



139 East Fourth Street, 1303-Main  
Cincinnati, OH 45202

Telephone: (513) 287-4356  
Facsimile: (513) 287-4385

*Minna Rolfes-Adkins*  
Sr. Paralegal  
E-mail: [Minna.Rolfes-Adkins@duke-energy.com](mailto:Minna.Rolfes-Adkins@duke-energy.com)

**VIA OVERNIGHT DELIVERY**

RECEIVED

MAY 01 2019

PUBLIC SERVICE  
COMMISSION

April 30, 2019

Ms. Gwen R. Pinson  
Executive Director  
Kentucky Public Service Commission  
211 Sower Boulevard  
Frankfort, Kentucky 40601

**Re: 2018 Reliability Report and Vegetation Management Plan Update**

Dear Ms. Pinson:

Enclosed please find a signed paper of the Duke Energy Kentucky, Inc. 2018 Reliability Report and Vegetation Management Plan Update together with the redacted part of Exhibit A provided in Excel format on CD.

We have included the unredacted part of Exhibit A in Excel format on CD in a separate envelope to be filed under seal. Also enclosed is a Petition for Confidential Treatment for your consideration in the above referenced matter.

Please date-stamp the two copies of the letter and the filings and return to me in the enclosed envelope.

Should you have any questions, please do not hesitate to contact me.

Very truly yours,

Minna Rolfes-Adkins  
Sr. Paralegal

ERA  
Enclosures

cc: Rebecca Goodman

RECEIVED

MAY 01 2019

PUBLIC SERVICE  
COMMISSION

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

An Investigation of the Reliability	)	
Measures of Kentucky's Jurisdictional	)	Administrative
Electric Distribution Utilities	)	Case No. 2011-00450

---

**DUKE ENERGY KENTUCKY, INC.'S  
PETITION FOR THE CONFIDENTIAL TREATMENT OF CERTAIN  
INFORMATION FILED FOR CALENDAR YEAR 2018**

---

Duke Energy Kentucky, Inc. (Duke Energy Kentucky or Company) respectfully submits this petition in accordance with 807 KAR 5:001 Section 13, seeking the confidential treatment of certain information filed for calendar year 2018:

1. On January 11, 2012, the Commission issued an Order in this proceeding requiring Duke Energy Kentucky to collect and maintain all records necessary to evaluate its system reliability performance in accordance with the methodology established by the most recent edition of the ("IEEE") standard number 1366 "Guide for Electric Power Distribution Reliability Indices," which currently is IEEE Standard 1366-2012.

2. 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.

3. The Commission's regulations, in 807 KAR 5:001, Section 13, provide that any person requesting confidential treatment of any material file a petition setting forth the

grounds, pursuant to KRS 61.870 *et seq.*, upon which the Commission should classify that material as confidential.

4. Kentucky Revised Statute § 61.878(1)(c)(1) provides that records confidentially disclosed to an agency or required to be disclosed to the agency be exempt from Kentucky's open records statutes, KRS 61.870 *et seq.* where the records are generally recognized as confidential or proprietary, and which if openly disclosed would permit an unfair commercial advantage to competitors of the entity that disclosed the records.

5. Duke Energy Kentucky submits that the following information, if openly disclosed, could present security issues:

- a. Physical street addresses of all the Company's electric substations and circuits.

6. The above information, if openly disclosed, would allow the public knowledge as to the specific physical location of critical utility infrastructure, namely Duke Energy Kentucky substations and circuits. With this information, a possible security issue could arise. Such actions might include theft, destruction, possible injury, and/or vandalism. Releasing the street address of all of the Company's electric substations in one public filing would present a significant security and reliability risk where a concentrated action could undermine Duke Energy Kentucky's distribution system and the security of its grid.

7. The information for which Duke Energy Kentucky is seeking confidential treatment is not known outside of Duke Energy Corporation.

8. Duke Energy Kentucky does not object to limited disclosure of the confidential information described herein to any intervenors, pursuant to an acceptable

protective agreement, and with a legitimate interest in reviewing the same for the purpose of participating in this case.

9. Pursuant to 807 KAR 5:001 Section 13(2), Duke Energy Kentucky has attached to this Petition, under seal, one copy of Exhibit A of the 2018 Reliability Report and Vegetation Management Plan and one copy of Exhibit A of the 2018 Reliability Report and Vegetation Management Plan with the confidential material omitted or otherwise redacted. Duke Energy Kentucky respectfully requests that the Confidential Information be withheld from public disclosure indefinitely. This will assure that the Confidential Information will not become available to the general public. To the extent the Confidential information becomes generally available to the public, whether through filings required by other agencies or otherwise, Duke Energy Kentucky will notify the Commission and have its confidential status removed, pursuant to 807 KAR 5:001 Section 13(10)(a).

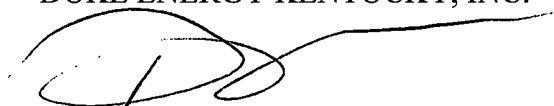
10. This information was, and remains, integral to Duke Energy Kentucky's effective execution of business decisions and such information is generally regarded as confidential or proprietary. Indeed, as the Kentucky Supreme Court has found, "information concerning the inner workings of a corporation is generally accepted as confidential or proprietary." *Hoy v. Kentucky Industrial Revitalization Authority*, Ky., 904 S.W.2d 766, 768 (Ky. 1995).

WHEREFORE, Duke Energy Kentucky respectfully requests that the Commission:

1. Accept this Petition for filing;
2. Grant the information delineated herein confidential treatment in accordance with 807 KAR 5:001 Section 13 and KRS 61.870 *et seq.*

Respectfully submitted,

DUKE ENERGY KENTUCKY, INC.



