

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

DUKE ENERGY KENTUCKY, INC.
RELIABILITY REPORT AND VEGETATION MANAGEMENT PLAN UPDATE
FOR CALENDAR YEAR 2025

April 28, 2026

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I. Introduction

On May 30, 2013, the Commission issued its Order requiring all jurisdictional utilities to file annual reliability reports and to develop vegetation management plans. Pursuant to the Order, jurisdictional utilities were required to report a 5-year average of reliability data. The reports are required to be based upon a calendar year (January to December) and filed by the first business day in May in the year immediately following the reporting year.

Duke Energy Kentucky, Inc. (Duke Energy Kentucky or the Company) submits its Reliability Report and Vegetation Management Plan update for Calendar year 2025 as required by the Commission's May 30, 2013, Order in Case No. 2011-00450.¹

II. Reliability Report Summary

Consistent with the most recent edition of the standard number 1366 "Guide for Electric Power Distribution Reliability Indices," and the Commission's Order,² the following is included in Exhibit A of Duke Energy Kentucky's Reliability Report Summary:

1. Calculate the System Average Interruption Duration Index (SAIDI) system-wide indices including Major Event Days (MEDs) and calculate the SAIDI system-wide indices excluding MEDs;
2. Calculate the System Average Interruption Frequency Index (SAIFI) system-wide indices including MEDs and calculate the SAIFI system-wide indices excluding MEDs;
3. Develop a system-wide rolling five-year average SAIDI excluding MEDs;
4. Develop a system-wide rolling five-year average SAIFI excluding MEDs;
5. Calculate SAIDI excluding MEDs for every circuit within its system;

¹ *In the matter of An Investigation of the Reliability Measures of Kentucky's Jurisdictional Electric Distribution Utilities, Case No. 2011-00450, Order (Ky. P.S.C. May 30, 2013).*

² *Id.*

6. Develop a rolling five-year average SAIDI for each circuit within its system;
7. Compare each circuit to that circuit's rolling five-year average SAIDI;
8. Calculate SAIFI excluding MEDs for every circuit within its system;
9. Develop a rolling five-year average SAIFI for each circuit within its system;
10. Compare each circuit to that circuit's rolling five-year average SAIFI.
11. File a Reliability Report by May 1 of each year, containing the reliability information as outlined in the attached Appendix for the preceding calendar year from January 1 to December 31 that includes the SAIDI and SAIFI system-wide indices, both including and excluding MEDs.
12. For each circuit with either SAIDI or SAIFI value higher than that circuit's respective SAIDI or SAIFI rolling five-year average, excluding MEDs, include in the annual Reliability Report the following information:
 - a. The circuit's SAIDI index for the year;
 - b. The circuit's SAIFI index for the year;
 - c. The circuit's rolling five-year average SAIDI;
 - d. The circuit's rolling five-year average SAIFI;
 - e. The substation name, number, and location (i.e., County-Road-Town);
 - f. The circuit name, number, and location (Town-Road-General Area);
 - g. The circuit's overall length in miles to the nearest tenth of a mile;
 - h. The number of customers served on the circuit for the year;
 - i. The date of the last circuit trim performed by the utility as part of its vegetation management plan;

- j. A list of outage causes for the circuit, along with the percentage of total outage numbers represented by each cause;
- k. Circuit five-year average SAIDI;
- l. Reporting year SAIDI;
- m. Circuit five-year average SAIFI;
- n. Reporting year SAIFI;
- o. A Corrective Action Plan which describes any measures the utility has completed or plans to complete to improve the circuit's performance; and
- p. Any other information the utility believes will assist the Commission in understanding the circumstances surrounding the circuit's performance.

III. Vegetation Management Plan Update and Summary

Duke Energy Kentucky filed its initial Vegetation Management Plan with this Commission on December 18, 2007, in Case No. 2006-00494.³ Duke Energy's Midwest Vegetation Management Group is responsible for controlling vegetation growth for approximately 1,550 miles of transmission and distribution primary overhead electric lines in Kentucky.

Exhibit B is a current copy of Duke Energy Kentucky's Vegetation Management Plan. This plan has been reformatted from prior versions and includes wordsmithing updates to provide further clarifications and cross-jurisdictional consistency with Duke Energy's other vegetation management programs.

As part of its 2026 plan, Duke Energy Kentucky plans to prune trees and maintain vegetation along 288 miles of its distribution system. The Company is slightly behind its

³ *Id.*

Vegetation Plan for 2026, due to vendor constraints and weather impacts. As of March 31, 2026, Duke Energy Kentucky has completed approximately 11% of its scheduled pruning, or approximately 32 miles of its distribution system. This leaves approximately 256 miles to be pruned in 2026. The Company does not anticipate any difficulty in completing all planned pruning for 2026. The Company anticipates it will have sufficient crew coverage throughout the year.

Respectfully submitted,

DUKE ENERGY KENTUCKY, INC.

/s/ Rocco D'Ascenzo

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KENTUCKY PUBLIC SERVICE COMMISSION

Electric Distribution Utility Annual Reliability Report

SECTION 1: CONTACT INFORMATION

UTILITY NAME	DUKE ENERGY KENTUCKY
REPORT PREPARED BY	MATTHEW G. DOYLE
E-MAIL ADDRESS OF PREPARER	Matthew.Doyle2@duke-energy.com
PHONE NUMBER OF PREPARER	513-335-5829

SECTION 2: REPORTING YEAR

CALENDAR YEAR OF REPORT	2025
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SECTION 3: MAJOR EVENT DAYS (MED)

TMED	4.175
FIRST DATE USED TO DETERMINE TMED	January 1, 2020
LAST DATE USED TO DETERMINE TMED	December 31, 2024
NUMBER OF MED IN REPORT YEAR	3

NOTE: Per IEEE 1366 TMED 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 INFORMATION AND RESULTS

System-wide Information

TOTAL CUSTOMERS	152,376	TOTAL CIRCUITS	159
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Excluding MED

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	78.48	SAIDI	97.57
SAIFI	0.63	SAIFI	0.71

Including MED

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	161.07	SAIDI	183.35
SAIFI	0.83	SAIFI	0.86

Notes

- 1) All duration indices (SAIDI) are to be reported in units of minutes.
- 2) Reports are due on the first business day of May 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, and TMED

