucky
211 Sower Boulevard
Frankfort, Kentucky 40601

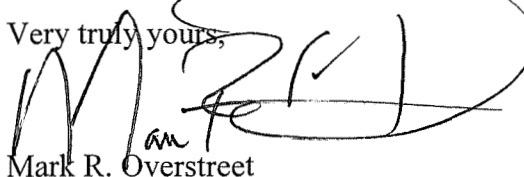
RE: Kentucky Power Company – Electric Distribution Utility Annual Reliability Report

Dear Mr. Chaney:

Enclosed please find Kentucky Power Company's filing in response to the Commission's October 26, 2006 Order in Case No. 2006-00494.

Please do not hesitate to contact me if you have any questions.

Very truly yours,



Mark R. Overstreet

cc: E.K. Wagner

KENTUCKY PUBLIC SERVICE COMMISSION

MAR 31 2010

Electric Distribution Utility Annual Reliability Report

PUBLIC SERVICE
COMMISSIONSECTION 1: CONTACT INFORMATION

UTILITY NAME	1.1	Kentucky Power Company
REPORT PREPARED BY	1.2	Everett G. Phillips
E-MAIL ADDRESS OF PREPARER	1.3	egphillips@aep.com
PHONE NUMBER OF PREPARER	1.4	606-929-1463

SECTION 2: REPORT YEAR

CALENDAR YEAR OF REPORT	2.1	2009
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SECTION 3: MAJOR EVENT DAYS

T_{MED}	3.1	24,298
FIRST DATE USED TO DETERMINE T_{MED}	3.2	1/1/2004
LAST DATE USED TO DETERMINE T_{MED}	3.3	12/31/2008
NUMBER OF MED IN REPORT YEAR	3.4	11 days

NOTE: Per IEEE 1366 T_{MED} should be calculated using the daily SAIDI values for the five prior years. If five years of data are not available, then utilities should use what is available until five years are accumulated.

SECTION 4: SYSTEM RELIABILITY RESULTS

Excluding MED

SAIDI	4.1	497.1
SAIFI	4.2	2.556
CAIDI	4.3	194.5

Including MED (Optional)

SAIDI	4.4	4065.2
SAIFI	4.5	4.079
CAIDI	4.6	996.6

Notes:

- 1) All duration indices (SAIDI, CAIDI) are to be reported in units of minutes.
- 2) Reports are due on the first business day of April of each year
- 3) Reports cover the calendar year ending in the December before the reports are due.
- 4) IEEE 1366 (latest version) is used to define SAIDI, SAIFI, CAIDI, and T_{MED}

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

SECTION 5: OUTAGE CAUSE CATEGORIES

Excluding MED

CAUSE CODE DESCRIPTION	SAIDI VALUE	CAUSE CODE DESCRIPTION	SAIFI VALUE
Veg Outside R/W 5.1.1	174.8	Veg Outside R/W 5.2.1	0.575
Veg Inside R/W 5.1.2	89.2	Equipment Failure 5.2.2	0.558
Equipment Failure 5.1.3	83.7	Veg Inside R/W 5.2.3	0.347
Scheduled 5.1.4	33.9	Scheduled 5.2.4	0.311
Transmission 5.1.5	19.2	Transmission 5.2.5	0.168
Weather - Ice 5.1.6	16.3	Station - Distribution 5.2.6	0.109
Vehicle Accident 5.1.7	11.5	Vehicle Accident 5.2.7	0.084
Unknown (Non-Weather) 5.1.8	10.8	Unknown (Non-Weather) 5.2.8	0.077
Flood/Slide 5.1.9	9.0	Tree Removal (Non-AEP) 5.2.9	0.056
Station - Distribution 5.1.10	8.7	Overload 5.2.10	0.044

SECTION 6: WORST PERFORMING CIRCUITS

CIRCUIT IDENTIFIER	SAIDI VALUE	MAJOR OUTAGE CATEGORY
3311101	6.1.1 3373.5	Tree Out of ROW
3309902	6.1.2 2048.9	Tree Out of ROW
3309901	6.1.3 1656.4	Weather - Flood/Slide
3310501	6.1.4 1620.8	Tree Out of ROW
3200202	6.1.5 1550.1	Tree Out of ROW
3307301	6.1.6 1518.6	Tree Out of ROW
3311102	6.1.7 1518.6	Tree Out of ROW
3404002	6.1.8 1473.5	Equipment Failure
3301701	6.1.9 1459.5	Tree Out of ROW
3301101	6.1.10 1430.3	Tree Out of ROW