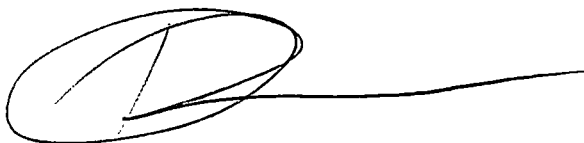
---

Rocco D'Ascenzo (92796)  
Deputy General Counsel  
Duke Energy Business Services LLC  
139 East Fourth Street, 1303-Main  
Cincinnati, Ohio 45201-0960  
Phone: (513) 287-4320  
Fax: (513) 287-4385  
E-mail: [Rocco.D'Ascenzo@duke-energy.com](mailto:Rocco.D'Ascenzo@duke-energy.com)  
*Counsel for Duke Energy Kentucky, Inc.*

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing filing was served on the following via  
overnight mail, this 30<sup>th</sup> day of April 2019:

Rebecca Goodman  
The Office of the Attorney General  
Utility Intervention and Rate Division  
700 Capital Avenue, Suite 20  
Frankfort, Kentucky, 40601



---

Rocco D'Ascenzo

RECEIVED

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

MAY 01 2019  
PUBLIC SERVICE  
COMMISSION

---

DUKE ENERGY KENTUCKY, INC.  
RELIABILITY REPORT AND VEGETATION MANAGEMENT PLAN UPDATE FOR  
CALENDAR YEAR 2018

---

April 30, 2019

TABLE OF CONTENTS

	<u>Page No.</u>
I. Introduction.....	1
II. Reliability Report Summary .....	1
III. Vegetation Management Update and Summary .....	3
Electric Distribution Utility Annual Reliability Report.....	Exhibit A
Vegetation Management Plan.....	Exhibit B

## **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 2018 as required by the Commission's May 30, 2013 Order in Case No. 2011-00450.<sup>1</sup>

## **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,<sup>2</sup> 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;
6. Develop a rolling five-year average SAIDI for each circuit within its system;

---

<sup>1</sup> *In the matter of An Investigation of the Reliability Measures of Kentucky's Jurisdictional Electric Distribution Utilities, Case No 2011-00450. (Order)(May 30, 2013).*

<sup>2</sup> *Id.*



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.<sup>3</sup> Duke Energy's Midwest Vegetation Management Group is responsible for controlling vegetation growth for approximately 37,000 miles of transmission and distribution overhead electric lines and gas supply lines in Ohio, Indiana, and Kentucky.

Exhibit B is a copy of Duke Energy Kentucky's Vegetation Management Plan. There have been no substantive amendments or changes to the Company's plan since it was initially filed with the Commission on December 18, 2007.

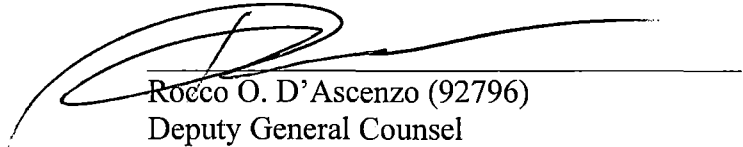
As part of its 2019 plan, Duke Energy Kentucky plans to trim trees and maintain vegetation along 320 miles of its distribution system. The Company was able to get a good start on our Vegetation Plan for 2019. As of March 31, 2019 Duke Energy Kentucky has completed approximately 21% of its scheduled trimming, or approximately 66 miles of its distribution system. This leaves approximately 254 miles to be trimmed in 2019. The Company does not

---

<sup>3</sup> *Id.*

anticipate any difficulty in completing all planned trimming for 2019. The Company will have sufficient crew coverage throughout the year.

Respectfully submitted,



Rocco O. D'Ascenzo (92796)  
Deputy General Counsel  
Duke Energy Business Services LLC  
139 East Fourth Street, 1303 Main  
Cincinnati, Ohio 45201-0960  
Phone: (513) 287-4320  
Fax: (513) 287-4385  
Email: [Rocco.D'Ascenzo@duke-energy.com](mailto:Rocco.D'Ascenzo@duke-energy.com)  
*Counsel for Duke Energy Kentucky, Inc.*

**KENTUCKY PUBLIC SERVICE COMMISSION**

**Electric Distribution Utility Annual Reliability Report**

**SECTION 1: CONTACT INFORMATION**

UTILITY NAME	DUKE ENERGY KENTUCKY
REPORT PREPARED BY	SHERI L. CAMPBELL
E-MAIL ADDRESS OF PREPARER	<a href="mailto:SHERI.CAMPBELL@DUKE-ENERGY.COM">SHERI.CAMPBELL@DUKE-ENERGY.COM</a>
PHONE NUMBER OF PREPARER	513-287-2034

**SECTION 2: REPORTING YEAR**

CALENDAR YEAR OF REPORT	2018
-------------------------	------

**SECTION 3: MAJOR EVENT DAYS (MED)**

T <sub>MED</sub>	4.8063
FIRST DATE USED TO DETERMINE T <sub>MED</sub>	January 1, 2013
LAST DATE USED TO DETERMINE T <sub>MED</sub>	December 31, 2017
NUMBER OF MED IN REPORT YEAR	4

NOTE: Per IEEE 1366 T<sub>MED</sub> 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	142,369	TOTAL CIRCUITS	133
-----------------	---------	----------------	-----

**Excluding MED**

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	103.38	SAIDI	81.82
SAIFI	0.89	SAIFI	0.66

**Including MED**

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	152.84	SAIDI	214.74
SAIFI	1.04	SAIFI	0.94

**Notes**

- 1) All duration indices (SAIDI) 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, and T<sub>MED</sub>

