Mailing Address:
139 East Fourth Street
1303 Main
Cincinnati, Ohio 45202

o: 513-287-4320
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VIA ELECTRONIC MAIL

May 1, 2020

Mr. Kent Chandler
Executive Director
Kentucky Public Service Commission
211 Sower Blvd
Frankfort, KY 40601

Re: 2019 Reliability Report and Vegetation Management Plan Update

Dear Mr. Chandler:

Enclosed please find a signed document of Duke Energy Kentucky, Inc. 2019 Reliability Report and Vegetation Management Plan Update.

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

The original hard copy will be provided within 30 days of the lifting of the current state of emergency.

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

Respectfully submitted,

/s/ Rocco D'Ascenzo

Rocco D'Ascenzo (92796)
Deputy General Counsel
Duke Energy Kentucky, Inc.
139 East Fourth Street, 1313 Main
Cincinnati, Ohio 45201-0960
Phone: (513) 287-4320
Fax: (513) 287-4385
Rocco.D'ascenzo@duke-energy.com
Counsel for Duke Energy Kentucky, Inc.

Enclosures: As stated
John G. Horne II

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 2019

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 2019:

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 2019 Reliability Report and Vegetation Management Plan and one copy of Exhibit A of the 2019 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.

/s/ Rocco D'Ascenzo
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
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 1st day of May 2020:

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

/s/ Rocco D'Ascenzo
Rocco D'Ascenzo

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

DUKE ENERGY KENTUCKY, INC.
RELIABILITY REPORT AND VEGETATION MANAGEMENT PLAN UPDATE FOR CALENDAR YEAR 2019

May 1, 2020

TABLE OF CONTENTS

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 2019 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;

6. Develop a rolling five-year average SAIDI for each circuit within its system;

[1] *In the matter of An Investigation of the Reliability Measures of Kentucky's Jurisdictional Electric Distribution Utilities, Case No. 2*011-00450. (Order)(May 30, 2013).
[2] 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.[3] 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. While the formatting has chanced and more specificity has been added to the document from prior years, 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 2020 plan, Duke Energy Kentucky plans to trim trees and maintain vegetation along 305 miles of its distribution system. The Company was able to get a good start on itsVegetation Plan for 2020. As of March 31, 2020 Duke Energy Kentucky has completed approximately 39% of its scheduled trimming, or approximately 120 miles of its distribution system. This leaves approximately 185 miles to be trimmed in 2020. The Company does not

[3] Id.

anticipate any difficulty in completing all planned trimming for 2020. The Company will have sufficient crew coverage throughout the year.

Respectfully submitted,

/s/ Rocco O. D'Ascenzo
Rocco O. D'Ascenzo (92796)
Deputy General Counsel
Duke Energy Business Services LLC
139 East Fourth Street, 1303 Main
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Email: Rocco.DAscenzo@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	SHERI.CAMPBELL@DUKE-ENERGY.COM
PHONE NUMBER OF PREPARER	513-287-2034

SECTION 2: REPORTING YEAR

CALENDAR YEAR OF REPORT	2019

SECTION 3: MAJOR EVENT DAYS (MED)

T_{MED}	5.0881
FIRST DATE USED TO DETERMINE T_{MED}	January 1, 2014
LAST DATE USED TO DETERMINE T_{MED}	December 31, 2018
NUMBER OF MED IN REPORT YEAR	5

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

SECTION 4: SYSTEM RELIABILITY INFORMATION AND RESULTS

System-wide Information

TOTAL CUSTOMERS	144,076	TOTAL CIRCUITS	139

Excluding MED

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	99.27	SAIDI	172.21
SAIFI	0.85	SAIFI	1.33