CIRCUIT IDENTIFIER	SAIFI VALUE	MAJOR OUTAGE CATEGORY
3311101	6.2.1 8.999	Tree Out of ROW
3309902	6.2.2 7.694	Tree Out of ROW
2150103	6.2.3 7.122	Scheduled - Company
3000201	6.2.4 6.891	Overload
3307301	6.2.5 6.461	Tree Out of ROW
3301402	6.2.6 6.450	Tree Out of ROW
3310501	6.2.7 6.313	Tree Out of ROW
3302701	6.2.8 6.108	Tree Inside ROW
3308603	6.2.9 5.851	Tree Inside ROW
3301701	6.2.10 5.556	Equipment Failure

KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

Additional pages may be attached as necessary

SECTION 7: VEGETATION MANAGEMENT PLAN REVIEW

See attachments:

- 2010 Kentucky Power Vegetation Management Plan.doc
- 2009 VM Plan Recap.xls

NOTE: Due to the historic level of storm activity in 2009, and especially the December snow storm, Kentucky Power was unable to spend all of the funds designated for Vegetation Management during 2009.

SECTION 8: UTILITY COMMENTS

In 2009, Kentucky Power experienced an unusually high number of JMED's (11), which caused the System Reliability Results with no exclusions to rise dramatically compared to previous years.

System Reliability Results for each of the past 5 years is attached separately:

- System Reliability 5-Year Summary - Kentucky Power - 2009.xls

Worst Performing Circuit (WPC) analysis and plans are attached separately:

- KPCo WPC Analysis and Plans - Ashland District for Calendar Year 2009.doc
- KPCo WPC Analysis and Plans - Hazard District for Calendar Year 2009.doc
- KPCo WPC Analysis and Plans - Pikeville District for Calendar Year 2009.doc

2010 Kentucky Power Vegetation Management Plan/Review

There are no major changes to the Vegetation Management Plan for 2010. The Cut portion of the 2010 VMP will focus on Feeder Breaker Zones and Recloser/Sectionalizer Zones that impact large numbers of customers. Mitigating tree-caused outages in these areas will provide the optimum impact on reducing SAIFI. These zones will be prioritized and scheduled based on past reliability performance, field inspection of the right-of-way conditions, and the number of customers impacted. Some line segments that have experienced repeated tree-caused outages in 2009 will be included in the 2010 Plan also. Some full-circuit reclearing will also be performed. These circuits will be selected based on tree-related outage performance. Approximately \$571,175 will be earmarked in the Cut portion of the VM Plan to address reactive reliability issues that develop throughout the year. This Unscheduled/Reactive funding represents about eight percent of the total VM Budget.

Right-of-Way (ROW) widening will be performed on selected line segments to reduce the potential for outages caused by trees from outside the ROW. These lines segments are typically in inaccessible areas, have experienced excessive Tree Out of ROW outages, and/or serve critical or large numbers of customers. This work will be funded under the Capital portion of the VM Plan.

Herbicide treatment methods are an important component of Kentucky Power's Vegetation Management Plan. ULV (Ultra Low Volume), high-volume foliar, basal, cut-surface, and aerial application techniques will be utilized depending on the brush conditions. The goal is to treat 1,804 acres of brush in 2010.

2010 KENTUCKY POWER DISTRIBUTION VEGETATION MANAGEMENT PLAN

AREA	PLANNED MILES	PLANNED SPRAY ACRES	FORESTRY CAPITAL FUNDING	UNSCHEDULED REACTIVE O&M FUNDING	SCHEDULED O&M FUNDING	TOTAL O&M FUNDING	TOTAL VMP FUNDING
HAZARD	333	854	\$348,319	\$197,579	\$2,032,949	\$ 2,230,528	\$2,578,847
PIKEVILLE	360	630	\$378,310	\$273,132	\$2,222,821	\$ 2,495,953	\$2,874,263
ASHLAND	179	320	\$273,371	\$100,464	\$1,673,055	\$ 1,773,519	\$2,046,890
TOTALS	872	1804	\$1,000,000	\$571,175	\$5,928,825	\$ 6,500,000	\$7,500,000

The 2009 VM Plan was implemented without any major changes. The Ice Storm in January, the February Wind Storm in the Hazard Area and the widespread Snow Storm in December caused significant damage to our distribution system. Tree crews worked for several weeks following these major events to remove damaged trees and limbs endangering our facilities. A series of minor storms in June initiated additional reactive tree work that also impacted our VM Plan. The historic level of storm activity experienced in 2009 prevented us from spending all of the funds designated for Vegetation Management during 2009. We also performed more Right-of-Way widening work than was originally planned. This work was funded under the Capital portion of the budget. Right-of-Way widening is aimed at improving the long-term reliability of line segments by reducing the number of outages caused by trees falling from outside of the Right-of-Way.