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

CIRCUIT NUMBER	SUBSTATION NAME	SUBSTATION NUMBER	SUBSTATION COUNTY	SUBSTATION ROAD	SUBSTATION TOWN	CIRCUIT NAME	CIRCUIT ID	CIRCUIT NUMBER	CIRCUIT TOWN
H9320780046	AUGUSTINE	78	KENTON		COVINGTON	AUGUSTINE 46	H9320780046	46	PARK HILLS
H9321310042	BELLEVUE	131	CAMPBELL		NEWPORT	BELLEVUE 42	H9321310042	42	BELLEVUE
H9321310044	BELLEVUE	131	CAMPBELL		NEWPORT	BELLEVUE 44	H9321310044	44	BELLEVUE
H9320670044	BUFFINGTON	67	KENTON		FLORENCE	BUFFINGTON 44	H9320670044	44	ERLANGER
H9320670046	BUFFINGTON	67	KENTON		FLORENCE	BUFFINGTON 46	H9320670046	46	FLORENCE
H9320670047	BUFFINGTON	67	KENTON		FLORENCE	BUFFINGTON 47	H9320670047	47	FLORENCE
H9321470041	CLARYVILLE	147	CAMPBELL		CLARYVILLE	CLARYVILLE 41	H9321470041	41	GRANT'S LICK
H9321470042	CLARYVILLE	147	CAMPBELL		CLARYVILLE	CLARYVILLE 42	H9321470042	42	GRANT'S LICK
H9321470043	CLARYVILLE	147	CAMPBELL		CLARYVILLE	CLARYVILLE 43	H9321470043	43	CLARYVILLE
H9321320042	COLD SPRING	132	CAMPBELL		COLD SPRINGS	COLD SPRING 42	H9321320042	42	COLD SPRINGS
H9320420042	CONSTANCE	42	BOONE		ERLANGER	CONSTANCE 42	H9320420042	42	VILLA HILLS
H9320420043	CONSTANCE	42	BOONE		ERLANGER	CONSTANCE 43	H9320420043	43	ERLANGER
H9322170041	COVINGTON KY	217	KENTON		COVINGTON	COVINGTON 41	H9322170041	41	COVINGTON
H9322170044	COVINGTON KY	217	KENTON		COVINGTON	COVINGTON 44	H9322170044	44	COVINGTON
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
H9321240041	CRITTENDEN	124	GRANT		CRITTENDEN	CRITTENDEN 41	H9321240041	41	CRITTENDEN
H9321240042	CRITTENDEN	124	GRANT		CRITTENDEN	CRITTENDEN 42	H9321240042	42	CRITTENDEN
H9320890042	DIXIE	89	BOONE		FLORENCE	DIXIE 42	H9320890042	42	FLORENCE
H9320550043	DONALDSON	55	KENTON		ERLANGER	DONALDSON 43	H9320550043	43	ERLANGER
H9321280043	HANDS	128	KENTON		COVINGTON	HANDS 43	H9321280043	43	INDEPENDENCE
H9321280044	HANDS	128	KENTON		COVINGTON	HANDS 44	H9321280044	44	ERLANGER
H9321280045	HANDS	128	KENTON		COVINGTON	HANDS 45	H9321280045	45	TAYLOR MILL
H9321520041	HEBRON	152	BOONE		HEBRON	HEBRON 41	H9321520041	41	PETERSBURG
H9320090042	KENTON	9	KENTON		LAKEVIEW	KENTON 42	H9320090042	42	TAYLOR MILL
H9322870043	KENTUCKY UNIVERSITY	287	CAMPBELL		NEWPORT	KY UNIV 43	H9322870043	43	HIGHLAND HEIGHTS
H9320980042	LONGBRANCH	98	BOONE		FLORENCE	LONGBRANCH 42	H9320980042	42	US 42
H9320980043	LONGBRANCH	98	BOONE		FLORENCE	LONGBRANCH 43	H9320980043	43	UNION
H9323050041	MT ZION	305	BOONE		FLORENCE	MT ZION 41	H9323050041	41	DEVON
H9322100041	OAKBROOK	210	BOONE		FLORENCE	OAKBROOK 41	H9322100041	41	ALEXANDRIA
H9322100042	OAKBROOK	210	BOONE		FLORENCE	OAKBROOK 42	H9322100042	42	FLORENCE
H9320620041	SILVER GROVE	62	CAMPBELL		MELBOURNE	SILVER GROVE 41	H9320620041	41	CAMP SPRINGS
H9320620042	SILVER GROVE	62	CAMPBELL		MELBOURNE	SILVER GROVE 42	H9320620042	42	SILVER GROVE
H9320620043	SILVER GROVE	62	CAMPBELL		MELBOURNE	SILVER GROVE 43	H9320620043	43	MELBOURNE
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
H9322430041	VILLA	243	KENTON		EDGEWOOD	VILLA 41	H9322430041	41	CRESTVIEW HILLS
H9322430042	VILLA	243	KENTON		EDGEWOOD	VILLA 42	H9322430042	42	CRESTVIEW HILLS
H40C0150041	WEST END	15	HAMILTON		CINCINNATI	WEST END 41	H40C0150041	41	PARK HILLS
H9323040041	WHITE TOWER	304	KENTON		INDEPENDENCE	WHITE TOWER 41	H9323040041	41	INDEPENDENCE
H9323040042	WHITE TOWER	304	KENTON		INDEPENDENCE	WHITE TOWER 42	H9323040042	42	INDEPENDENCE
H9323040043	WHITE TOWER	304	KENTON		INDEPENDENCE	WHITE TOWER 43	H9323040043	43	INDEPENDENCE
H9320590044	WILDER	59	KENTON		WILDER	WILDER 44	H9320590044	44	WILDER
H9320590047	WILDER	59	KENTON		WILDER	WILDER 47	H9320590047	47	NEWPORT
H9320770042	YORK	77	CAMPBELL		NEWPORT	YORK 42	H9320770042	42	NEWPORT