Including MED

5 YEAR AVERAGE		REPORTING YEAR	
SAIDI	170.51	SAIDI	199.63
SAIFI	1.03	SAIFI	1.46

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

CIRCUIT NUMBER	SUBSTATION NAME	SUBSTATION NUMBER	SUBSTATION COUNTY	[redacted]	SUBSTATION TOWN	CIRCUIT NAME	CIRCUIT ID	CIRCUIT NUMBER	CIRCUIT TOWN
H40C0150041	WEST END STA	15	HAMILTON		CINCINNATI	WEST END 41	H40C0150041	41	PARK HILLS
H9320090042	KENTON	9	KENTON		LAKEVIEW	KENTON 42	H9320090042	42	TAYLOR MILL
H9320090044	KENTON	9	KENTON		LAKEVIEW	KENTON 44	H9320090044	44	FT. WRIGHT
H9320550041	DONALDSON	55	KENTON		ERLANGER	DONALDSON 41	H9320550041	41	ERLANGER
H9320550042	DONALDSON	55	KENTON		ERLANGER	DONALDSON 42	H9320550042	42	ERLANGER
H9320550043	DONALDSON	55	KENTON		ERLANGER	DONALDSON 43	H9320550043	43	ERLANGER
H9320550044	DONALDSON	55	KENTON		ERLANGER	DONALDSON 44	H9320550044	44	ERLANGER
H9320590042	WILDER	59	KENTON		WILDER	WILDER 42	H9320590042	42	FT. THOMAS
H9320590043	WILDER	59	KENTON		WILDER	WILDER 43	H9320590043	43	COVINGTON
H9320590044	WILDER	59	KENTON		WILDER	WILDER 44	H9320590044	44	WILDER
H9320590045	WILDER	59	KENTON		WILDER	WILDER 45	H9320590045	45	WILDER
H9320590046	WILDER	59	KENTON		WILDER	WILDER 46	H9320590046	46	FT. THOMAS
H9320590047	WILDER	59	KENTON		WILDER	WILDER 47	H9320590047	47	NEWPORT
H9320590048	WILDER	59	KENTON		WILDER	WILDER 48	H9320590048	48	NEWPORT
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
H9320670042	BUFFINGTON	67	KENTON		FLORENCE	BUFFINGTON 42	H9320670042	42	FLORENCE
H9320670045	BUFFINGTON	67	KENTON		FLORENCE	BUFFINGTON 45	H9320670045	45	INDEPENDENCE
H9320670047	BUFFINGTON	67	KENTON		FLORENCE	BUFFINGTON 47	H9320670047	47	FLORENCE
H9320700041	CRESCENT	70	KENTON		FT. MITCHELL	CRESCENT 41	H9320700041	41	CRESCENT SPRINGS
H9320700043	CRESCENT	70	KENTON		FT. MITCHELL	CRESCENT 43	H9320700043	43	FT. MITCHELL
H9320760041	DAYTON	76	CAMPBELL		DAYTON	DAYTON 41	H9320760041	41	DAYTON
H9320760042	DAYTON	76	CAMPBELL		DAYTON	DAYTON 42	H9320760042	42	DAYTON
H9320760043	DAYTON	76	CAMPBELL		DAYTON	DAYTON 43	H9320760043	43	DAYTON
H9320770041	YORK	77	CAMPBELL		NEWPORT	YORK 41	H9320770041	41	Newport
H9320770042	YORK	77	CAMPBELL		NEWPORT	YORK 42	H9320770042	42	NEWPORT
H9320770043	YORK	77	CAMPBELL		NEWPORT	YORK 43	H9320770043	43	NEWPORT
H9320780041	AUGUSTINE	78	KENTON		COVINGTON	AUGUSTINE 41	H9320780041	41	LUDLOW
H9320780043	AUGUSTINE	78	KENTON		COVINGTON	AUGUSTINE 43	H9320780043	43	COVINGTON
H9320780044	AUGUSTINE	78	KENTON		COVINGTON	AUGUSTINE 44	H9320780044	44	COVINGTON
H9320860042	BEAVER	86	BOONE		WALTON	BEAVER 42	H9320860042	42	WALTON
H9320890043	DIXIE	89	BOONE		FLORENCE	DIXIE 43	H9320890043	43	Dixie Hwy
H9320890044	DIXIE	89	BOONE		FLORENCE	DIXIE 44	H9320890044	44	FLORENCE