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CIRCUIT NUMBER	SUBSTATION NAME	SUBSTATION NUMBER	SUBSTATION COUNTY	SUBSTATION ROAD	SUBSTATION TOWN	CIRCUIT NAME	CIRCUIT ID	CIRCUIT NUMBER	CIRCUIT TOWN
H9323060031	AERO	306	BOONE		FLORENCE	AERO 31	H9323060031	31	OAKBROOK
H9323060043	AERO	306	BOONE		FLORENCE	AERO 43	H9323060043	43	OAKBROOK
H9320860042	BEAVER	86	BOONE		WALTON	BEAVER 42	H9320860042	42	WALTON
H9321310042	BELLEVUE	131	CAMPBELL		NEWPORT	BELLEVUE 42	H9321310042	42	BELLEVUE
H9321320041	COLD SPRING	132	CAMPBELL		COLD SPRINGS	COLD SPRING 41	H9321320041	41	COLD SPRINGS
H9320420041	CONSTANCE	42	BOONE		ERLANGER	CONSTANCE 41	H9320420041	41	TAYLORSPOINT
H9320420044	CONSTANCE	42	BOONE		ERLANGER	CONSTANCE 44	H9320420044	44	ERLANGER
H9320420045	CONSTANCE	42	BOONE		ERLANGER	CONSTANCE 45	H9320420045	45	FORT MITCHELL
H9322170041	COVINGTON KY	217	KENTON		COVINGTON	COVINGTON 41	H9322170041	41	COVINGTON
H9320700042	CRESCENT	70	KENTON		FT. MITCHELL	CRESCENT 42	H9320700042	42	FT. MITCHELL
H9320700043	CRESCENT	70	KENTON		FT. MITCHELL	CRESCENT 43	H9320700043	43	FT. MITCHELL
H9320700044	CRESCENT	70	KENTON		FT. MITCHELL	CRESCENT 44	H9320700044	44	CRESCENT SPRINGS
H9320700045	CRESCENT	70	KENTON		FT. MITCHELL	CRESCENT 45	H9320700045	45	FT. MITCHELL
H9320760041	DAYTON	76	CAMPBELL		DAYTON	DAYTON 41	H9320760041	41	DAYTON
H9320890043	DIXIE	89	BOONE		FLORENCE	DIXIE 43	H9320890043	43	Dixie Hwy
H9320890044	DIXIE	89	BOONE		FLORENCE	DIXIE 44	H9320890044	44	FLORENCE
H9320890046	DIXIE	89	BOONE		FLORENCE	DIXIE 46	H9320890046	46	FLORENCE
H9321610041	GRANT	161	GRANT		WILLIAMSTOWN	GRANT 41	H9321610041	41	DRY RIDGE
H9321280041	HANDS	128	KENTON		COVINGTON	HANDS 41	H9321280041	41	Hands Pl
H9321280044	HANDS	128	KENTON		COVINGTON	HANDS 44	H9321280044	44	ERLANGER
H9321520041	HEBRON	152	BOONE		HEBRON	HEBRON 41	H9321520041	41	PETERSBURG
H9321520042	HEBRON	152	BOONE		HEBRON	HEBRON 42	H9321520042	42	PETERSBURG
H9321520043	HEBRON	152	BOONE		HEBRON	HEBRON 43	H9321520043	43	HEBRON
H9321520044	HEBRON	152	BOONE		HEBRON	HEBRON 44	H9321520044	44	HEBRON
H9321520045	HEBRON	152	BOONE		HEBRON	HEBRON 45	H9321520045	45	HEBRON
H9321890041	LIMABURG	189	BOONE		LIMABURG	LIMABURG 41	H9321890041	41	HEBRON
H9321890042	LIMABURG	189	BOONE		LIMABURG	LIMABURG 42	H9321890042	42	LIMABURG
H9323050041	MT ZION	305	BOONE		FLORENCE	MT ZION 41	H9323050041	41	DEVON
H9323050044	MT ZION	305	BOONE		FLORENCE	MT ZION 44	H9323050044	44	FLORENCE
H9322100042	OAKBROOK	210	BOONE		FLORENCE	OAKBROOK 42	H9322100042	42	FLORENCE
H9321990044	RICHWOOD	199	BOONE		RICHWOOD	RICHWOOD 44	H9321990044	44	RICHWOOD
H9321340041	THOMAS MORE	134	BOONE		EDGEWOOD	THOMAS MORE 41	H9321340041	41	EDGEWOOD
H9321340042	THOMAS MORE	134	BOONE		EDGEWOOD	THOMAS MORE 42	H9321340042	42	EDGEWOOD
H9321250041	VERONA	125	KENTON		CRITTENDEN	VERONA 41	H9321250041	41	DIXIE HWY
H9321250042	VERONA	125	KENTON		CRITTENDEN	VERONA 42	H9321250042	42	CRITTENDEN
H9322430043	VILLA	243	KENTON		EDGEWOOD	VILLA 43	H9322430043	43	EDGEWOOD
H9322430044	VILLA	243	KENTON		EDGEWOOD	VILLA 44	H9322430044	44	EDGEWOOD
H9323040043	WHITE TOWER	304	KENTON		INDEPENDENCE	WHITE TOWER 43	H9323040043	43	INDEPENDENCE
H9320590041	WILDER	59	KENTON		WILDER	WILDER 41	H9320590041	41	SOUTHGATE
H9320590046	WILDER	59	KENTON		WILDER	WILDER 46	H9320590046	46	FT. THOMAS
H9320770041	YORK	77	CAMPBELL		NEWPORT	YORK 41	H9320770041	41	Newport

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CIRCUIT ROAD	CIRCUIT GENERAL AREA	TOTAL CIRCUIT LENGTH (miles)	CUSTOMER COUNT FOR THIS CIRCUIT	DATE OF LAST CIRCUIT TRIM (VEGETATION MANAGEMENT)	CIRCUIT 5-YEAR AVERAGE (SAIDI)	REPORTING YEAR (2025) SAIDI	DID SAIDI INCREASE IN 2025?	CIRCUIT 5-YEAR AVERAGE (SAIFI)	REPORTING YEAR (2025) SAIFI	DID SAIFI INCREASE IN 2025?
	Oakbrook	0.255	1	Nothing to trim	0.000	1902.940	YES	0.000	2.000	YES
	Oakbrook	1.482	6	Nothing to trim	14.247	104.570	YES	0.033	0.333	YES
	Walton	50.684	2,011	8/8/2022	40.144	144.087	YES	0.884	0.345	NO
	Fort Thomas, Dayton and Bellevue	23.471	2,283	11/17/2025	65.393	71.977	YES	0.509	0.277	NO
	Cold Springs	40.834	1,865	12/31/2024	69.525	141.867	YES	0.804	0.568	NO
	TaylorSPORT	12.641	128	5/22/2021	114.788	343.018	YES	1.534	1.344	NO
	Erlanger	8.416	79	7/2/2021	20.296	68.046	YES	0.142	0.190	YES
	Villa Hills	0.799	1	12/29/2022	0.000	19.470	YES	0.000	1.000	YES
	Covington	6.728	1,013	10/17/2023	24.378	32.588	YES	0.155	0.130	NO
	Ft. Mitchell	11.603	783	7/31/2024	125.196	287.923	YES	0.976	0.457	NO
	Ft. Mitchell	16.421	1,572	12/23/2024	76.409	93.772	YES	0.624	0.444	NO
	Crescent Springs	11.873	877	7/2/2025	134.577	63.745	NO	0.716	0.786	YES
	Ft. Mitchell	22.158	2,016	8/25/2023	34.039	45.560	YES	0.286	0.280	NO
	Dayton	4.605	981	10/14/2020	13.790	71.509	YES	0.155	0.552	YES
	Florence	1.435	30	4/24/2021	19.672	67.439	YES	0.234	1.067	YES
	Florence	1.312	10	5/23/2020	16.448	175.283	YES	0.089	3.400	YES
	Florence	2.349	10	4/17/2021	84.868	30.760	NO	0.159	0.200	YES
	Dry Ridge	4.997	147	11/30/2022	2.087	22.424	YES	0.011	0.122	YES
	Covington & Independence	30.132	1,742	12/29/2022	87.353	139.052	YES	0.514	0.989	YES
	Erlanger	23.008	1,422	12/31/2025	34.087	53.813	YES	0.085	0.208	YES
	Hebron	15.174	1,076	3/30/2024	43.347	253.872	YES	0.288	1.028	YES
	Petersburg	48.96	679	9/27/2024	149.650	103.655	NO	0.940	0.950	YES
	Hebron	6.11	140	3/30/2024	13.372	118.806	YES	0.071	0.204	YES
	Park West International	3.751	23	Nothing to trim	253.595	126.333	NO	0.476	0.826	YES
	Hebron	3.053	251	4/30/2024	17.603	264.421	YES	0.321	1.282	YES
	Hebron	23.722	1,081	5/31/2024	13.926	14.482	YES	0.243	0.123	NO
	Limaburg	41.617	1,871	10/22/2025	98.782	99.598	YES	1.253	0.280	NO
	Florence	2.228	65	10/22/2025	29.118	454.878	YES	0.286	0.800	YES
	Florence	3.696	83	8/10/2023	23.939	11.017	NO	0.163	0.202	YES
	Limaburg, Oakbrook and Burlington	28.641	2,936	10/23/2023	106.790	106.883	YES	0.707	0.369	NO
	Union	2.242	20	New in 2025	0.000	13.817	YES	0.000	0.050	YES
	Edgewood	0.676	5	Nothing to trim	48.583	94.984	YES	0.217	0.400	YES
	Edgewood	8.923	435	12/31/2024	26.007	9.052	NO	0.390	0.513	YES
	Verona, Piner, Fiskburg and Walton	20.86	379	4/10/2021	101.020	279.607	YES	1.391	1.766	YES
	Walton	30.173	535	12/29/2022	283.354	411.330	YES	1.761	2.159	YES
	Edgewood	15.714	963	10/11/2023	83.998	92.513	YES	0.997	0.700	NO
	Edgewood	25.256	1,950	10/30/2025	74.910	132.648	YES	0.468	0.601	YES
	Independence, White Tower	25.406	1,308	12/2/2025	53.435	205.321	YES	0.855	1.413	YES
	Southgate, Ft. Thomas	13.556	1,478	11/30/2022	25.899	72.495	YES	0.187	0.372	YES
	Ft. Thomas	15.837	1,108	12/29/2022	97.608	131.223	YES	0.994	0.538	NO
	Newport	7.672	1,596	11/6/2021	19.813	29.978	YES	0.247	0.162	NO