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

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 (SAIFI)	REPORTING YEAR (2018) SAIFI	DID SAIFI INCREASE IN 2018?	CIRCUIT 5-YEAR AVERAGE (SAIFI)	REPORTING YEAR (2018) SAIFI	DID SAIFI INCREASE IN 2018?
	Park Hills	22.02	2,649	5/12/2018	115.428	146.040	YES	1.218	2.337	YES
	Fort Thomas, Dayton and Bellevue	22.84	2,270	7/25/2015	83.673	98.650	YES	0.698	1.466	YES
	Bellevue	7.99	1,393	6/6/2015	21.377	27.799	YES	0.259	0.135	NO
	Erlanger	25.62	3,034	6/6/2015	126.449	139.870	YES	0.854	2.958	YES
	Florence	3.27	56	10/11/2014	90.230	73.233	NO	0.852	1.071	YES
	Florence	15.05	1,812	5/9/2015	113.269	132.593	YES	1.132	1.012	NO
	Grant's Lick	61.53	1,716	12/19/2015	181.005	321.546	YES	1.338	0.828	NO
	Grant's Lick	53.48	1,979	10/15/2016	221.036	236.688	YES	1.361	2.590	YES
	Claryville	1.48	8	12/5/2015	36.756	69.705	YES	0.400	0.375	NO
	Cold Springs, Brookstone Crossing	37.71	2,715	9/24/2014	113.687	139.237	YES	1.026	1.094	YES
	Villa Hills	24.21	1,640	3/28/2016	116.660	179.245	YES	1.100	1.514	YES
	Erlanger	2.41	1	3/12/2016	254.105	452.700	YES	0.960	1.000	YES
	Covington	6.58	1,000	7/28/2018	55.622	68.190	YES	0.577	0.441	NO
	Covington	4.31	1,003	New Circuit	0.000	5.583	YES	0.000	0.073	YES
	Ft. Mitchell	17.88	1,669	12/6/2014	140.748	141.203	YES	0.944	0.485	NO
	Crescent Springs	10.32	666	12/19/2015	110.427	61.324	NO	0.612	0.906	YES
	FT. MITCHELL	21.03	1,861	11/18/2013	27.606	109.585	YES	0.156	0.561	YES
	Crittenden	39.66	1,634	12/4/2017	103.110	504.747	YES	1.006	2.422	YES
	Crittenden	25.26	931	8/31/2018	196.304	393.381	YES	1.422	3.576	YES
	Florence	4.91	39	3/21/2015	140.522	66.557	NO	0.533	0.975	YES
	Erlanger, Florence, CVG	17.43	750	11/15/2014	128.155	353.917	YES	2.042	2.437	YES
	Independence, Taylor Mill	24.81	1,834	3/31/2016	27.499	76.425	YES	0.278	1.038	YES
	ERLANGER	21.28	1,242	12/12/2015	67.613	18.114	NO	0.803	1.035	YES
	Taylor Mill	18.65	868	6/1/2013	28.658	99.772	YES	0.129	0.479	YES
	Hebron	21.85	1,378	5/23/2014	98.150	321.573	YES	0.552	1.128	YES
	Taylor Mill	14.48	941	5/11/2016	106.060	328.961	YES	0.504	1.319	YES
	Highland Heights	17.31	684	9/22/2014	34.674	81.754	YES	0.611	1.281	YES
	Union, Beaverlick and Florence	42.52	1,145	12/6/2017	51.483	115.869	YES	0.488	0.414	NO
	UNION	22.31	1,807	8/23/2018	22.947	111.188	YES	0.119	0.367	YES
	Florence	2.47	63	12/19/2015	22.094	116.940	YES	0.065	1.406	YES
	Alexandria, Ross and Oneonta	22.33	739	12/31/2018	0.168	61.452	YES	0.001	0.610	YES
	Limaburg, Oakbrook and Burlington	24.44	2,443	10/19/2013	0.016	165.210	YES	0.000	0.785	YES
	Camp Springs	61.06	871	7/22/2014	260.574	470.478	YES	1.611	2.993	YES
	Silver Grove	8.33	412	7/22/2014	70.328	189.339	YES	0.438	1.060	YES
	Melbourne	19.84	576	7/22/2014	189.765	307.265	YES	1.429	1.920	YES
	Edgewood	1.68	10	12/13/2014	25.222	18.620	NO	0.244	1.000	YES
	Edgewood	8.83	436	11/22/2014	72.100	369.917	YES	0.485	1.032	YES
	Verona, Piner, Fiskburg and Walton	48.7	862	6/11/2016	313.708	114.281	NO	1.858	2.539	YES
	Lakeside Park	14.61	1,692	4/25/2014	58.374	87.900	YES	0.558	0.138	NO
	Crestview Hills	12.64	864	5/22/2014	52.817	86.535	YES	0.316	1.102	YES
	Covington, Park Hills	9.04	720	12/11/2017	161.057	300.987	YES	0.531	0.841	YES
	Independence, Taylor Mill	77.06	1,834	6/11/2016	330.058	311.619	NO	1.854	2.767	YES
	Independence, White Tower	9.96	487	9/3/2016	35.980	11.725	NO	0.686	0.949	YES
	Independence, White Tower	27.98	1,210	11/24/2015	40.700	13.323	NO	0.742	1.016	YES
	Wilder & Covington	19.4	1,216	7/26/2017	117.988	140.523	YES	0.754	1.476	YES
	Southgate	13.28	1,848	7/10/2017	45.440	50.982	YES	0.426	0.196	NO
	Newport	4.53	1,028	11/7/2014	20.440	20.279	NO	0.124	0.129	YES