2009 KENTUCKY POWER DISTRIBUTION VEGETATION MANAGEMENT RECAP

AREA	PLANNED MILES	ACTUAL MILES	PLANNED SPRAY ACRES	ACTUAL SPRAY ACRES	FORESTRY CAPITAL FUNDING	FORESTRY CAPITAL EXPENDITURES	UNSCHEDULED REACTIVE O&M FUNDING	UNSCHEDULED REACTIVE O&M EXPENDITURES
HAZARD	484	668	863	1092	\$ 891,407	\$ 734,979	\$ 191,947	\$ 215,338
PIKEVILLE	408	168	621	615	\$ 1,012,136	\$ 1,303,778	\$ 320,400	\$ 317,995
ASHLAND	337	119	493	279	\$ 772,457	\$ 873,702	\$ 150,000	\$ 173,839
TOTALS	1229	955	1977	1986	\$ 2,676,000	\$ 2,912,459	\$ 662,347	\$ 707,172

AREA	SCHEDULED O&M FUNDING	SCHEDULED O&M EXPENDITURES	TOTAL O&M FUNDING	TOTAL O&M EXPENDITURES	TOTAL VMP FUNDING	TOTAL VMP EXPENDITURES
HAZARD	\$ 2,139,834	\$ 1,943,300	\$ 2,331,781	\$ 2,158,638	\$ 3,223,188	\$ 2,893,617
PIKEVILLE	\$ 2,327,192	\$ 2,258,520	\$ 2,647,592	\$ 2,576,515	\$ 3,659,728	\$ 3,880,293
ASHLAND	\$ 1,870,627	\$ 1,665,818	\$ 2,020,627	\$ 1,839,657	\$ 2,793,084	\$ 2,713,359
TOTALS	\$ 6,337,653	\$ 5,867,638	\$ 7,000,000	\$ 6,574,810	\$ 9,676,000	\$ 9,487,269

NOTE: Due to the historic level of storm activity in 2009, and especially the December snow storm, Kentucky Power was unable to spend all of the funds designated for Vegetation Management during 2009.

Kentucky Power Company

5-Year System Performance

(Excluding Major Events as defined by IEEE Std 1366)

Calendar Year	SAIFI	CAIDI	SAIDI
2005	2.574	159.5	410.4
2006	2.756	182.2	502.1
2007	2.276	146.9	334.2
2008	2.904	170.9	496.3
2009	2.556	194.5	497.1

Kentucky Power Company

2009 WORST PERFORMING CIRCUITS

Analysis of Causes/Corrective Actions

Ashland District

Big Sandy Station - Fallsburg South 12kV Circuit (3000201 – SAIFI #4)

This circuit ranked 4th, with a SAIFI of 6.891, on the 2009 SAIFI Worst Performing List primarily due to three cause codes: Overload, Equipment Failure, and Scheduled Company Outage. These three cause codes accounted for 82.2% of the circuit's SAIFI for the year.

Overload – On January 16 and 17, the feeder breaker opened on both days as the B phase conductor sagged into the neutral. Some of the customers on the circuit had multiple outages each day due to cold load pick up problems. These two days accounted for 50.9% of the circuit's total 2009 SAIFI. In December 2009, a project was completed to construct 9.9 kft of three phase 556 Al to help relieve the overloaded 4/0 AA conductor. A different route was taken for the new line, so that possible future considerations could allow for additional construction and the possibility of splitting the circuit. There was no sagging problem during the winter of 2009-2010, after the reconductoring work was completed.

Equipment Failure – Cutout failures were the key contributor to the SAIFI for equipment failures. One outage in the second zone accounted for 45.3% of the equipment failure SAIFI or 7.6% of the total SAIFI. EMI equipment will be used in the future to try to reduce the equipment failures on the circuit.