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Reliability Report and Vegetation Management
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SUBSTATION - CIRCUIT	CIRCUIT NAME	CIRCUIT ID	OUTAGE CAUSE	PERCENT OF TOTAL OUTAGE MINUTES	CORRECTIVE ACTION PLAN
AERO - H9323060031	AERO	H9323060031	20 Equipment failure	100.00%	All of the Equipment failure outage minutes occurred when a terminator and cable at pole BNK-5419 failed. All cable and terminators were replaced at the time of the event. No additional action is required.
				100.00%	
AERO - H9323060043	AERO	H9323060043	20 Equipment failure	92.08%	All of the Equipment failure outage minutes occurred when transformer BNK-10341 failed. The Transformer was replaced along with several other devices during the event. No additional action is required.
			05 Planned (IEEE)	7.92%	
				100.00%	
BEAVER - H9320860042	BEAVER	H9320860042	09 Public Accident/Damage	70.47%	The majority of the Public Accident/Damage outage minutes occurred due to a vehicle colliding with pole 25K-113. The pole was replaced, repairs were made at the time of the event, and no additional action is required. The majority of the Vegetation outage minutes occurred due to trees falling on the primary around pole 50BN-767. The tree on the primary lines was trimmed back at the time of the event. This circuit is scheduled to be trimmed in 2027.
			03 Vegetation	22.80%	
			20 Equipment failure	4.43%	
			05 Planned (IEEE)	1.18%	
			28 Other Cause	0.73%	
			04 Wildlife	0.34%	
			11 Unknown Cause	0.04%	
			EA Weather	0.004%	
			100.00%		
BELLEVUE - H9321310042	BELLEVUE	H9321310042	09 Public Accident/Damage	50.33%	The majority of Public Accident/Damage outage minutes occurred due to a vehicle colliding with pole CA2-369. The pole was replaced, repairs were made at the time of the event, and no additional action is required. The majority of Equipment failure outage minutes occurred due to a failed cabinet for recloser S132, on pole CA2-205. The cabinet was replaced following the event, and all necessary repairs were made during the replacement. No additional action is required.
			20 Equipment failure	31.14%	
			11 Unknown Cause	5.99%	
			19 Lightning strike	4.75%	
			28 Other Cause	4.65%	
			03 Vegetation	1.88%	
			05 Planned (IEEE)	0.80%	
			04 Wildlife	0.41%	
EA Weather	0.02%				
			100.00%		
COLD SPRING - H9321320041	COLD SPRING	H9321320041	09 Public Accident/Damage	27.84%	All of the Public Accident/Damage outage minutes occurred due to a vehicle colliding with SMOD CAK-4155 and underground transformer CAK-4156. Both devices were replaced, repairs were made at the time of the event, and no additional action is required. The majority of the Unknown Cause outage minutes occurred due to blown fuses at pole 43CA-1172. The underground lines were patrolled and nothing was found. The fuses were upgraded and replaced during the events. No further action is required. The majority of the Equipment failure outage minutes occurred due to a failed primary wire near pole 39CA-857. The wire was repaired at the time of the event and no additional action is required. The majority of Vegetation outage minutes occurred due to a tree falling on the primary near pole 39CA-169. The tree was trimmed back away from the lines at the time of the event. This circuit is scheduled to be trimmed in 2029.
			11 Unknown Cause	26.38%	
			20 Equipment failure	21.45%	
			03 Vegetation	14.09%	
			28 Other Cause	6.50%	
			05 Planned (IEEE)	3.30%	
			04 Wildlife	0.34%	
			100.00%		
CONSTANCE - H9320420041	CONSTANCE	H9320420041	20 Equipment failure	83.64%	The majority of the Equipment failure outage minutes occurred due to a failed wire splice on the primary wire near pole 15BN-13. The wire was repaired at the time of the event and no additional action is required. All of the Wildlife outage minutes occurred due to a squirrel breaking the fuse on pole BNK-3924. The equipment was replaced at the time of the event and no additional action is required.
			04 Wildlife	16.36%	
				100.00%	
CONSTANCE - H9320420044	CONSTANCE	H9320420044	03 Vegetation	91.09%	All of the Vegetation outage minutes occurred due to a tree falling on the primary near pole K103-101. The tree was trimmed away from the lines at the time of the event. This circuit is scheduled to be trimmed in 2026.
			05 Planned (IEEE)	6.70%	
			28 Other Cause	2.20%	
				100.00%	
CONSTANCE - H9320420045	CONSTANCE	H9320420045	05 Planned (IEEE)	100.00%	All of the Planned outage minutes occurred during two scheduled events to perform work at the Constance substation.
				100.00%	
COVINGTON - H9322170041	COVINGTON	H9322170041	28 Other Cause	80.66%	The majority of the Other Cause outage minutes occurred due to a corn cob getting trapped on the high side of a CSP transformer that caused a tap fuse to open. The corn cob was removed, the tap fuse was closed, and the CSP transformer reset at the time of the event. No additional action is required. The majority of the Equipment failure outage minutes occurred due to a failing transformer on pole K61-366. The transformer was repaired during the event to restore the customers and a work order was generated for the replacement. The transformer was replaced soon after the event. No additional action is required.
			20 Equipment failure	11.85%	
			03 Vegetation	5.29%	
			09 Public Accident/Damage	1.82%	
			05 Planned (IEEE)	0.38%	
				100.00%	
CRESCENT - H9320700042	CRESCENT	H9320700042	03 Vegetation	97.70%	All of the Vegetation outage minutes occurred due to a tree falling on the primary in-between poles K70-518 and K70-519, damaging K70-518. The tree was trimmed back away from the lines, a new pole was installed, and all other repairs were completed during the event. This circuit is scheduled to be trimmed in 2029.
			05 Planned (IEEE)	1.53%	
			20 Equipment failure	0.24%	
			28 Other Cause	0.20%	
			11 Unknown Cause	0.16%	
			EA Weather	0.09%	
04 Wildlife	0.08%				
				100.00%	
CRESCENT - H9320700043	CRESCENT	H9320700043	28 Other Cause	79.02%	The majority of the Other Cause outage minutes occurred due to blown fuses on pole K83-114. The lines downstream of the fuses were patrolled at the time of the events, no issues were found, and the fuses were replaced. The majority of the Wildlife outage minutes occurred during two events. The first event occurred due to a bird breaking the fuse on pole K73-137, and the second event occurred due to a squirrel breaking the transformer fuse on pole K84-337. The damaged equipment was replaced at the time of the events and no additional action is required.
			04 Wildlife	12.09%	
			03 Vegetation	5.25%	
			20 Equipment failure	2.72%	
			11 Unknown Cause	0.71%	
			05 Planned (IEEE)	0.21%	
				100.00%	
CRESCENT - H9320700044	CRESCENT	H9320700044	28 Other Cause	60.81%	The majority of the Other Cause outage minutes occurred due to failing recloser 11430, on pole K93-59. A work order was created for a replacement during the event and the recloser was replaced as scheduled. The majority of the Unknown Cause outage minutes occurred due to issues with recloser 11430, on pole K93-59. The troubleman patrolled the lines during the events and could not find an issues. The recloser was further investigated and found to be failing, so it was replaced. No additional action is required.
			11 Unknown Cause	22.15%	
			05 Planned (IEEE)	5.98%	
			03 Vegetation	4.21%	
			20 Equipment failure	3.90%	
			04 Wildlife	2.95%	
				100.00%	