H9320980041	LONGBRANCH	98	BOONE		FLORENCE	LONGBRANCH 41	H9320980041	41	FLORENCE
H9320980043	LONGBRANCH	98	BOONE		FLORENCE	LONGBRANCH 43	H9320980043	43	UNION
H9321250041	VERONA	125	KENTON		CRITTENDEN	VERONA 41	H9321250041	41	Dixie Hwy
H9321250043	VERONA	125	KENTON		CRITTENDEN	VERONA 43	H9321250043	43	WALTON
H9321280041	HANDS	128	KENTON		COVINGTON	HANDS 41	H9321280041	41	Hands Pl
H9321280042	HANDS	128	KENTON		COVINGTON	HANDS 42	H9321280042	42	TAYLOR MILL
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
H9321310041	BELLEVUE	131	CAMPBELL		NEWPORT	BELLEVUE 41	H9321310041	41	BELLEVUE
H9321310042	BELLEVUE	131	CAMPBELL		NEWPORT	BELLEVUE 42	H9321310042	42	BELLEVUE
H9321310043	BELLEVUE	131	CAMPBELL		NEWPORT	BELLEVUE 43	H9321310043	43	BELLEVUE
H9321310044	BELLEVUE	131	CAMPBELL		NEWPORT	BELLEVUE 44	H9321310044	44	BELLEVUE
H9321320042	COLD SPRING	132	CAMPBELL		COLD SPRINGS	COLD SPRING 42	H9321320042	42	COLD SPRINGS
H9321320049	COLD SPRING	132	CAMPBELL		COLD SPRINGS	COLD SPRING 49	H9321320049	49	COLD SPRINGS
H9321470043	CLARYVILLE	147	CAMPBELL		CLARYVILLE	CLARYVILLE 43	H9321470043	43	CLARYVILLE
H9321520041	HEBRON	152	BOONE		HEBRON	HEBRON 41	H9321520041	41	PETERSBURG
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
H9321890043	LIMABURG	189	BOONE		LIMABURG	LIMABURG 43	H9321890043	43	HEBRON
H9321990042	RICHWOOD	199	BOONE		RICHWOOD	RICHWOOD 42	H9321990042	42	RICHWOOD
H9322050041	ALEXANDRIA SOUTH	205	CAMPBELL		ALEXANDRIA	ALEXANDRIA SOUTH 41	H9322050041	41	ALEXANDRIA
H9322100041	OAKBROOK STA	210	BOONE		FLORENCE	OAKBROOK 41	H9322100041	41	ALEXANDRIA
H9322100042	OAKBROOK STA	210	BOONE		FLORENCE	OAKBROOK 42	H9322100042	42	FLORENCE
H9322170044	COVINGTON	217	KENTON		COVINGTON	COVINGTON 44	H9322170044	44	COVINGTON
H9322410042	FLORENCE	241	BOONE		FLORENCE	FLORENCE 42	H9322410042	42	FLORENCE
H9322410045	FLORENCE	241	BOONE		FLORENCE	FLORENCE 45	H9322410045	45	FLORENCE
H9322430041	VILLA	243	KENTON		EDGEWOOD	VILLA 41	H9322430041	41	CRESTVIEW HILLS
H9322430042	VILLA	243	KENTON		EDGEWOOD	VILLA 42	H9322430042	42	CRESTVIEW HILLS
H9322430043	VILLA	243	KENTON		EDGEWOOD	VILLA 43	H9322430043	43	EDGEWOOD
H9322430044	VILLA	243	KENTON		EDGEWOOD	VILLA 44	H9322430044	44	EDGEWOOD
H9322870043	KY UNIV	287	CAMPBELL		NEWPORT	KY UNIV 43	H9322870043	43	HIGHLAND HEIGHTS
H9322890042	EMPIRE	289	BOONE		FLORENCE	EMPIRE 42	H9322890042	42	FLORENCE
H9322990041	DECORSEY	299	KENTON		TAYLOR MILL	DECORSEY 41	H9322990041	41	TAYLOR MILL
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
H9323050042	MT ZION	305	BOONE		FLORENCE	MT ZION 42	H9323050042	42	FLORENCE
H9323050043	MT ZION	305	BOONE		FLORENCE	MT ZION 43	H9323050043	43	FLORENCE
H9323580041	MARSHALL	358	CAMPBELL		HIGHLAND HEIGHTS	MARSHALL 41	H9323580041	41	HIGHLAND HEIGHTS