Scheduled Company – A 9.375 MVA Y-Y station transformer was replaced with a 20 MVA delta-Y station transformer. Due to the phase shift, a 12 minute outage occurred for the installation of a mobile transformer. This accounted for 14.4% of the circuit's total 2009 SAIFI.

Kentucky Power Company

2009 WORST PERFORMING CIRCUITS

Analysis of Causes/Corrective Actions

Hazard District

Stinnett Station – Redbird 34KV Circuit (3311101 – SAIDI # 1, SAIFI # 1)

This circuit wasn't on either the SAIFI or SAIDI worst performer lists in 2007 or 2008. Trees Inside ROW and Trees Out of ROW contributed 63% of the entire customer minutes interrupted (CMI) for 2009. Trees Out of ROW contributed 44% of the total.

Below is a table summarizing the top ten outages on the circuit based on total CMI:

Interruption Start Date	Minor Cause	Clearing Device	Outage Duration	Total Cust Affected	Total Cust Min
06/16/2009	TREE OUT OF ROW	PRI OPEN	1,178	817	962,426
06/18/2009	TREE OUT OF ROW	RECLOSER	1,944	441	438,756
06/16/2009	TREE INSIDE ROW	RECLOSER	1,659	468	390,708
08/12/2009	WEATHER – FLOOD/SLIDE	RECLOSER	754	442	333,268
08/12/2009	WEATHER – FLOOD/SLIDE	RECLOSER	789	740	292,601
10/12/2009	SCHEDULED COMPANY	RECLOSER	352	801	281,952
06/11/2009	TREE INSIDE ROW	RECLOSER	505	817	232,085
04/03/2009	EQUIPMENT FAILURE	FDR BREAKER	154	1,431	220,374
08/22/2009	TREE OUT OF ROW	RECLOSER	931	279	186,061
02/19/2009	TREE OUT OF ROW	RECLOSER	145	834	120,930

The outage on 6/16/2009 involved a tree falling and breaking a pole. This resulted in an outage a little over 19 hours long in which 817 customers were without power. This outage alone contributed 20% of the CMI for 2009 on this circuit.

The reason for the high SAIDI and SAIFI on this circuit is that many of the outages listed in the table above affected either the feeder breaker or the recloser protecting the main branches of the circuit. Many of these outages also caused significant damage whether it was by falling trees or floods which caused extensive damage and took more than normal time to repair.

Corrective Actions

The outage on Oct. 12, 2009 was scheduled in order to replace defective poles that were hard to access. This planned outage was taken to prevent a larger outage in the future if one of the defective poles were to fall causing extensive damage and longer repair time.

The Stinnett Redbird Circuit is in the Hazard District Forestry Plan for 2010. This includes a 13.9 mile reclearing of ROW and a 25 acre ground spray plan. This will include critical regions where there have been several outages due to trees. A large portion of the tree related outages experienced by this circuit will be addressed in this plan but will not prevent all of the tree-related issues.

Slemp Station – Leatherwood 34KV Ckt (3309902 - SAIDI # 2, SAIFI # 2)

Trees Out of ROW, Vehicle Accidents, and Trees Inside ROW contributed 89% of the CMI for the Leatherwood circuit in 2009. The top five outages listed below accounted for 75% of the outages based off of CMI:

Date	Minor Cause	Clearing Device	Outage Duration	Total Cust Affected	Total Customer Min
04/05/2009	TREE OUT OF ROW	Feeder Breaker	840	643	369,472
06/18/2009	TREE OUT OF ROW	Feeder Breaker	524	596	218,653
12/02/2009	VEHICLE ACCIDENT	Feeder Breaker	336	639	149,475
02/19/2009	TREE OUT OF ROW	Feeder Breaker	220	647	142,340
10/17/2009	TREE INSIDE ROW	Feeder Breaker	273	647	103,151

All of the top five outages for this circuit occurred in the feeder breaker zone. Four of these are tree related while one is due to a vehicle accident. The high SAIDI and SAIFI is a result of all these outages occurring in the feeder breaker zone.

On Dec. 2, 2009 there was an outage involving a vehicle accident which broke a pole. The resulting misfortune led to an outage accruing 149,475 CMI.

Corrective Actions

In 2010, the Vegetation Management Plan is to reclear 5.17 miles of ROW on this circuit. This includes the area from the station to the first recloser. This plan will greatly aid in the prevention of some of the outages that have occurred in the feeder breaker zone.