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

SUBSTATION - CIRCUIT	CIRCUIT NAME	CIRCUIT ID	OUTAGE CAUSE	PERCENT OF TOTAL OUTAGE MINUTES	CORRECTIVE ACTION PLAN
AUGUSTINE - H9320780046	AUGUSTINE	H9320780046	03 Vegetation	27.38%	The majority of the outage minutes are due to vegetation and maintenance. Circuit was trimmed in 2018. No further action required.
			11 Unknown Cause	24.36%	
			09 Public Accident/Damage	18.92%	
			28 Other Cause	16.06%	
			EA Weather	5.04%	
			05 Planned (IEEE)	4.72%	
			20 Equipment failure	2.22%	
			04 Wildlife	1.30%	
				100.00%	
BELLEVUE - H9321310042	BELLEVUE	H9321310042	03 Vegetation	49.47%	Line was trimmed in 2015. Tree trimming/limb removal & equipment repairs were corrected at time of outage. No further action required.
			09 Public Accident/Damage	23.99%	
			28 Other Cause	20.35%	
			EA Weather	2.97%	
			20 Equipment failure	1.73%	
			05 Planned (IEEE)	1.11%	
			19 Lightning strike	0.28%	
			11 Unknown Cause	0.09%	
				100.00%	
BELLEVUE - H9321310044	BELLEVUE	H9321310044	03 Vegetation	86.34%	Tree limb was removed and conductor repaired onsite. No further action required.
			05 Planned (IEEE)	4.01%	
			EA Weather	3.88%	
			20 Equipment failure	3.80%	
			19 Lightning strike	0.84%	
			28 Other Cause	0.59%	
			04 Wildlife	0.55%	
				100.00%	
BUFFINGTON - H9320670044	BUFFINGTON	H9320670044	11 Unknown Cause	67.42%	A tree took out the line. Removal and repairs were completed. No further action required.
			20 Equipment failure	23.41%	
			03 Vegetation	6.05%	
			EA Weather	1.04%	
			28 Other Cause	0.88%	
			05 Planned (IEEE)	0.84%	
			04 Wildlife	0.27%	
			09 Public Accident/Damage	0.08%	
				100.00%	
BUFFINGTON - H9320670046	BUFFINGTON	H9320670046	20 Equipment failure	90.23%	Outage caused by defective capacitors. Capacitors were replaced. No further action required.
			04 Wildlife	9.77%	
				100.00%	
BUFFINGTON - H9320670047	BUFFINGTON	H9320670047	20 Equipment failure	99.07%	Winding failure on transformer bank. Repairs were completed. No further action required.
			03 Vegetation	0.49%	
			04 Wildlife	0.25%	
			28 Other Cause	0.12%	
			09 Public Accident/Damage	0.07%	
				100.00%	
CLARYVILLE - H9321470041	CLARYVILLE	H9321470041	EA Weather	71.00%	Weather related. Repairs and restoration were completed. Feeder has extensive sectionalization devices. No further action required.
			09 Public Accident/Damage	9.28%	
			28 Other Cause	8.71%	
			20 Equipment failure	7.68%	
			03 Vegetation	2.50%	
			05 Planned (IEEE)	0.40%	
			19 Lightning strike	0.22%	
			11 Unknown Cause	0.19%	
04 Wildlife	0.01%				
				100.00%	

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

CLARYVILLE - H9321470042	CLARYVILLE	H9321470042	11 Unknown Cause	50.73%	Normal equipment failure and public accidents. Repairs and restoration were completed. Feeder has extensive sectionalization devices. No further action required.
			20 Equipment failure	18.80%	
			28 Other Cause	15.26%	
			03 Vegetation	9.72%	
			09 Public Accident/Damage	2.97%	
			19 Lightning strike	1.58%	
			05 Planned (IEEE)	0.86%	
04 Wildlife	0.08%				
			100.00%		
CLARYVILLE - H9321470043	CLARYVILLE	H9321470043	03 Vegetation	100.00%	Three customers on feeder. Broken poles have been replaced. No further action required.
			100.00%		
COLD SPRING - H9321320042	COLD SPRING	H9321320042	20 Equipment failure	73.62%	Major event was unknown and isolated by a reclosing device. Circuit was last trimmed in 2014 and is due for trimming in 2019. No further action required.
			11 Unknown Cause	15.20%	
			03 Vegetation	10.25%	
			09 Public Accident/Damage	0.60%	
			EA Weather	0.28%	
			19 Lightning strike	0.02%	
			28 Other Cause	0.02%	
			100.00%		
CONSTANCE - H9320420042	CONSTANCE	H9320420042	03 Vegetation	51.11%	Most events are related to planned outages or vegetation. This circuit was last trimmed in 2016. All events were corrected. No further action required.
			05 Planned (IEEE)	21.44%	
			20 Equipment failure	17.35%	
			11 Unknown Cause	6.35%	
			09 Public Accident/Damage	3.37%	
			28 Other Cause	0.30%	
			04 Wildlife	0.07%	
			100.00%		
CONSTANCE - H9320420043	CONSTANCE	H9320420043	20 Equipment failure	100.00%	One event for one customer. Underground splice was repaired. No further action required.
			100.00%		
COVINGTON - H9322170041	COVINGTON	H9322170041	20 Equipment failure	40.56%	Failed jumper repaired and switch opened for public accident restored. No further action required.
			09 Public Accident/Damage	40.12%	
			05 Planned (IEEE)	14.71%	
			04 Wildlife	3.10%	
			11 Unknown Cause	0.99%	
			EA Weather	0.52%	
COVINGTON - H9322170044	COVINGTON	H9322170044	05 Planned (IEEE)	49.49%	New Circuit.
			20 Equipment failure	24.87%	
			11 Unknown Cause	15.50%	
			28 Other Cause	9.51%	
			09 Public Accident/Damage	0.63%	
CRESCENT - H9320700043	CRESCENT	H9320700043	03 Vegetation	56.94%	Heavily treed area with most events tree related. Corrected at the time of the outage. Circuit is scheduled for trimming in 2019. This is also a self-healing circuit. No further action required.
			20 Equipment failure	42.07%	
			05 Planned (IEEE)	0.81%	
			04 Wildlife	0.10%	
			11 Unknown Cause	0.08%	
CRESCENT - H9320700044	CRESCENT	H9320700044	11 Unknown Cause	69.43%	Safety systems opened a portion of the circuit for an unknown reason. Customers restored and no cause was determined. No further action required.
			03 Vegetation	19.67%	
			04 Wildlife	4.52%	
			20 Equipment failure	4.35%	
			28 Other Cause	1.28%	
			05 Planned (IEEE)	0.76%	
			100.00%		