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CRESCENT - H932070045	CRESCENT	H932070045	20 Equipment failure	38.44%	The majority of the Equipment failure outage minutes occurred due to a failed cutout on pole K93-457. The cutout was replaced at the time of the event, and no additional action is required. All of the Weather failure outage minutes occurred due to wind causing the primary wire to break near pole K92-332. The wire was repaired at the time of the event, and no additional action is required. The majority of the Vegetation outage minutes occurred due to a tree falling on the wires, at pole K93-297, causing the pole and tree to catch on fire. The tree fell off the wires due to the fire, and the damaged pole/equipment were replaced following the event. This circuit is scheduled to be trimmed in 2028. The majority of the Other Cause outage minutes occurred due to a fuse melting in a cutout on pole K93-457. The fuse was replaced at the time of the event and no additional action is required.
			EA Weather	25.57%	
			03 Vegetation	15.39%	
			28 Other Cause	11.33%	
			05 Planned (IEEE)	7.99%	
			04 Wildlife	1.06%	
			11 Unknown Cause	0.22%	
	100.00%				
DAYTON - H9320760041	DAYTON	H9320760041	03 Vegetation	87.78%	The majority of the Vegetation outage minutes occurred due to a tree falling and bring down wires near pole CA4-253. The wires were repaired at the time of the event. This circuit is scheduled to be trimmed in 2026.
			05 Planned (IEEE)	6.20%	
			20 Equipment failure	3.39%	
			11 Unknown Cause	2.35%	
			28 Other Cause	0.27%	
	100.00%				
DIXIE - H9320890043	DIXIE	H9320890043	09 Public Accident/Damage	73.21%	All of the Public Accident/Damage outage minutes occurred due to a vehicle colliding with Transmission stub pole 31BN-1302. The stub pole and guy wire were replaced after the event and no additional action is required. All of the Planned outage minutes occurred to finish installing a pole and equipment after a customer's normal operating hours.
			05 Planned (IEEE)	26.79%	
			100.00%		
DIXIE - H9320890044	DIXIE	H9320890044	20 Equipment failure	84.76%	The majority of Equipment failure outage minutes occurred due to two outages. One outage occurred due to a wire separating near pole 31BN-821. The wire was repaired, and a follow-up work order was created to fully replace the wire along with some other equipment near pole 31BN-821. The other outage occurred due to another wire coming down near pole 31BN-821, at a later date. The existing follow-up work order was then expedited and the replacement work was completed. No additional action is required. All of the Other Cause outage minutes occurred due to de-energizing the lines to perform the scheduled wire replacement work. The customer that was affected by the replacement work was informed before the work began, and a generator was provided for the customer while the work was being performed. No additional action is required.
			28 Other Cause	15.24%	
			100.00%		
DIXIE - H9320890046	DIXIE	H9320890046	19 Lightning strike	68.38%	All of the Lightning strike outage minutes occurred due to a blown arrester on pole 31BN-680. The arrester was replaced at the time of the event and no additional action is required. All of the Public Accident/Damage outage minutes occurred due to a vehicle hitting a down guy, attached to pole BNK-10011, causing it to wrap around the phases and open the fuses. The fuses and down guy were replaced at the time of the event and no additional action is required.
			09 Public Accident/Damage	31.62%	
			100.00%		
GRANT - H9321610041	GRANT	H9321610041	20 Equipment failure	51.01%	The majority of the Equipment failure outage minutes occurred due to a failing cutout for the transformer on pole 20G-541. The cutout and fuse were replaced at the time of the event and no additional action is required. All of the Other Cause outage minutes occurred due to a failed jumper at pole 20G-728. The jumper was replaced at the time of the event and no additional action is required.
			28 Other Cause	45.60%	
			04 Wildlife	3.09%	
			EA Weather	0.29%	
			100.00%		
HANDS - H9321280041	HANDS	H9321280041	20 Equipment failure	67.90%	The majority of the Equipment failure outage minutes occurred due to a failed transformer located on a rotten, rear property pole. The transformer and pole were replaced at the time of the event and no additional action is required. The majority of the Vegetation outage minutes occurred during two events. The first event occurred due to a tree leaning against the primary and neutral wires near pole 14K-324. The tree was removed at the time of the event. The second event occurred due to a large limb laying across the primary wires near pole 10K-454. The large limb was removed at the time of the event. This circuit is scheduled to be trimmed in 2027.
			03 Vegetation	22.12%	
			28 Other Cause	4.38%	
			05 Planned (IEEE)	1.84%	
			09 Public Accident/Damage	1.19%	
			EA Weather	0.93%	
			19 Lightning strike	0.76%	
			04 Wildlife	0.49%	
			11 Unknown Cause	0.39%	
	100.00%				
HANDS - H9321280044	HANDS	H9321280044	20 Equipment failure	85.15%	The majority of Equipment failure outage minutes occurred due to multiple related events on the same day. While performing reconductor work, a temporary jumper burned-up at pole 10K-378. Following the replacement of the failed temporary jumper, a different temporary jumper failed at pole 10K-438, and burned the primary wire. Following the second temporary jumper failure, the circuit was powered down to double all temporary jumpers at five different locations on the circuit. A stepped restoration was utilized when restoring power due to the cold load pickup. No additional action is required. The majority of Vegetation outage minutes occurred due to one outage. The outage occurred due to a tree falling on the primary wires, near pole K87-75, causing the crossarm to break. The tree was cleared off the lines and the crossarm was replaced at time of the outage. This circuit was trimmed in December of 2025 and is scheduled to be trimmed in 2030.
			03 Vegetation	13.15%	
			05 Planned (IEEE)	0.76%	
			EA Weather	0.70%	
			11 Unknown Cause	0.16%	
			04 Wildlife	0.08%	
				100.00%	
HEBRON - H9321520041	HEBRON	H9321520041	20 Equipment failure	71.99%	The majority of Equipment failure outage minutes occurred due to a crossarm breaking on pole 13BN-26 and causing the primary wires to collide with each other near the pole. The crossarm and equipment were replaced at the time of the event. No additional action is required. The majority of the Public Accident/Damage outage minutes occurred due to a vehicle colliding with pole 13BN-56. The pole was replaced and all repairs were made at the time of the event. No additional action is required.
			09 Public Accident/Damage	22.86%	
			05 Planned (IEEE)	3.54%	
			04 Wildlife	1.06%	
			03 Vegetation	0.39%	
			28 Other Cause	0.16%	
	100.00%				
HEBRON - H9321520042	HEBRON	H9321520042	03 Vegetation	88.04%	The majority of Vegetation outage minutes occurred due to two outages. One outage occurred due to a tree falling and laying on the primary wires near pole 11BN-149. The tree was removed at the time of the outage. The second outage occurred due to a tree falling on the primary wire near pole 12BN-64, causing the primary wire to break. The wire was repaired and the tree removed at the time of the outage. This circuit is scheduled to be trimmed in 2029.
			09 Public Accident/Damage	7.23%	
			20 Equipment failure	3.82%	
			28 Other Cause	0.65%	
			04 Wildlife	0.23%	
			11 Unknown Cause	0.34%	
	100.00%				
HEBRON - H9321520043	HEBRON	H9321520043	20 Equipment failure	100.00%	All of the Equipment failure outage minutes occurred due to multiple events on two consecutive days in the same area. A failed transformer on pole 7BN-325 started the event. The load was shifted to SMOD BNK-5741, but it was unable to carry the load as some additional faulty equipment was found in the field. All of the faulty equipment was replaced during the event and all customers were restored. Following the events, a work order was written to re-investigate all of the equipment in the area to identify any additional equipment that needs to be replaced.
				100.00%	
HEBRON - H9321520044	HEBRON	H9321520044	04 Wildlife	100.00%	All of the Wildlife outage minutes occurred due to a bird flying into the potheads on terminal pole 7BN-300. The potheads were replaced at the time of the event and no additional action is required.
				100.00%	