Slemp Leatherwood is a radial circuit with only one tie to the Daisy Leatherwood circuit. The possibility of building a tie-line between Slemp Leatherwood and Leslie Wooten Circuits will be studied. A tie-line to another source would provide the ability to temporarily restore several customers in the event of some outages.

Haddix Station – Quicksand 34KV Ckt (3310501 – SAIDI # 4, SAIFI # 7)

The Haddix Quicksand Circuit has been on the worst performing list for the past several years. In 2008, the Haddix Quicksand circuit ranked # 4 in SAIDI and # 1 in SAIFI. Though several improvements have been undertaken, the circuit remains on the worst performing circuit list for 2009.

The top four outage causes contributed 88% percent of the CMI on this circuit in 2009 and are listed in the chart below:

Minor Cause	Nbr Interruptions	Total Cust Affected	Total Cust Min
TREE OUT OF ROW	59	6,206	1,967,659
SCHEDULED	9	3,003	589,304
WEATHER	3	1,106	375,712
TREE INSIDE ROW	44	951	262,661

The Haddix Quicksand circuit is Hazard's largest circuit by line miles (about 250 miles). This circuit also serves over 2150 customers. Any outage on the feeder breaker or the first zone reclosers will result in a high CMI outage.

The largest single outage accounted for 428,751 of the total CMI. This was scheduled by the company to replace several older polymer insulators. Four of the five largest outages took extra time to repair due to the terrain or the extent of damage from either a tree falling on the line or a rock slide. Four of the top five outages caused either the feeder breaker or the first zone reclosers to lock open.

Corrective Actions

Several older polymer insulators that are experiencing an increasing number of outages are located on this circuit. Several of the outages scheduled during 2009 were to replace these insulators with newer equipment.

It is planned to replace the remainder of the polymer insulators with newer equipment. In 2008, 250 insulators of this type were identified in a pole to pole inspection. Presently, roughly half of these insulators have already been replaced.

Long term planning (will not take effect till several years from now) presently includes construction of an additional circuit feeder breaker and exit circuit to divide the Haddix Quicksand circuit into two different circuits. The implementation of a new exit circuit would drastically reduce the amount of customer minutes interrupted (CMI) resulting from any outages on the Haddix Quicksand breaker. The smaller circuits should also lead to a reduction of SAIFI as fewer customers are affected during individual outages.

Bulan Station – Ary-Heiner 12KV Ckt (3307301 – SAIDI # 6, SAIFI # 5)

The major contributors to outages for this circuit are Tree Out of ROW, Equipment Failure, Overload and, Tree Inside ROW. All of these causes have contributed 85% of the total customer minutes interrupted (CMI) on the circuit during 2009.

An outage occurring on Feb. 28, 2009 accounted for 19% of the total CMI. In this event the pole was burned off at the cross arm. The crew had to wait until the next morning to restore power to the customers due to danger of doing this work in night time conditions.

On Sept. 25, 2009 a tree fell burning down a conductor. This caused a recloser feeding one of the main segments of the circuits to open. Due to repairs needed and the number of customers on the recloser, this one outage accounted for almost 18% of the total CMI for this circuit in 2009.

Minor Cause	Nbr Interruptions	Total Cust Affected	Total Cust Min
TREE OUT OF ROW	8	1,662	372,820
EQUIPMENT FAILURE	16	1,281	294,404
OVERLOAD	2	381	130,943
TREE INSIDE ROW	10	402	110,387
OTHER CAUSES	24	842	165,097

Corrective Actions

A couple of outages experienced by this circuit were caused by or delayed by a recloser that was not operating properly. This recloser was replaced in Feb. 2009.

In 2009, Kentucky Power obtained an improved device to help locate failing equipment by detecting EMI emanating from an arc. Though it will not find all the problems on a circuit this device will aid in locating and preventing some outages. Due to the large number of outages caused by equipment failure on this circuit, the majority of the feeder will be scouted with this device.

Daisy Station – Leatherwood 12 KV Ckt (3301701 – SAIDI # 9, SAIFI #10)

The top three outages causes for the Daisy Leatherwood circuit include Tree Out of ROW, Tree Inside ROW and Equipment Failure, which account for 91% of the total CMI which occurred on this circuit in 2009. (Tree Out of ROW contributed 57% of total CMI.)

The largest single outage accounted for over 28% of the total CMI. A tree out of the ROW fell and caused significant damage to a pole and conductors. Due to the location, the pole had to be manually set. This caused 606 customers to be out of power for over 15 hours.