**CONFIDENTIAL PROPRIETARY TRADE SECRET**

CRESCENT - H9320700045	CRESCENT	H9320700045	20 Equipment failure	47.42%	Events were evenly split between planned and cable failures. Repairs were made. Will work with Reliability Engineering to inject or replace the cable.
			05 Planned (IEEE)	46.53%	
			03 Vegetation	3.88%	
			19 Lightning strike	2.00%	
			28 Other Cause	0.10%	
			04 Wildlife	0.07%	
				100.00%	
CRITTENDEN - H9321240041	CRITTENDEN	H9321240041	20 Equipment failure	50.15%	Broken conductor repaired and a project has been submitted to correct an overloaded protective device. No further action required.
			19 Lightning strike	39.40%	
			03 Vegetation	5.20%	
			28 Other Cause	2.02%	
			11 Unknown Cause	1.98%	
			09 Public Accident/Damage	1.23%	
			05 Planned (IEEE)	0.03%	
				100.00%	
CRITTENDEN - H9321240042	CRITTENDEN	H9321240042	11 Unknown Cause	34.00%	Miscellaneous equipment failures that have been corrected. No further action required.
			20 Equipment failure	33.11%	
			03 Vegetation	20.67%	
			28 Other Cause	11.70%	
			EA Weather	0.48%	
			04 Wildlife	0.04%	
				100.00%	
DIXIE - H9320890042	DIXIE	H9320890042	20 Equipment failure	59.25%	Total of four outages with one opened for safety. Normal protective operations. No further action required.
			09 Public Accident/Damage	18.49%	
			28 Other Cause	15.82%	
			11 Unknown Cause	6.44%	
				100.00%	
DONALDSON - H9320550043	DONALDSON	H9320550043	03 Vegetation	99.21%	This line is in ROW and the County has abandoned and blocked access due to a collapsing road. The line is scheduled to be re-routed and placed underground in 2019. No further action required.
			EA Weather	0.33%	
			28 Other Cause	0.32%	
			20 Equipment failure	0.14%	
				100.00%	
HANDS - H9321280043	HANDS	H9321280043	20 Equipment failure	95.28%	Failed cable repaired. Feeder is schedule to become self-healing. No further action required.
			03 Vegetation	1.70%	
			04 Wildlife	1.50%	
			28 Other Cause	1.13%	
			11 Unknown Cause	0.33%	
			09 Public Accident/Damage	0.05%	
				100.00%	
HANDS - H9321280044	HANDS	H9321280044	20 Equipment failure	37.27%	Planned and safety outages due to line rebuild and tree in line. No further action required.
			EA Weather	35.43%	
			05 Planned (IEEE)	21.08%	
			03 Vegetation	3.00%	
			28 Other Cause	2.01%	
			04 Wildlife	1.21%	
				100.00%	
HANDS - H9321280045	HANDS	H9321280045	20 Equipment failure	81.83%	Failed equipment has been repaired. No further action required.
			05 Planned (IEEE)	10.51%	
			28 Other Cause	4.74%	
			03 Vegetation	2.30%	
			09 Public Accident/Damage	0.45%	
			19 Lightning strike	0.18%	
				100.00%	
HEBRON - H9321520041	HEBRON	H9321520041	09 Public Accident/Damage	95.49%	Public accident, car hit pole. Pole and equipment have been replaced. No further action required.
			20 Equipment failure	3.22%	
			11 Unknown Cause	0.77%	
			05 Planned (IEEE)	0.29%	
			04 Wildlife	0.16%	
			28 Other Cause	0.04%	
			EA Weather	0.03%	
				100.00%	

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

KENTON - H9320090042	KENTON	H9320090042	04 Wildlife	91.93%	Animal got onto substation equipment causing circuit lockout. Animal was removed, equipment repaired and restored to service. No further action required.
			03 Vegetation	6.57%	
			20 Equipment failure	1.49%	
				100.00%	
KY UNIV - H9322870043	KY UNIV	H9322870043	20 Equipment failure	58.09%	Broken conductor and equipment contact were corrected at the time of the outage. No further action required.
			19 Lightning strike	40.81%	
			28 Other Cause	0.93%	
			05 Planned (IEEE)	0.16%	
				100.00%	
LONGBRANCH - H9320980042	LONGBRANCH	H9320980042	03 Vegetation	84.99%	Tree limbs caused lockout of line reclosers. The reclosers saved larger outages from occurring. Circuit was trimmed in 2017. No further action required.
			19 Lightning strike	7.98%	
			28 Other Cause	6.22%	
			20 Equipment failure	0.57%	
			05 Planned (IEEE)	0.24%	
				100.00%	
LONGBRANCH - H9320980043	LONGBRANCH	H9320980043	09 Public Accident/Damage	68.24%	Someone dug into an underground cable. Equipment was repaired and restored. Miscellaneous equipment on circuit was replaced after failure. No further action required.
			20 Equipment failure	31.42%	
			04 Wildlife	0.24%	
			05 Planned (IEEE)	0.10%	
MT ZION - H9323050041	MT ZION	H9323050041	20 Equipment failure	94.39%	Failed jumper and customer metering cabinets have been replaced and restored to service. No further action required.
			19 Lightning strike	2.59%	
			28 Other Cause	1.96%	
			04 Wildlife	1.06%	
OAKBROOK STA - H9322100041	OAKBROOK STA	H9322100041	EA Weather	61.17%	Weather related failures have been repaired and restored to service. No further action required.
			19 Lightning strike	15.45%	
			05 Planned (IEEE)	13.22%	
			04 Wildlife	7.66%	
			20 Equipment failure	1.35%	
			11 Unknown Cause	0.58%	
			28 Other Cause	0.57%	
				100.00%	
OAKBROOK STA - H9322100042	OAKBROOK STA	H9322100042	11 Unknown Cause	81.50%	Fusing overloading and miscellaneous equipment failures. Loading was switched for relief and equipment was repaired or replaced at the time of the outage. No further action required.
			20 Equipment failure	10.71%	
			03 Vegetation	3.42%	
			28 Other Cause	2.24%	
			09 Public Accident/Damage	2.07%	
			05 Planned (IEEE)	0.05%	
04 Wildlife	0.01%				
				100.00%	
SILVER GROVE - H9320620041	SILVER GROVE	H9320620041	20 Equipment failure	40.65%	Protective fusing blew due to weather related event. Situation has been corrected and fuse replaced. All customers are restored to service. No further action required.
			03 Vegetation	29.35%	
			09 Public Accident/Damage	22.97%	
			05 Planned (IEEE)	3.26%	
			11 Unknown Cause	3.20%	
			04 Wildlife	0.34%	
			28 Other Cause	0.19%	
			19 Lightning strike	0.04%	
				100.00%	
SILVER GROVE - H9320620042	SILVER GROVE	H9320620042	09 Public Accident/Damage	87.84%	Vehicle hit a utility pole causing a circuit level outage. Equipment has been repaired and restored to service. No further action required.
			11 Unknown Cause	6.41%	
			03 Vegetation	5.21%	
			EA Weather	0.34%	
			28 Other Cause	0.20%	
				100.00%	