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 (2019) SAIDI	DID SAIDI INCREASE IN 2019?	CIRCUIT 5-YEAR AVERAGE (SAIFI)	REPORTING YEAR (2019) SAIFI	DID SAIFI INCREASE IN 2019?
Covington, Park Hills	9.19	754	12/11/2017	221.225	327.976	YES	0.699	2.729	YES
Taylor Mill	14.48	947	5/11/2016	158.716	220.091	YES	0.716	2.277	YES
Ft. Wright, Ft. Mitchell	22.02	2,307	7/7/2018	117.545	264.057	YES	1.494	2.847	YES
Erlanger and Florence	17.52	2,266	11/1/2014	64.095	216.049	YES	1.208	1.015	NO
Erlanger	6.02	1,388	6/20/2015	54.521	171.876	YES	1.023	0.897	NO
Erlanger, Florence, CVG	17.48	757	11/15/2014	183.531	198.664	YES	2.276	1.798	NO
Erlanger, Florence, CVG	7.45	599	10/3/2015	22.300	107.866	YES	0.728	1.156	YES
Ft. Thomas	14.44	1,569	12/24/2016	72.623	527.806	YES	0.451	2.332	YES
Covington, Latonia	9.96	1,696	12/24/2016	47.419	396.361	YES	0.473	3.035	YES
Wilder & Covington	19.85	1,232	7/26/2017	96.090	226.096	YES	0.785	1.086	YES
Wilder, Southgate, Ft. Thomas	13.68	1,640	12/11/2017	93.319	108.475	YES	0.818	0.960	YES
Ft. Thomas	15.88	1,089	12/17/2016	160.511	176.846	YES	0.897	1.190	YES
Southgate	13.28	1,854	7/10/2017	25.272	119.873	YES	0.233	0.478	YES
Newport	5.47	591	10/6/2014	5.752	13.487	YES	0.062	0.040	NO
Camp Springs	61.36	886	10/15/2019	317.931	448.933	YES	1.987	1.560	NO
Silver Grove	8.69	428	5/14/2019	107.949	812.148	YES	0.648	2.082	YES
Florence	1.34	51	6/6/2015	118.640	197.905	YES	0.454	1.360	YES
Florence	16.03	2,257	6/6/2015	66.171	138.013	YES	0.347	0.961	YES
Florence	15.03	1,818	5/9/2015	92.887	62.637	NO	1.091	1.187	YES
Crescent Springs	10.49	1,606	12/27/2018	122.779	315.845	YES	0.719	1.098	YES
Ft. Mitchell	17.88	1,672	11/6/2019	165.169	252.223	YES	1.023	1.031	YES
Dayton	4.56	1,016	11/23/2015	35.438	109.525	YES	0.299	2.126	YES
Dayton	11.51	1,843	12/5/2015	71.472	551.243	YES	0.708	4.437	YES
Dayton	8.75	1,466	12/19/2015	29.835	93.246	YES	0.235	1.610	YES
Newport	7.69	1,721	6/13/2015	12.529	325.445	YES	0.125	4.045	YES
Newport	4.53	1,256	11/7/2014	23.863	133.848	YES	0.144	1.818	YES
Newport	4.89	1,321	4/25/2015	70.645	168.581	YES	0.519	2.257	YES
West Covington, Ludlow, Kenton Hills	20.38	2,952	5/12/2018	45.101	171.281	YES	0.378	2.221	YES
Covington	6.1	1,263	10/19/2013	5.968	185.175	YES	0.256	1.863	YES
Covington	8.05	1,072	11/18/2013	26.466	218.903	YES	0.540	2.472	YES
Walton	48.91	1,649	12/4/2017	139.394	417.061	YES	0.709	1.965	YES
Florence	1.63	29	3/21/2015	20.821	294.930	YES	0.073	2.000	YES
Florence	1.33	9	3/21/2015	48.980	489.570	YES	0.489	2.000	YES
FLORENCE	18.87	2,248	8/22/2015	0.295	12.086	YES	0.002	0.125	YES
UNION	22.43	1,923	8/23/2018	46.242	56.137	YES	0.193	0.510	YES
Verona, Piner, Fiskburg and Walton	19.71	694	6/11/2016	237.022	508.169	YES	1.683	1.865	YES