Corrective Actions

A plan for the Daisy Leatherwood circuit has been drawn up to help improve load balance for the circuit. The plan calls for multi-phasing in several areas as well as upgrading reclosers and fuses to larger sizes. The ROW is to be cleared in the areas requiring multi-phase work. This will also help decrease the CMI due to cold load pick up issues that have occurred in different areas.

Forestry Management also plans to reclear a total of 3.64 line miles of ROW. Of this total, 0.84 miles will be cleared within the first breaker zone while 2.8 miles is planned to be cleared in critical areas where trees have been a problem.

Slemp Station – Defeated Creek 34 KV Circuit (3309901 – SAIDI # 3)

The Slemp Defeated Creek is a smaller circuit serving only 35 customers. The circuit has experienced 7 total outages for 2009. Two of these outages account for 82% of the CMI in 2009. These two outages can be seen in the chart below.

Interruption Start Date	Minor Cause	Clearing Device	Outage Duration	Total Cust Affected	Total Cust Min
06/11/2009	WEATHER – FLOOD/SLIDE	PRI OPEN	1,116	31	34,086
12/23/2009	WEATHER - ICE (1/2 inch or > 6 "Snow)	XFMR FUSE	3,386	4	13,544

The outage occurring on Dec 23 involved only four customers but lasted over two and half days. A major snow storm had caused several outages. This particular outage took awhile due to the clean up efforts that were ongoing trying to restore everyone's power.

The second outage which occurred on June 11, 2009 was caused by a slide. This outage also involved replacing a pole and due to the conditions it lasted a little under 2 days.

Due to their nature, these outages were difficult to restore. If the two outages listed above had not occurred, then the SAIDI for this circuit would have dropped drastically. Also, because of the unusual nature of these outages, there are no plans for corrective actions.

Stinnett Station – Beechfork 34KV Circuit (3311102 – SAIDI # 7)

Stinnett Beechfork is a dedicated circuit serving only five customers. Because of the low customer count, any outage involving the station breaker for any significant amount of time will greatly add to the SAIDI index. This circuit made the top ten worst performing circuits list because of one outage in particular. In late May, one of the breakers in the Stinnett Station failed violently spewing oil everywhere. An outage was scheduled by the Company in order to clean up the oil spill. The load from the other circuits within the Stinnett Station was transferred to other stations. However, the load on Stinnett Beechfork circuit could not be transferred resulting in an outage lasting a little over four hours.

Corrective Actions

Due to the rarity of the outage mentioned above no corrective outage is needed for this circuit.

Combs Station – Airport Gardens 12KV Circuit (3301402 – SAIFI # 6)

The top four outage causes comprising 87% percent of the customers interrupted on this circuit during 2009 can be found in the chart below:

Minor Cause	Nbr Interruptions	Total Cust Affected	Total Cust Min
TREE OUT OF ROW	9	1,972	449,745
TREE INSIDE ROW	17	1,449	216,196
EQUIPMENT FAILURE	17	1,339	199,181
VEHICLE ACCIDENT	1	1,040	164,319

Six of these outages occurred on either the feeder breaker zone or the first recloser zone, which means that a large number of customers were affected by these outages.

e.g. the outage involving the vehicle accident accounted for 16% of the customers interrupted on this circuit. This event caused the feeder breaker to open resulting in 1040 customers being interrupted for 15 hours.

Corrective Actions

In 2009, Kentucky Power obtained an improved device to help locate failing equipment by detecting EMI emanating from an arc. Though it will not find all the problems on a circuit, this device will aid in locating and preventing some outages. Due to the large number of outages caused by equipment failure on this circuit, the majority of the feeder will be scouted with this device.