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

SILVER GROVE - H9320620043	SILVER GROVE	H9320620043	EA Weather	50.71%	Station breaker opened for weather related event. Patrolled and restored to service. Tree fell on line opening protective device on the line, but saving a larger outage. No further action required.
			03 Vegetation	43.48%	
			05 Planned (IEEE)	2.00%	
			20 Equipment failure	1.55%	
			11 Unknown Cause	0.99%	
			04 Wildlife	0.57%	
			19 Lightning strike	0.37%	
			28 Other Cause	0.27%	
			09 Public Accident/Damage	0.07%	
				100.00%	
THOMAS MORE - H9321340041	THOMAS MORE	H9321340041	41 Loss of transmsn/generation	100.00%	Loss of transmission in single incident. Restored to service. No further action required.
				100.00%	
THOMAS MORE - H9321340042	THOMAS MORE	H9321340042	20 Equipment failure	91.04%	Transmission lost due to line falling onto highway during a weather event. The line was repaired and restored. No further action required.
			EA Weather	7.37%	
			28 Other Cause	1.29%	
			03 Vegetation	0.21%	
			05 Planned (IEEE)	0.09%	
				100.00%	
VERONA - H9321250041	VERONA	H9321250041	20 Equipment failure	29.05%	Wind related outage restored. Several planned outages for equipment restoration. No further action required.
			05 Planned (IEEE)	28.22%	
			EA Weather	26.34%	
			11 Unknown Cause	10.93%	
			03 Vegetation	4.52%	
			28 Other Cause	0.73%	
			09 Public Accident/Damage	0.10%	
			04 Wildlife	0.06%	
			19 Lightning strike	0.06%	
				100.00%	
VILLA - H9322430041	VILLA	H9322430041	20 Equipment failure	90.86%	Failed cable and transformers were replaced. No further action required.
			03 Vegetation	8.09%	
			04 Wildlife	0.74%	
			28 Other Cause	0.19%	
			05 Planned (IEEE)	0.13%	
				100.00%	
VILLA - H9322430042	VILLA	H9322430042	11 Unknown Cause	49.56%	Failed cable and transformers were replaced. Recloser prevented larger outages of unknown cause. No further action required.
			20 Equipment failure	44.62%	
			05 Planned (IEEE)	3.58%	
			28 Other Cause	2.19%	
			04 Wildlife	0.05%	
	100.00%				
WEST END STA - H40C0150041	WEST END STA	H40C0150041	03 Vegetation	95.87%	Very heavily treed area with rear-lot overhead construction. Area is very restrictive to allowing tree trimming. Last trimmed less than two years ago. No further action required.
			05 Planned (IEEE)	1.88%	
			28 Other Cause	1.00%	
			20 Equipment failure	0.59%	
			EA Weather	0.28%	
			04 Wildlife	0.26%	
			11 Unknown Cause	0.12%	
				100.00%	
WHITE TOWER - H9323040041	WHITE TOWER	H9323040041	20 Equipment failure	47.92%	Miscellaneous equipment failures due to public accident, trees, and normal failures on a long, rural circuit. All equipment has been repaired or replaced and restored to service. This circuit was last trimmed in 2016. This is a self-healing circuit. No further action required.
			03 Vegetation	26.75%	
			09 Public Accident/Damage	10.73%	
			EA Weather	6.35%	
			11 Unknown Cause	6.05%	
			28 Other Cause	1.85%	
			05 Planned (IEEE)	0.20%	
			04 Wildlife	0.10%	
			19 Lightning strike	0.05%	
				100.00%	

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

WHITE TOWER - H9323040042	WHITE TOWER	H9323040042	20 Equipment failure	70.69%	Six out of eight outages were single customer equipment failures. All have been repaired and restored. No further action required.
			28 Other Cause	13.37%	
			03 Vegetation	11.20%	
			04 Wildlife	4.74%	
				100.00%	
WHITE TOWER - H9323040043	WHITE TOWER	H9323040043	20 Equipment failure	54.05%	Thirteen out of fourteen outages are minor transformer or weather related outages. The fourteenth outage was transmission. All events have been corrected. No further action required.
			EA Weather	22.41%	
			28 Other Cause	9.22%	
			19 Lightning strike	7.53%	
			03 Vegetation	3.95%	
			04 Wildlife	2.84%	
	100.00%				
WILDER - H9320590044	WILDER	H9320590044	09 Public Accident/Damage	61.94%	Conductor tension corrected and crossarm and broken guy replaced in separate incidents. No further action required.
			28 Other Cause	14.91%	
			19 Lightning strike	14.81%	
			20 Equipment failure	8.14%	
			04 Wildlife	0.20%	
	100.00%				
WILDER - H9320590047	WILDER	H9320590047	09 Public Accident/Damage	88.91%	Public accident. Situation corrected and restored to service. No further action required.
			03 Vegetation	7.60%	
			11 Unknown Cause	1.68%	
			20 Equipment failure	0.81%	
			19 Lightning strike	0.76%	
			28 Other Cause	0.16%	
			05 Planned (IEEE)	0.10%	
	100.00%				
YORK - H9320770042	YORK	H9320770042	09 Public Accident/Damage	54.13%	Public accident. All equipment repaired or replaced and restored to service. No further action required.
			03 Vegetation	17.87%	
			05 Planned (IEEE)	15.22%	
			20 Equipment failure	10.43%	
			04 Wildlife	0.90%	
			11 Unknown Cause	0.87%	
			28 Other Cause	0.59%	
	100.00%				