Crittenden, Walton	22.49	517	New Circuit	0.000	197.231	YES	0.000	1.948	YES
Covington & Independence	25.92	1,690	12/27/2017	99.025	45.786	NO	0.492	1.122	YES
Taylor Mill	10.67	422	4/19/2016	35.744	762.217	YES	0.341	6.444	YES
Independence, Taylor Mill	24.84	1,840	3/31/2016	38.703	272.979	YES	0.465	2.344	YES
ERLANGER	20.92	1,244	12/12/2015	64.667	128.371	YES	0.761	2.165	YES
Taylor Mill	18.67	874	2/23/2019	46.437	74.900	YES	0.211	2.089	YES
Bellevue	3.65	800	6/13/2015	10.682	151.775	YES	0.063	1.987	YES
Fort Thomas, Dayton and Bellevue	22.83	2,272	7/25/2015	63.752	189.227	YES	0.559	2.272	YES
Bellevue	20.84	2,504	8/8/2015	58.831	240.921	YES	0.454	2.186	YES
Bellevue	7.96	1,398	8/15/2015	24.289	416.582	YES	0.259	3.066	YES
Cold Springs, Brookstone Crossing	37.76	2,718	12/26/2019	97.203	111.950	YES	0.825	1.252	YES
Highland Heights	24.07	892	3/3/2018	123.958	745.788	YES	0.837	3.510	YES
Claryville	1.48	8	12/5/2015	48.026	57.323	YES	0.240	0.375	YES
Hebron	22.03	1,391	9/7/2019	110.730	122.350	YES	0.582	1.019	YES
Hebron	18.16	489	8/1/2019	83.779	201.168	YES	1.659	2.305	YES
Hebron	25.83	1,390	3/9/2019	80.250	286.861	YES	0.706	4.172	YES
Limaburg	40.3	1,808	12/19/2015	201.182	62.104	NO	0.924	1.865	YES
CVG (Airport)	3.88	1	2/23/2019	15.467	127.000	YES	0.267	1.000	YES
Richwood	31.16	2,106	10/13/2018	74.153	114.359	YES	0.872	1.991	YES
Alexandria, Ross and Oneonta	21.15	1,643	2/24/2018	62.804	377.111	YES	0.468	1.224	YES
Alexandria, Ross and Oneonta	22.26	747	12/31/2018	325.063	264.363	NO	1.436	2.716	YES
Limaburg, Oakbrook and Burlington	25.39	2,554	4/18/2019	300.360	222.749	NO	1.198	1.520	YES
Covington	4.31	904	12/10/2019	1.117	109.928	YES	0.015	0.899	YES
Florence	12.27	612	5/9/2015	85.834	20.433	NO	0.950	1.034	YES
Florence	20.15	1,626	6/6/2015	105.650	718.794	YES	0.858	2.376	YES
Lakeside Park	14.61	1,696	3/30/2019	70.040	71.084	YES	0.494	0.231	NO
Crestview Hills	12.65	870	11/11/2019	61.765	85.548	YES	0.458	0.293	NO
Edgewood	16.24	956	5/6/2019	149.967	190.990	YES	1.567	1.533	NO
Edgewood	27.87	2,290	5/2/2015	103.629	166.761	YES	0.933	0.609	NO
Highland Heights	17.31	690	10/10/2019	50.000	94.088	YES	0.853	1.077	YES
Florence	1.19	1	12/31/2018	301.640	484.750	YES	1.200	2.000	YES
Taylor Mill	34.71	2,065	12/27/2018	106.829	348.786	YES	1.239	2.980	YES
Independence, Taylor Mill	77.08	1,886	6/11/2016	383.949	735.440	YES	2.327	3.261	YES
Independence, White Tower	9.96	490	9/3/2016	35.231	306.479	YES	0.861	3.131	YES
Independence, White Tower	27.99	1,233	11/24/2015	35.215	493.878	YES	0.896	3.220	YES
Florence	4.2	78	12/5/2015	34.493	102.163	YES	0.336	0.935	YES
FLORENCE	12.58	965	12/4/2018	24.239	55.367	YES	0.145	0.279	YES
Highland Heights	19.42	2,254	5/19/2018	25.753	76.460	YES	0.126	0.301	YES