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HEBRON - H9321520045	HEBRON	H9321520045	05 Planned (IEEE)	98.47%	The majority of the Planned outage minutes occurred to perform reconductor work on part of the circuit.				
			03 Vegetation	0.89%					
			20 Equipment failure	0.42%					
			04 Wildlife	0.23%					
				100.00%					
LIMABURG - H9321890041	LIMABURG	H9321890041	19 Lightning strike	36.06%	All of the Lightning strike outage minutes occurred due to a blown fuse on pole BNK-7267. The fuse was replaced at the time of the event and no additional action is required. The majority of Equipment failure outage minutes occurred due to bad service wires from underground transformer 19BN-23. The service wires were repaired at the time of the event and replaced shortly after the event. No additional action is required. All of the Planned outage minutes occurred due to the scheduled replacement of underground transformer 19BN-15.				
			20 Equipment failure	24.53%					
			05 Planned (IEEE)	23.32%					
			11 Unknown Cause	9.35%					
			04 Wildlife	2.64%					
			09 Public Accident/Damage	2.45%					
			28 Other Cause	1.64%					
				100.00%					
LIMABURG - H9321890042	LIMABURG	H9321890042	20 Equipment failure	41.31%	The majority of the Equipment failure outage minutes occurred due to three events. The first event was due to a failed cutout on terminal pole 20BN-62. The second event was due to a couple of deteriorated poles (19BN-546 and 19BN-664). The third event was due to a bad underground primary cable located between terminal pole 20BN-62 and underground transformer 20BN-28. All equipment replacements and repairs were made at the time of the events. There is an existing work order for the scheduled replacement of the bad underground cable. The majority of Public Accident/Damage outage minutes occurred due to two events. The first event was due to a semi truck hitting a pole (20BN-666) and damaging several other poles. The second event was due to a vehicle hitting pole 22BN-9. All damaged poles/equipment were replaced at the time of the events. A work order has been created to replace a section of damaged conductor related to the first event. The majority of the Vegetation outage minutes occurred due to two events. The first event was due to a tree falling and hitting pole BNK-1254, causing the fuse on the pole to break. The fuse was replaced at the time of the event. The second event was due to a tree falling on the primary and neutral wires in-between poles 19BN-699 and 19BN-700. The tree was cleared at the time of the event. This circuit was trimmed in October of 2025 and is scheduled to be trimmed in 2030.				
			09 Public Accident/Damage	30.86%					
			03 Vegetation	18.13%					
			11 Unknown Cause	9.04%					
			19 Lightning strike	0.26%					
			28 Other Cause	0.14%					
			05 Planned (IEEE)	0.12%					
			04 Wildlife	0.12%					
				100.00%					
			MT ZION - H9323050041	MT ZION		H9323050041	09 Public Accident/Damage	98.68%	All of the Public Accident/Damage outage minutes occurred due to a vehicle hitting/breaking pole 31BN-333. The pole was replaced at the time of the event and no additional action is required.
							20 Equipment failure	0.79%	
05 Planned (IEEE)	0.54%								
	100.00%								
MT ZION - H9323050044	MT ZION	H9323050044	05 Planned (IEEE)	64.30%	All of the Planned outages minutes occurred due to the replacement of a secondary connection device in a pit. All of the Other Cause outage minutes occurred due to a secondary connection device coming into contact with the pit and sparking. The connection device was repaired at time of event and a replaced was installed soon after the event. No additional action is required.				
			28 Other Cause	35.70%					
				100.00%					
OAKBROOK STA - H9322100042	OAKBROOK STA	H9322100042	03 Vegetation	60.19%	All of the Vegetation outage minutes occurred due to a tree falling on the primary wires, near pole 20BN-968, damaging a couple of crossarms and breaking the wires. All of the damaged equipment was replaced during the event. This circuit is scheduled to be trimmed in 2028. The majority of the Equipment failure outage minutes occurred due to three events. Two of the events were due to a failed underground transformers and the other event was due to a bad underground cable. The transformers and underground cable were replaced at the time of the events, and no additional action is required. The majority of Public Accident/Damage outage minutes occurred due to a vehicle hitting the communication lines and pulling down poles 20BN-901 and BNK-2262. Both poles were replaced at the time of the event and no additional action is required.				
			20 Equipment failure	15.06%					
			09 Public Accident/Damage	12.29%					
			11 Unknown Cause	7.02%					
			19 Lightning strike	3.98%					
			28 Other Cause	1.27%					
			05 Planned (IEEE)	0.18%					
			04 Wildlife	0.01%					
	100.00%								
RICHWOOD - H9321990044	RICHWOOD	H9321990044	19 Lightning strike	100.00%	All of the Lightning strike outage minutes occurred due to pole BNK-5434 having a broken arrester, cutout, and pot head. All equipment was replaced during the event and no additional action is required.				
				100.00%					
THOMAS MORE - H9321340041	THOMAS MORE	H9321340041	28 Other Cause	54.30%	All of the Other cause outage minutes occurred due to a planned switching event to make new connections in conjunction with a circuit layout change. All of the Planned outage minutes occurred due to a step restoration utilized to help restore normal load for a couple of circuits. No additional action is required.				
			05 Planned (IEEE)	45.70%					
				100.00%					
THOMAS MORE - H9321340042	THOMAS MORE	H9321340042	20 Equipment failure	97.38%	All of the Equipment failure outage minutes occurred due to a fuse on pole K85-107 falling and opening. The fuse was replaced at the time of the event and no additional action is needed.				
			04 Wildlife	1.93%					
			28 Other Cause	0.69%					
				100.00%					
VERONA - H9321250041	VERONA	H9321250041	03 Vegetation	78.28%	The majority of Vegetation outage minutes occurred due to a tree falling on the wires in-between poles 33K-308 and 33K-309, breaking a primary wire. The tree was cleared off the lines and all equipment was repaired at the time of the event. This circuit is scheduled to be trimmed in 2026. All of the Weather outage minutes occurred due to limb falling on lines near pole 53BN-25. The limb was removed at the time of the event and no additional action is needed.				
			EA Weather	12.88%					
			09 Public Accident/Damage	8.24%					
			20 Equipment failure	0.39%					
			28 Other Cause	0.16%					
			11 Unknown Cause	0.04%					
	100.00%								
VERONA - H9321250042	VERONA	H9321250042	09 Public Accident/Damage	27.88%	The majority of Public Accident/Damage outage minutes occurred due to a vehicle hitting pole KNK-9106. The pole was replaced at the time of the event and no additional action is needed. The majority of Other Cause outage minutes occurred due to slack conductors downstream of pole 33K-359. There is an existing work order for the resagging of the conductors. The majority of Vegetation outage minutes occurred due to a tree falling into the primary wires near pole 33K-178, and then falling to the ground. The crew patrolled and found the tree off of lines at time of event. This circuit is scheduled to be trimmed in 2027. The majority of Weather outage minutes occurred due to primary lines colliding downstream of pole 33K-359. The circuit downstream of the pole was patrolled during the event and no lines could be found still in contact. There is an existing work order for the resagging of the conductors.				
			28 Other Cause	25.75%					
			03 Vegetation	22.39%					
			EA Weather	19.89%					
			19 Lightning strike	3.83%					
			11 Unknown Cause	0.09%					
			04 Wildlife	0.07%					
			20 Equipment failure	0.06%					
			05 Planned (IEEE)	0.04%					
				100.00%					