## **Duke Energy Kentucky's Vegetation Management Plan**

### **Goals**

Duke Energy's goals for its Vegetation Management Operations are to balance the need for reliable utility service with safe and cost-effective vegetation management practices that preserve our local communities' natural surroundings, aesthetics and the environment. Targeted herbicides provide one of the most cost-effective and environmentally friendly means of controlling undesirable vegetation.

### **Safety**

Our goals are to work safely at all times to achieve a zero-injury culture and to minimize the safety risk of vegetation and conductor contacts. Serious or fatal shocks can occur when working in trees near power lines. Duke Energy strives to minimize that risk by performing the Integrated Vegetation Management (IVM) work properly in accordance with industry tree trimming safety standards.

### **Reliability**

Duke Energy's electric service reliability, as measured by SAIFI and SAIDI, has improved in recent years due in part to the continuous and preventive approach to IVM practices. Duke Energy strives to perform maintenance on its Kentucky distribution circuits every five years and transmission every six years.

### **Tree Care Standards**

Duke Energy requires its employees and contractors to perform IVM in accordance with American National Standards Institute (ANSI) and Tree Care Industry Association (TCIA) standards. The relevant standards are ANSI Z133, Safety in Tree Trimming Operations, and ANSI A300, Safety in Tree Care Operations. These ANSI standards were developed in cooperation with the TCIA. Additionally, Duke Energy follows the practices in Field Guide for Qualified Line Clearance Tree Workers by Dr. Alex L. Shigo, former head of the U.S. Forest Service. In rural areas, Duke Energy may authorize its contractors to use industry approved mechanized pruning equipment. Duke Energy Kentucky recently achieved Tree Line USA utility certification by the Arbor Day Foundation.

### **Contracting Vegetation Management<sup>1</sup>**

A competitive bid event has taken place to award work in the Midwest market. Multiple vendors were given the opportunity to provide pricing on various types of vegetation work. During this

---

<sup>1</sup> In its Order in Case No. 2017-00321, the Commission directed Duke Energy Kentucky to bid its next vegetation management service contract in smaller geographic areas and to provide an update beginning with its 2019 Vegetation Management Plan filings.

event, the Duke Energy Kentucky service area was one of multiple small geographical areas identified to receive separate pricing and award work.

### **Tree Trimming Specifications**

#### **Transmission Lines**

Minimum Transmission Line Clearances:

- For any transmission line (69kV and above), vegetation shall be no closer than fifteen feet to an energized conductor when the clearing is completed. In addition, Duke Energy Kentucky shall remove any branch above the transmission line even though it is located more than fifteen feet from any energized conductor.

Minimum Transmission Line Overbuild Clearances:

- For any transmission line (69kV and above) which is located above any distribution line on the same supporting structure, vegetation shall be no closer than fifteen feet to an energized conductor on either line. In addition, Duke Energy Kentucky shall remove any branch above the transmission line even though it is located more than fifteen feet from any energized conductor.

Brush/Wood Removal:

- Circuit maintenance: Maintained areas – brush is removed, wood cut into movable pieces. Unmaintained areas – brush is mulched, stacked or mowed in place, wood left on site.
- Customer may request off-cycle maintenance in accordance with the clearance standards above - brush and wood is customer's responsibility.
- Storm Work - no brush or wood removal.

#### **Distribution Lines**

3 Phase Primary Lines and 2 Phase Primary Lines:

- 10 feet clearance to the side from all conductors.
- 10 feet clearance below the conductors.
- Multi-phased lines will be pruned as high as the buckets will reach but no less than 60' above the ground. In any case where overhang is allowed to remain, all hazardous overhangs (dead, dying, diseased, structurally unsound, etc.) shall be removed.

Single Phase:

- 10 feet clearance to the side from all conductors.
- 10 feet clearance below the conductors.

- Overhang: all live branches above the conductors shall be removed to a minimum height of 15 feet, and at a 45-degree angle. All dead and structurally weak branches overhanging any primary voltage wires shall be removed.
- Underneath the primary: 10 feet clearance from the conductors to the closest limbs beneath the phases.

Secondary Lines:

- 5 feet clearance to the side from the secondary line.
- 5 feet clearance above and below the secondary line.

Services Lines:

- 1-foot swing clearance from all service lines.

Brush/Wood Removal:

- Circuit maintenance - brush is removed, wood cut into movable pieces.
- Customer may request off-cycle maintenance in accordance with the clearance standards above - brush and wood is customer's responsibility.
- Storm Work - no brush or wood removal.

**Customer Notification**

- Duke Energy customers are notified of tree trimming on their property by door hanger cards.
- Duke Energy requires its contractors to contact local government officials prior to beginning work in the community.

**Right Tree in The Right Place**

- Duke Energy will cooperate in tree removal with local government officials as needed.

**Determination of Need to Perform Maintenance/Evaluation of Plan Effectiveness**

Duke Energy regularly monitors its SAIFI and SAIDI measures. If SAIFI or SAIDI were to significantly decline, Duke Energy would evaluate whether to modify its IVM practices, including its right-of-way clearing cycle, in order to improve SAIFI and SAIDI performance. Duke Energy also monitors the performance of individual circuits. If an individual circuit has a significant number of outages, Duke Energy will perform off-cycle tree trimming as needed. Duke Energy also monitors industry tree trimming standards and modifies its IVM practices as necessary to meet or exceed industry standards.