SUBSTATION - CIRCUIT	CIRCUIT NAME	CIRCUIT ID	OUTAGE CAUSE	PERCENT OF TOTAL OUTAGE MINUTES	CORRECTIVE ACTION PLAN
ALEXANDRIA SOUTH - H9322050041	ALEXANDRIA SOUTH	H9322050041	03 Vegetation	70.69%	The majority of the outage minutes are due to Vegetation outages caused by Weather. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2023.
			04 Wildlife	25.70%	
			05 Planned (IEEE)	2.27%	
			19 Lightning strike	0.98%	
			20 Equipment failure	0.29%	
			28 Other Cause	0.04%	
			EA Weather	0.02%	
				100.00%	
AUGUSTINE - H9320780041	AUGUSTINE	H9320780041	09 Public Accident/Damage	79.60%	The majority of the outage minutes are due to Public Accidents. All repairs were made at the time of the outages. No further action required.
			05 Planned (IEEE)	14.68%	
			19 Lightning strike	4.16%	
			03 Vegetation	0.63%	
			04 Wildlife	0.42%	
			11 Unknown Cause	0.27%	
			20 Equipment failure	0.16%	
			28 Other Cause	0.08%	
				100.00%	
AUGUSTINE - H9320780043	AUGUSTINE	H9320780043	28 Other Cause	90.22%	The majority of the outage minutes are due to a substation lockout. The cause was undetermined, but all equipment was inspected at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			EA Weather	5.27%	
			05 Planned (IEEE)	2.79%	
			20 Equipment failure	0.80%	
			09 Public Accident/Damage	0.39%	
			04 Wildlife	0.35%	
			03 Vegetation	0.17%	
				100.00%	
AUGUSTINE - H9320780044	AUGUSTINE	H9320780044	28 Other Cause	83.08%	The majority of the outage minutes are due to a circuit switch opening while energizing transformer bank 1. The cause of the trip was undetermined, but all equipment was inspected at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			20 Equipment failure	9.41%	
			19 Lightning strike	5.66%	
			EA Weather	1.07%	
			05 Planned (IEEE)	0.60%	
			03 Vegetation	0.11%	
			04 Wildlife	0.06%	
				100.00%	
BEAVER - H9320860042	BEAVER	H9320860042	09 Public Accident/Damage	81.76%	The majority of the outage minutes are due to Public Accidents. All repairs were made at the time of the outages. No further action required.
			20 Equipment failure	17.17%	
			11 Unknown Cause	0.82%	
			04 Wildlife	0.10%	
			05 Planned (IEEE)	0.06%	
			28 Other Cause	0.04%	
			03 Vegetation	0.03%	
			EA Weather	0.02%	
				100.00%	
BELLEVUE - H9321310041	BELLEVUE	H9321310041	03 Vegetation	45.27%	The majority of the outage minutes are due to trees in the line due to a major landslide. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			28 Other Cause	37.14%	
			19 Lightning strike	12.44%	
			11 Unknown Cause	2.04%	
			05 Planned (IEEE)	1.38%	
			20 Equipment failure	1.02%	
			EA Weather	0.70%	
				100.00%	
BELLEVUE - H9321310042	BELLEVUE	H9321310042	03 Vegetation	62.84%	The majority of the outage minutes are due to trees in the line due to a major landslide. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			EA Weather	18.96%	
			05 Planned (IEEE)	8.18%	
			28 Other Cause	7.53%	
			20 Equipment failure	2.14%	
			09 Public Accident/Damage	0.13%	
			04 Wildlife	0.12%	
			19 Lightning strike	0.10%	
			11 Unknown Cause	0.01%	
				100.00%	