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VILLA - H9322430043	VILLA	H9322430043	03 Vegetation	43.25%	All of the Vegetation outage minutes occurred due to a tree falling on the lines near pole K86-172. The tree cleared itself off of the lines during the event. This circuit is scheduled to be trimmed in 2028. The majority of Equipment failure outage minutes occurred due to multiple related events on the same day. While performing reconductor work, a temporary jumper burned-up at pole 10K-378. Following the replacement of the failed temporary jumper, a different temporary jumper failed at pole 10K-438, and burned the primary wire. Following the second temporary jumper failure, the circuit was powered down to double all temporary jumpers at five different locations on the circuit. A stepped restoration was utilized when restoring power due to the cold load pickup. No additional action is required. All of the Public Accident/Damage outage minutes occurred due to a construction tractor hitting the primary lines in-between poles K86-174 and K86-175. No damage was done to the lines at the time of the event and energy was restored after the onsite confirmation of no damage. No additional action is required.
			20 Equipment failure	29.94%	
			09 Public Accident/Damage	25.27%	
			11 Unknown Cause	1.41%	
			05 Planned (IEEE)	0.14%	
				100.00%	
VILLA - H9322430044	VILLA	H9322430044	20 Equipment failure	47.98%	The majority of Equipment failure outage minutes occurred due to a broken cutout on pole K96-316. The cutout was replaced at the time of the event and no additional action is required. The majority of the Other Cause outage minutes occurred due to an object getting caught on the line in a rear property location. The object was removed when the crew walked down the lines at the time of the event and no additional action is required. The majority of the Unknown Cause outage minutes occurred due to two related events at the same time. The first event occurred due to a recloser locking out. The line downstream of the recloser was patrolled, nothing was found, and then the recloser was closed back in to restore power. The second event occurred at the same time as the first event. A transformer on pole K96-395 blew a lead arrester, which could have caused the recloser to lock out. The crew came out to the site once the recloser was closed back in, but the customers supplied from the transformer were still without power. The lead arrester was replaced at the time of the event, all customers were restored, and no additional action is required.
			28 Other Cause	24.45%	
			11 Unknown Cause	23.90%	
			03 Vegetation	2.69%	
			05 Planned (IEEE)	0.92%	
			04 Wildlife	0.05%	
				100.00%	
WHITE TOWER - H9323040043	WHITE TOWER	H9323040043	20 Equipment failure	45.55%	The majority of Equipment failure outage minutes occurred due to a failed splice on a primary wire in-between poles 19K-509 and 19K-702. The crew came out and replaced the splice and a small section of wire at time of event. No additional action is required. The majority of Public Accident/Damage outage minutes occurred due to a vehicle hitting pole 19K-30. The pole and transformer were replaced at the time of the event, and no additional action is required.
			09 Public Accident/Damage	41.09%	
			03 Vegetation	7.74%	
			05 Planned (IEEE)	2.69%	
			28 Other Cause	1.31%	
			EA Weather	0.62%	
			11 Unknown Cause	0.54%	
			04 Wildlife	0.38%	
			19 Lightning strike	0.07%	
WILDER - H9320590041	WILDER	H9320590041	20 Equipment failure	81.78%	The majority of Equipment failure outage minutes occurred due to two outages. One outage occurred due to a fire at pole CA11-357. The pole was replaced at the time of the events and no additional action is required. The other outage occurred due to a failed temporary jumper at pole CA12-361, during reconductor work. The temporary jumper was replaced, temporary jumpers were doubled at pole CA12-361, and 90 feet of wire was replaced at the time of the event. No additional action is required.
			05 Planned (IEEE)	7.73%	
			28 Other Cause	6.39%	
			03 Vegetation	3.49%	
			04 Wildlife	0.60%	
			EA Weather	0.00%	
				100.00%	
WILDER - H9320590046	WILDER	H9320590046	03 Vegetation	91.16%	The majority of Vegetation outage minutes occurred due to two events. The first event occurred due to a tree falling on a primary line by pole CA14-153. The tree trimming crew cleared the tree off the line and road at the time of the event. The second event occurred due to a tree falling on the primary wires near pole CA12-124. The crew trimmed the tree and cleared it off of the primary wires at the time of the event. Circuit is scheduled to be trimmed in 2027.
			20 Equipment failure	7.94%	
			05 Planned (IEEE)	0.43%	
			28 Other Cause	0.40%	
			11 Unknown Cause	0.06%	
				100.00%	
YORK - H9320770041	YORK	H9320770041	11 Unknown Cause	59.47%	All of the Unknown Cause outage minutes occurred due to a failed transformer fuse on pole CA6-349, located downstream of the fuses on pole CA6-372. The transformer fuse was replaced and the fuses on pole CA6-372 were closed back in at the time of the event. No additional action is required. The majority of the Equipment failure outage minutes occurred due to multiple related events. Transformers on neighboring poles CA6-271 and CA6-269 failed simultaneously. Both transformers were replaced at the time of the events and no additional action is required. The majority of Wildlife outage minutes occurred due to a possum climbing pole CA6-1820 and breaking the fuse. The fuse was replaced at the time of the event and no additional action is required.
			20 Equipment failure	20.18%	
			04 Wildlife	10.54%	
			28 Other Cause	4.49%	
			19 Lightning strike	3.39%	
			09 Public Accident/Damage	1.33%	
				100.00%	

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SECTION 1- GOAL, OBJECTIVES, AND PURPOSE

Duke Energy Kentucky's vegetation management goal is to balance the need for reliable electrical service with cost-effective vegetation management practices.

The primary objective of the Duke Energy Kentucky Vegetation Management Program is to control the growth of incompatible vegetation along its electric infrastructure to help provide reliable service to our customers. This is accomplished by using qualified personnel to monitor the condition of the utility rights-of-way and by initiating various vegetation management control practices to reduce, manage or eliminate incompatible growth. This integrated vegetation management program is essential to providing reliable electric service by ensuring that trees, brush, and vines near or within rights-of-way are periodically pruned or taken down to help reduce outages and risks near the company's facilities.

The consistent implementation of industry accepted vegetation management practices reduces the likelihood of tree and power line conflicts, as well as service interruptions, and allows for the full utilization of the operating system.



SECTION 2 – DEFINITIONS

ANSI A300 - American National Standards Institute (ANSI) A300 for Tree Care Operations provides the generally accepted industry performance standards for the care and management of trees, shrubs, and other woody plants.

ANSI Z133 - American National Standards Institute (ANSI) Z133 for Arboricultural Operations provides the generally accepted industry safety standards for the care and management of trees, shrubs, and other woody plants.

ASSET PROTECTION – Duke Energy department that enforces transmission right-of-way legal rights.

BRUSH - A perennial woody stem less than six inches DBH (diameter at breast height).

CIRCUIT MILES - (for reference and reporting purposes) The distance, in miles, of primary voltage electric lines from the substation to the end of the circuit including single phase, two phase or three phase configurations. The distance is measured to the nearest 1/10th of a mile.

COMPATIBLE VEGETATION – Vegetation within the distribution right of way that does not present a grow-in or fall-in threat that has a typical mature height of less than 15 feet and whose trunk is typically no closer than 20 feet from the center of the right of way.

CONTRACTOR - Corporation to whom the vegetation management work is awarded.

DANGER TREE – A traditional industry term for a tree that if it were to fall or be cut would be tall enough to strike electrical lines and equipment of the distribution system.

HAZARD TREE - A traditional industry term for a tree that is dead, structurally unsound, diseased, shallow-rooted, leaning or otherwise defective that could strike electrical lines or equipment of the distribution system if it falls or is cut.

INCOMPATIBLE VEGETATION – Vegetation within or outside the distribution right of way that will mature to a height or size that will pose a grow-in, fall-in, or blowing-together threat to the distribution conductor, or that will limit or block access to distribution facilities during routine or emergency maintenance activity.

INTEGRATED VEGETATION MANAGEMENT - Vegetation plan that combines various components including pruning, mowing, removals, and herbicide applications to manage the growth of vegetation on the electric utility rights-of-way.

LEGAL- Duke Energy Legal Department.

MAINTAINED/LANDSCAPED AREAS - An area where cut brush typically cannot be left on-site. Maintained areas typically include maintained yards and landscaped areas.

NON-MAINTAINED/NON-LANDSCAPED AREAS - An area where cut brush can be left on-site. Non-Maintained areas are unimproved areas or natural areas.



SECTION 2 – DEFINITIONS CONTINUED

OPEN WIRE SECONDARY (OWS): A distribution line configuration that uses 2, 3 or 4 un-insulated conductors stacked vertically with 12 inches spacing between conductors, used to deliver secondary voltages ranging from 120-600 volts to the customer.

PRIMARY LINE: Electric conductor(s) energized at greater than 600 volts of electricity.

PRIMARY LINE - Electric conductor(s) energized at greater than 600 volts of electricity.

RIGHT-OF-WAY (ROW)- A strip of land that an electric utility uses to construct, operate, inspect, maintain, repair, or replace an overhead or underground power line. The ROW allows the utility to provide clearance from trees, buildings and other structures that could interfere with the line installation, maintenance, and operation. ROW may include licenses, easements, and other rights to access property.

SECONDARY LINE: Electric conductor(s) are energized at 600 volts or less of electricity.

SERVICE – TRIPLEX – MULTIPLEX CABLE: Electric conductor(s) energized at 600 volts or less of electricity and terminate at a service delivery point. A bundle of three or four conductors, most commonly used to provide aerial service to homes and businesses, denoted by its 3 or 4 polyethylene coated conductors wrapped around a bare, aluminum conductor.

SINGLE PHASE PRIMARY: A type of electric power line construction that contains one (1) conductor energized at primary voltage.

THREE PHASE PRIMARY: A type of electric power line construction that contains three (3) conductors energized at primary voltage.

TREE- A perennial woody stem equal or greater than six inches in DBH (diameter at breast height)

TWO PHASE OR OPEN WYE: A type of electric power line construction that contains two (2) conductors energized at primary voltage.

UNIT MILE: A mile within a circuit that is required to be or has been trimmed per contract specifications.



SECTION 3 – FEDERAL, STATE, AND LOCAL LAWS

Contractor shall perform all work in conformance with Duke Energy Kentucky Vegetation Management Program requirements and work specifications, Occupational Health and Safety Administration (OSHA) regulations, American National Standards Institute (ANSI) A300 and Z133 standards as amended, and all federal, state, county, and municipal laws, ordinances, and regulations applicable to said work.