Hazard Station – Black Gold 34KV Circuit (3302701 – SAIFI # 8)

The Hazard Black Gold circuit made the top ten worst performer list for SAIFI in 2009 due to 5 large outages occurring on the feeder breaker or on the first zone recloser. Below is a list of outages showing these 5 outages, which account for 81% of the customers interrupted on this circuit in all of 2009:

Interruption Start Date	Minor Cause	Clearing Device	Outage Duration	Total Cust Affected	Total Cust Min
07/26/2009	WEATHER - LIGHTNING	FDR BREAKER	211	626	83,418
07/26/2009	EQUIPMENT FAILURE	FDR BREAKER	10	529	5,290
04/02/2009	UNKNOWN (NON WEATHER)	RECLOSER	98	507	49,686
05/30/2009	TREE REMOVAL (NON AEP)	RECLOSER	295	501	62,361
06/26/2009	TREE INSIDE ROW	RECLOSER	135	501	46,677

Corrective Actions

Some of these outages may have been prevented with the use of devices to help detect failing equipment. In 2009, Kentucky Power obtained an improved device to help locate failing equipment by detecting EMI emanating from an arc. This tool will be used to scan the feeder breaker zone and the area past the first recloser in order to try to find failing equipment and prevent a large outage from occurring.

The Hazard Black Gold circuit is part of the Vegetation Management Plan for reclearing during 2010. Under this plan 5.22 line miles of ROW will be recleared and 50 acres of land will be sprayed on this circuit.

Collier Station – Smoot Creek 34KV Circuit (3308603 – SAIFI # 9)

The major outage categories for this circuit were Tree Inside ROW and Equipment Failure, accounting for 64% of the customers interrupted during 2009 on this circuit. Another 23% of the customers interrupted came from two single outages beyond company control (Vehicle Accident and Customer Equipment). The chart below lists the top four outages, which accounted for 51% of all customers interrupted during 2009:

Interruption Start Date	Minor Cause	Clearing Device	Outage Duration	Total Cust Affected	Total Customer Min
06/18/2009	TREE INSIDE ROW	FDR BKR	237	993	216,493
01/12/2009	VEHICLE ACCIDENT	RECLOSER	210	680	74,930
05/14/2009	CUST. EQUIPMENT > 1 CUST.	RECLOSER	9	677	6,093
06/16/2009	TREE INSIDE ROW	RECLOSER	92	672	61,824

Corrective Actions

In 2009, Kentucky Power obtained an improved device to help locate failing equipment by detecting EMI emanating from an arc. Though it will not find all the problems on a circuit, this device will aid in locating and preventing some outages. Due to the large number of outages caused by equipment failure on this circuit, the majority of the feeder will be scouted with this device.

Collier Smoot Creek circuit is also in the 2010 Hazard District Forestry Work Plan, which includes reclearing 4.73 line miles of ROW and 36 miles of basal spraying. These actions will prevent some tree related outages on this circuit in the coming year.

Chavies Station – Chavies 12KV Circuit (3301101 – SAIDI # 10)

Over 85% of the customer minutes interrupted were caused by either Tree Inside ROW or Tree Out of ROW outages on this circuit during 2009.

There were also eight separate outages that occurred on this circuit in the aftermath of a major winter storm that passed through Eastern Kentucky in late December 2009. Some of these outages took a long time to restore due to the severity of storm-related outages on other circuits in the area.

One particular outage that occurred on June 17 took over two days to restore service. The lengthy restoration time can be attributed to the terrain where the outage occurred. And there were numerous other outages in the area at the same time, limiting available resources. Tree crews were required to clear the road before the line crews could proceed with their work.

Another outage occurring on June 11 took close to a day to restore power. Due to the terrain and darkness, crews had to put off the patrol effort until the next day.

Corrective Actions

The Chavies Chavies circuit is part of the Hazard District Forestry Plan for 2010. In the plan, tree crews will reclear 3.21 line miles of ROW on this circuit. This will help some of the issues cause by trees, but may not prevent all such outages.

The Chavies Chavies circuit is part of a new distribution automation installation to be completed in 2010. In this plan the Haddix Canoe circuit will be able to automatically (with the aid of precise electronic devices) pick up load from the Chavies Chavies circuit in the event that power is lost in particular areas (and vice versa). This quick restoration process will help to reduce the customer minutes interrupted and thus will also reduce the SAIDI for this circuit

Kentucky Power Company

2009 WORST PERFORMING CIRCUITS

Analysis of Causes/Corrective Actions

Pikeville District

Sprigg Station – Sprigg 34.5 KV Circuit (2150103 – SAIFI #3)

Cause Code	Nbr Interruptions	Total Cust Affected	% Cust Affected	Total Cust Min
ANIMAL - NON BIRD	1	2	0.19 %	162
EQUIPMENT FAILURE	1	17	1.61 %	3,808
SCHEDULED COMPANY	5	527	50.00 %	120,641
TREE INSIDE ROW	6	30	2.85 %	3,209
TREE OUT OF ROW	5	478	45.35 %	79,522
Sum:	18	1,054	100.0 %	207,342

This circuit originates from a station located in West Virginia and serves only 148 Kentucky customers. The largest percentage of customers affected by an outage and the largest percentage of Customer Minutes of Interruption both come from 5 scheduled outages which were taken to allow right-of-way clearing in inaccessible locations by an aerial saw operation. These locations were both on the West Virginia and Kentucky sides of the river. Without these interruptions the SAIFI would have been only half of the recorded total. It is expected that the clearing done during these outages will reduce the exposure to trees at these locations and improve the circuit performance.