BELLEVUE - H9321310043	BELLEVUE	H9321310043	03 Vegetation	55.81%	The majority of the outage minutes are due to trees in the line due to a major landslide. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			28 Other Cause	30.34%	
			20 Equipment failure	6.58%	
			EA Weather	5.89%	
			05 Planned (IEEE)	0.46%	
			19 Lightning strike	0.33%	
			09 Public Accident/Damage	0.32%	
			04 Wildlife	0.25%	
			11 Unknown Cause	0.01%	
				100.00%	
BELLEVUE - H9321310044	BELLEVUE	H9321310044	EA Weather	66.07%	The majority of the outage minutes are due to trees in the line due to a major landslide & other Vegetation outages caused by Weather. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	17.78%	
			28 Other Cause	14.91%	
			05 Planned (IEEE)	1.20%	
			04 Wildlife	0.03%	
				100.00%	
BUFFINGTON - H9320670042	BUFFINGTON	H9320670042	EA Weather	90.23%	The majority of the outage minutes are due to outages during inclement weather. All repairs were made at the time of the outages. No further action required.
			20 Equipment failure	7.47%	
			11 Unknown Cause	1.17%	
			28 Other Cause	1.12%	
				100.00%	
BUFFINGTON - H9320670045	BUFFINGTON	H9320670045	EA Weather	34.58%	The majority of the outage minutes are due to Vegetation outages during inclement weather. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	23.36%	
			20 Equipment failure	17.82%	
			11 Unknown Cause	14.98%	
			19 Lightning strike	5.67%	
			09 Public Accident/Damage	1.95%	
			05 Planned (IEEE)	0.86%	
			04 Wildlife	0.71%	
			28 Other Cause	0.07%	
				100.00%	
BUFFINGTON - H9320670047	BUFFINGTON	H9320670047	09 Public Accident/Damage	49.30%	The majority of the outage minutes are due to Public Accidents & outages during inclement weather. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2020.
			EA Weather	39.52%	
			04 Wildlife	5.87%	
			19 Lightning strike	3.28%	
			11 Unknown Cause	1.83%	
			20 Equipment failure	0.16%	
			03 Vegetation	0.04%	
				100.00%	
CLARYVILLE - H9321470043	CLARYVILLE	H9321470043	05 Planned (IEEE)	72.40%	The majority of the outage minutes are due to a Planned Outage to replace a pole as an outage follow-up. No further action required.
			11 Unknown Cause	27.60%	
				100.00%	
COLD SPRING - H9321320042	COLD SPRING	H9321320042	11 Unknown Cause	58.75%	The majority of the outage minutes are due to a recloser lockout while it was in one-shot mode for line work. The recloser is no longer in one-shot mode. No further action required. This circuit was trimmed in 2019.
			03 Vegetation	34.24%	
			28 Other Cause	3.53%	
			05 Planned (IEEE)	2.11%	
			04 Wildlife	1.21%	
			EA Weather	0.06%	
			09 Public Accident/Damage	0.04%	
			20 Equipment failure	0.04%	
			19 Lightning strike	0.02%	
				100.00%	
COLD SPRING - H9321320049	COLD SPRING	H9321320049	20 Equipment failure	73.95%	The majority of the outage minutes are due to a major landslide. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2023.
			03 Vegetation	21.15%	
			EA Weather	2.35%	
			19 Lightning strike	1.52%	
			04 Wildlife	0.73%	
			28 Other Cause	0.16%	
			05 Planned (IEEE)	0.12%	
			11 Unknown Cause	0.02%	
				100.00%	