The governing entities include but are not limited to:

- Kentucky Public Services Commission (Commission)
- Kentucky Transportation Cabinet (Department of Transportation)
- Kentucky Department of Agriculture
- Occupational Health and Safety Administration (OSHA)
- American National Standards Institute (ANSI)
- Easement and/or Permit Documents



SECTION 4 – PROPERTY ACCESS RIGHTS / REQUIREMENTS

The rights to access, assess, inspect, or perform the work associated with vegetation management practices include, but are not limited to, established legal instruments, easements, public road rights-of-way, municipal ordinances, state statutes, regulatory rules, tariffs, and other legal authority. Personnel responsible for implementing vegetation management on behalf of Duke Energy Kentucky should, when necessary, utilize the available supporting documents to pursue the completion of necessary work activities to maintain vegetation growth to the established standards of acceptance in the provision of safe and reliable electric service. If there are objections, restrictions or limitations that prevent completion of the necessary work activities, personnel should contact the Land Services Department or Legal Department for specialized assistance.

A list of items to determine property access rights include, but are not limited to:

- Existing property easement, prescriptive easements, public road rights of way and / or agreements;
- State statutes;
- Municipal codes; and
- Commission rules, regulations, orders, and approved tariffs.



SECTION 5 – WORK QUALITY AND SAFETY STANDARDS

All work shall be performed in conformance with the governing rules from the following: Duke Energy Kentucky Vegetation Management Program Requirements, OSHA regulations, National Electrical Safety Code (NESC), ANSI A300 and Z133 Standards as amended, and all federal, state, county, and municipal laws, statutes, ordinances, and regulations applicable to said work.

Clearance to obtain safety and reliable electric service are based on, but not limited to, consideration of the following:

National Electrical Safety Code (NESC)

ANSI A300 Standard - American National Standards Institute A300 for Tree Care Operations

For utility line clearance work, the primary foci are Parts Clauses 5,11, and 13.

ANSI Z133 Standard - American National Standards Institute Z133 for Tree Care Operations - Safety Requirements

OSHA Standard 29 Code of Federal Regulations (CFR) 1910.269 - OSHA Standard 29 CFR 1910.269 (a)(1)(i)(E) for Electric Power Generation, Transmission, and Distribution

Pruning Trees Near Electrical Utility Lines – A Field Pocket Guide for Qualified Line-Clearance Tree Workers
by Dr. Alex L. Shigo



SECTION 6 – DISTRIBUTION VEGETATION MANAGEMENT OVERVIEW FOR PLANNED WORK

Based on a data driven approach to facilitate a 5-year trim cycle, Duke Energy Kentucky will review, and clear vegetation as needed from approximately 20% of distribution system miles annually. Vegetation maintenance may include taking trees down, pruning limbs, mechanical limb removal, brush cutting/mastication, and herbicide application. The primary objective of the Duke Energy Kentucky Vegetation Management Program is to control the growth of incompatible vegetation and mitigating hazard trees along its electric lines to help provide reliable service to our customers by limiting or eliminating the possibility of contact by vegetation which has grown towards or could fall into the overhead distribution lines. This is accomplished by using qualified personnel to monitor the condition of the utility rights-of-way and by initiating various vegetation control practices to reduce, manage or eliminate incompatible growth.

The consistent implementation of industry accepted vegetation management practices reduces the likelihood of tree and power line conflicts, as well as service interruptions, and allows for the full utilization of the operating system.

Distribution Line Clearances

Trees located along the right-of-way edge will, in most cases, encroach upon the electrical conductors through the side growth of their limbs. The maintenance of these trees requires the removal or partial removal of those potentially interfering limbs. Industry standards dictate the methods of pruning such limbs to minimize any damages to the tree. Incompatible brush within the distribution right-of-way corridors is eliminated, if feasible. When such vegetation is eliminated, it will normally be cut down by manual or mechanical means.

- Primary distribution lines are typically cleared during routine pruning to obtain no less than ten (10) feet of clearance. Unsuitable branches which are dead, dying, diseased or structurally unsound and above distribution facilities are removed during pruning.
- Secondary, including open wire secondary distribution conductors (without a primary distribution line and excluding a service drop), are pruned on an as needed basis.
- Multiplex cables and guy wires (without a primary distribution line and excluding a service drop), are pruned on an as needed basis. Removal of load bearing limbs that are in contact with conductors and have a size and weight that causes tension on the conductor or interference with the normal sag or alignment of the conductor will be pruned for a minimum of twelve (12) inches of clearance.
- Duke Energy Kentucky shall have no responsibility to clear vegetation from a service drop.

Hazard Tree Mitigation

Trees found within or adjacent to the right-of way that are dead, structurally unsound, diseased, shallow-rooted, leaning or otherwise defective that pose unacceptable risks to electrical infrastructure are targeted to be taken down. Stumps from trees (live) taken down shall be treated with herbicides where appropriate.



SECTION 7 – INSPECTIONS AND MONITORING

Duke Energy Kentucky can and may perform inspections and assessments of distribution circuits to observe vegetation conditions on the distribution system. The intent of these inspections is to identify off-cycle vegetation threats along the distribution line corridors and take appropriate action.



**Transmission Vegetation Management Program –
Duke Energy Kentucky, Inc.**



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SECTION 1 – GOALS, OBJECTIVES AND PURPOSE

Duke Energy Kentucky's vegetation management goal is to balance the need for reliable utility service with cost-effective vegetation management practices.

The primary objective of the Duke Energy Kentucky Vegetation Management Program is to control the growth of incompatible vegetation along its electric facilities to help provide reliable service to our customers. This is accomplished by using qualified personnel to monitor the condition of the utility rights-of-way and by initiating various vegetation control practices to reduce, manage or eliminate incompatible growth. This integrated vegetation management program is essential in providing reliable electric service by ensuring that trees, brush, and vines near or within rights-of-way are periodically pruned or taken down to help reduce potential outages and risks near the company's facilities.

The consistent implementation of industry accepted vegetation management practices reduces the likelihood of tree and power line conflicts, as well as service interruptions, and allows for the full utilization of the operating system.



SECTION 2 – DEFINITIONS

ANSI A300 - American National Standards Institute (ANSI) A300 for Tree Care Operations, provides the generally accepted industry performance standards for the care and management of trees, shrubs, and other woody plants.

ANSI Z133 - American National Standards Institute (ANSI) Z133 for Arboricultural Operations, provides the generally accepted industry safety standards for the care and management of trees, shrubs, and other woody plants.

ASSET PROTECTION - Duke Energy department that enforces transmission right of way legal rights.

BRUSH - A perennial woody stem less than six (6) inches DBH (diameter at breast height).

COMPATIBLE VEGETATION – Vegetation within the Transmission Right of Way that will not mature to a height or size that will pose a grow-in, fall-in, or blowing-together threat to the transmission conductor, or that will not limit or block access, or the safe and reliable operation, emergency restoration, or maintenance activity, which is typically within 25 feet of any Duke Energy facilities (towers, poles, guy wires, guy anchors, etc.).

CONTRACTOR - Corporation to whom the Vegetation Management work is awarded.

CONDUCTOR BLOWOUT – Conductors horizontal position/location at National Electrical Safety Code (NESC) designed wind and temperature.

CONDUCTOR SAG – Conductors vertical position/location at designed maximum operating conditions.

DANGER TREE – A traditional industry term for a tree that if it were to fall or be cut would be tall enough to strike electrical lines and equipment of the transmission or distribution system.

HAZARD TREE - A traditional industry term for a tree that is dead, structurally unsound, diseased, shallow-rooted, leaning or otherwise defective that could strike electrical lines or equipment of the transmission system if it falls or is cut.

INCOMPATIBLE VEGETATION – Vegetation within or outside the Transmission Right of Way that will mature to a height or size that will pose a grow-in, fall-in, or blowing-together threat to the transmission conductor, or that will limit or block access, or the safe and reliable operation, emergency restoration, or maintenance activity, which is typically within twenty-five (25) feet of any Duke Energy facilities (towers, poles, guy wires, guy anchors, etc.).

INTEGRATED VEGETATION MANAGEMENT - Vegetation plan that combines various components including pruning, mowing, removals, and herbicide applications to manage the growth of vegetation on the electric utility rights-of-way.

LEGAL- Duke Energy Legal Department.



SECTION 2 – DEFINITIONS CONTINUED

MAINTAINED/LANDSCAPED AREAS - An area where cut brush typically cannot be left on-site. Maintained areas typically include maintained yards and landscaped areas.

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION (NERC) CIRCUITS – Transmission lines typically operated at more than 200 kV. Some transmission lines operated at voltages lower than 200 kV may be designated as NERC circuits if deemed critical.

NON-NERC CIRCUITS – Transmission lines that typically operate at less than 200 kV.