During 2009 regular right-of-way clearing was done on 1.2 miles of line on the Kentucky side of this circuit at a cost of \$20,250. No additional clearing is planned for 2010 due to the work just completed.

Barrenshea Station – Vulcan Circuit (3200202 – SAIDI # 5)

Cause Code	Nbr Interruptions	% Nbr Interr	Total Cust Affected	% Cust Affected	Total Cust Min	% Total Cust Min
EQUIPMENT FAILURE	6	10.71 %	151	5.66 %	60,502	4.46 %
ERROR - OPERATIONS	1	1.79 %	1	0.04 %	142	0.01 %
FIRE - AFFECT > 1 CUST	1	1.79 %	5	0.19 %	485	0.04 %
SCHEDULED COMPANY	1	1.79 %	172	6.45 %	53,492	3.94 %
TREE INSIDE ROW	24	42.86 %	1,281	48.01 %	202,993	14.95 %
TREE OUT OF ROW	19	33.93 %	1,026	38.46 %	1,035,273	76.24 %
TREE REMOVAL	2	3.57 %	15	0.56 %	1,513	0.11 %
UNKNOWN (NON WEATHER)	2	3.57 %	17	0.64 %	3,472	0.26 %
Sum:	56	100.0 %	2,668	100.0 %	1,357,872	100.0 %

Trees outside the right-of-way are responsible for 76% of the Customer Minutes of Interruption, 34% of the number of outages, and 38% of the customers affected. Trees inside the right-of-way caused 15% of the Customer Minutes of Interruption, 43% of the outages, and 48% of the customers affected.

Right-of-Way clearing was performed in the Station Zone and the first mainline recloser zone during 2009. This covered approximately 7 miles of line. Thirty acres of brush spraying was also done. Total Forestry dollar cost for this circuit was \$119,873 in 2009.

Additional reclearing is planned for 5 miles of line plus 14 acres of brush spraying. This particular area experienced 6 outages due to trees inside the right-of-way last year. Total Forestry dollars budgeted for 2010 on this circuit is approximately \$77,000.

Spring Fork Station – 1 Phase Circuit (3404002 – SAIDI # 8)

Major-Minor Cause Code	Nbr Interruptions	% Nbr Interr	Total Cust Affected	% Cust Affected	Total Cust Min	% Total Cust Min
DL-TREE INSIDE ROW	1	16.67 %	1	0.96 %	26	0.06 %
DL-TREE OUT OF ROW	2	33.33 %	44	42.31 %	14,206	33.25 %
DL-TREE REMOVAL	1	16.67 %	29	27.88 %	6,988	16.35 %
DL-UNKNOWN (NON WEATHER)	1	16.67 %	1	0.96 %	137	0.32 %
TS-EQUIPMENT FAILURE	1	16.67 %	29	27.88 %	21,373	50.02 %
Sum:	6	100.0 %	104	100.0 %	42,730	100.0 %

One outage caused by equipment failure on the transmission line serving this station is responsible for 50% of the Customer Minutes of Interruption. Due to the inaccessible location of the structure, the outage lasted for 12 hours. Additional inspection of the transmission system has discovered 2 deteriorated crossarms and an outage to replace them is scheduled during March 2010.

Three distribution poles found to be bad during an inspection will also be changed out during the transmission outage. Inspection of the circuit is continuing and we will make repairs as necessary during this year. We have already changed out three additional poles found to be deteriorated.

Two outages due to trees outside the right-of-way account for 33% of the Customer Minutes. One of these outages was in the Station Zone affecting the whole circuit. No additional forestry work is scheduled for this circuit in 2010 because it was cleared by aerial saw in 2008 along with an inspection looking specifically for danger trees and right-of-way hotspots, which were cleared at that time. Trees inside the right-of-way only contributed 26 minutes of Customer Interruption during 2009.