NON-MAINTAINED/NON-LANDSCAPED AREAS - An area where cut brush can be left on-site. Non-Maintained areas are unimproved areas or natural areas.

RECLAMATION – The establishment or reestablishment of Integrated Vegetation Management (IVM) objectives in areas not actively maintained.

RIGHT-OF-WAY (ROW)- A strip of land that an electric utility uses to construct, operate, inspect, maintain, repair, or replace an overhead or underground power line. The ROW allows the utility to provide clearance from trees, buildings and other structures that could interfere with line installation, maintenance, and operation. ROW may include licenses, easements, and other rights to access property.

TRANSMISSION LINE– A set of electrical conductors that carry 69 kV or more of electricity.

TREE- A perennial woody stem equal or greater than six (6) inches in Diameter at Breast Height (DBH)



SECTION 3 – FEDERAL, STATE, AND LOCAL LAWS

Contractor shall perform all work in conformance with the Duke Energy Kentucky Vegetation Management Program requirements and work specifications, Occupational Health and Safety Administration (OSHA) regulations, American National Standards Institute (ANSI) A300 and Z133 as amended, and all federal, state, county, and municipal laws, ordinances, and regulations applicable to said work.

The governing entities include but are not limited to:

- Kentucky Public Service Commission (Commission)
- Kentucky Transportation Cabinet (Department of Transportation)
- Kentucky Department of Agriculture
- Occupational Health and Safety Administration (OSHA)
- American National Standards Institute (ANSI)
- Easement and/or Permit Documents



SECTION 4 – PROPERTY ACCESS RIGHTS / REQUIREMENTS

The rights to access, assess, inspect, or perform the work associated with vegetation management practices include, but are not limited to, established legal instruments, easements, public road rights-of-way, municipal ordinances, state statutes, regulatory rules, tariffs, and other legal authority. Personnel responsible for implementing vegetation management on behalf of Duke Energy Kentucky should, when necessary, utilize the available supporting documents to pursue the completion of necessary work activities to maintain vegetation growth to the established standards of acceptance in the provision of reliable electric service. If there are objections, restrictions or limitations that prevent completion of the necessary work activities, Duke Energy Vegetation Management should contact the Land Services Department or Legal Department for specialized assistance.

A list of items to determine property access rights include, but are not limited to:

- Existing property easement, prescriptive easements, public road rights of way and / or agreements
- State statutes
- Municipal codes
- Commission rules, regulations, orders, and approved tariffs.



SECTION 5 – WORK QUALITY AND SAFETY STANDARDS

All work shall be performed in conformance with the governing rules from the following: Duke Energy Kentucky Vegetation Management Program Requirements, OSHA regulations, NESC, ANSI A300 and Z133 Standards as amended, and all federal, state, county, and municipal laws, statutes, ordinances, and regulations applicable to said work.

Clearance to obtain safety and reliable electric service are based on, but not limited to, consideration of the following:

National Electrical Safety Code (NESC)

ANSI A300 Standard - American National Standards Institute A300 for Tree Care Operations

- For utility line clearance work, the primary foci are Clauses 5, 11, and 13.

ANSI Z133 Standard - American National Standards Institute Z133 for Tree Care Operations - Safety Requirements

OSHA Standard 29 Code of Federal Regulations (CFR) 1910.269 -OSHA Standard 29 CFR 1910.269 (a)(1)(i)(E) for Electric Power Generation, Transmission, and Distribution

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SECTION 6 – TRANSMISSION VEGETATION MANAGEMENT OVERVIEW FOR PLANNED WORK

Duke Energy Kentucky’s program is designed on an Integrated Vegetation Management (IVM) strategy that targets removals of incompatible vegetation to minimize potential outages to the transmission system and ensure necessary access within all transmission line corridors. The reason for IVM is to create, promote, and conserve sustainable plant communities that are compatible with the intended use of the site, and manage incompatible plants that may conflict with the intended use of the site. This approach is recognized as an industry best management practice and is in alignment with ANSI A300 Part 7 standard.

As part of an IVM strategy, Duke Energy Kentucky utilizes a threat and condition-based approach to planned work. This approach identifies threats as triggers to determine incompatible vegetation within and outside the transmission right- of- way (ROW). Duke Energy Kentucky utilizes a process to define compatible and incompatible vegetation to balance the needs of public and worker safety as well as the reliable operation of the transmission system. A time-based herbicide program will be used to further manage incompatible vegetation in the ROW and support IVM.

THREAT/CONDITION-BASED TRIGGERS

For planned work, threat trigger distances are used to identify vegetation threats that do not allow for safe operation of the transmission facilities, under all operating conditions (designed blowout and designed maximum operating sag). These threat triggers are radial distances based on engineering design criteria for the conductor sag and blowout operating locations and are voltage dependent.

These threat trigger distances provide for approximately six (6) years of typical vegetation re-growth and supports minimum safe worker distances. Once vegetation has been identified as a threat, the vegetation will be evaluated to determine a mitigation strategy through the work planning process.

THREAT/CONDITION-BASED ACTION

During the work planning and marking process, many factors and criteria must be considered when developing the mitigation strategy. A Duke Energy Kentucky utility vegetation management professional will evaluate the vegetation based on arboricultural, regulatory/safety standards, legal ROW rights and criteria such as size, age, location, growth rate, maintained/landscaped vs. non- maintained/non-landscaped, etc. Property owner concerns with the proposed mitigation strategy shall be communicated to Duke Energy Kentucky personnel and alternative mitigation strategies will be considered. One mitigation strategy includes herbicide application.



MITIGATION FOR INCOMPATIBLE VEGETATION THREATS

All identified incompatible vegetation will be evaluated and taken down.

SPECIAL/SPECIFIC SITUATIONS

Potential Outage Risk: When a Transmission outage risk is identified, Duke Energy Kentucky will attempt to notify the affected property owner if practical and possible. However, Duke Energy Kentucky may need to take immediate action, such as taking down the vegetation, to protect the reliability and security of the Transmission system.

Roadside: For situations such as roadside, overhead transmission lines built within public road right-of-way with limited transmission right-of-way rights, a Wire Zone / Border Zone approach will be utilized with property owners to manage vegetation threats within and outside of the public road right-of-way.

Off ROW Danger Tree: Duke Energy Kentucky personnel will focus on taking down danger tree threats for reliability and storm hardening purposes on narrow corridors or rural areas where rights outside of the easement allow.

Storm: During storm events, debris in maintained or landscaped areas associated with emergency operations restoration efforts will be left on site and is the responsibility of the property owner.



SECTION 7 – INSPECTION AND MONITORING

Duke Energy Kentucky can and may perform inspections on each transmission circuit (69kV and above) to observe vegetation conditions on the transmission system. The intent of these inspections is to identify off-cycle vegetation threats along the transmission line corridors and take appropriate action.



SECTION 8 – VEGETATION CONTROL METHODS

TREE PRUNING - Trees found within or adjacent to the right-of-way edge will, in most cases, encroach upon the electrical conductors through the growth of their limbs. The management of these trees requires the removal or partial removal of those potentially interfering limbs. Industry standards dictate the proper methods of “pruning” such limbs to minimize any damages to the tree. These methods are in alignment with industry standards which refer to natural pruning, drop crotch and lateral pruning techniques. Stubbing and tearing of bark shall be avoided. When utilizing boom mounted cutting devices or helicopters to perform the pruning activities in rural locations, proper pruning methods are not typically a viable option.

HAZARD TREE MITIGATION - Trees found within or adjacent to the right-of way that are dead, structurally unsound, diseased, shallow-rooted, leaning or otherwise defective that could strike electrical lines or equipment are targeted to be taken down. Stumps from downed trees shall be treated with herbicides where appropriate and possible.

INCOMPATIBLE VEGETATION MITIGATION - Trees which are in close proximity to electrical facilities can require extensive pruning to prevent them from causing reliability or safety risk. These trees within the right- of-way will be targeted to be taken down and Duke Energy Kentucky will attempt to notify the affected property owner.

BRUSH MANAGEMENT - Because of a variety of terrain, differences in soil, land use, and vegetation types, Duke Energy Kentucky uses IVM practices which include environmentally acceptable herbicides to control brush within the right-of-way. All herbicides used in brush management operations shall be registered with the EPA and the applicable regulating state authority. In situations where brush height is of significant size and therefore not conducive to herbicide applications, the right- of- way may be mechanically mowed. In landscaped/maintained areas, brush will typically be hand cut and the remaining stumps treated.