COVINGTON - H9322170044	COVINGTON	H9322170044	03 Vegetation	97.26%	The majority of the outage minutes are due to a tree that fell onto the line. The tree was removed & all repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			28 Other Cause	0.95%	
			20 Equipment failure	0.70%	
			09 Public Accident/Damage	0.60%	
			05 Planned (IEEE)	0.49%	
				100.00%	
CRESCENT - H9320700041	CRESCENT	H9320700041	03 Vegetation	37.01%	The majority of the outage minutes are due to a tree that took down conductor in rear-lot residential. The tree was removed & all repairs were made at the time of the outage. No further action required.
			EA Weather	35.85%	
			11 Unknown Cause	23.81%	
			20 Equipment failure	2.80%	
			04 Wildlife	0.45%	
			05 Planned (IEEE)	0.08%	
				100.00%	
CRESCENT - H9320700043	CRESCENT	H9320700043	03 Vegetation	81.97%	The majority of the outage minutes are due to trees that took down conductor in rear-lot residential areas. The trees were removed & all repairs were made at the time of the outages. No further action required. This circuit was trimmed in 2019.
			09 Public Accident/Damage	6.88%	
			20 Equipment failure	6.20%	
			05 Planned (IEEE)	3.54%	
			11 Unknown Cause	0.63%	
			04 Wildlife	0.49%	
			28 Other Cause	0.29%	
				100.00%	
DAYTON - H9320760041	DAYTON	H9320760041	03 Vegetation	65.40%	The majority of the outage minutes are due to a major landslide into a Transmission line. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			28 Other Cause	22.08%	
			05 Planned (IEEE)	7.66%	
			20 Equipment failure	2.59%	
			04 Wildlife	2.18%	
			EA Weather	0.08%	
				100.00%	
DAYTON - H9320760042	DAYTON	H9320760042	03 Vegetation	69.22%	The majority of the outage minutes are due to a major landslide into a Transmission line. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			20 Equipment failure	23.66%	
			28 Other Cause	3.93%	
			04 Wildlife	2.68%	
			19 Lightning strike	0.25%	
			09 Public Accident/Damage	0.23%	
			EA Weather	0.01%	
			11 Unknown Cause	0.01%	
			05 Planned (IEEE)	0.01%	
				100.00%	
DAYTON - H9320760043	DAYTON	H9320760043	03 Vegetation	61.31%	The majority of the outage minutes are due to a major landslide into a Transmission line. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			28 Other Cause	21.74%	
			20 Equipment failure	16.14%	
			04 Wildlife	0.70%	
			05 Planned (IEEE)	0.11%	
				100.00%	
DECORSEY - H9322990041	DECORSEY	H9322990041	09 Public Accident/Damage	62.99%	The majority of the outage minutes are due to a Public Accident involving a Transmission pole & a failed jumper due to a Transmission surge. All repairs were made at the time of the outages. No further action required.
			20 Equipment failure	34.88%	
			03 Vegetation	1.32%	
			19 Lightning strike	0.38%	
			11 Unknown Cause	0.29%	
			05 Planned (IEEE)	0.07%	
			04 Wildlife	0.07%	
				100.00%	
DIXIE - H9320890043	DIXIE	H9320890043	28 Other Cause	77.46%	The majority of the outage minutes are due to a Transmission outage. No further action required.
			20 Equipment failure	22.54%	
				100.00%	
DIXIE - H9320890044	DIXIE	H9320890044	28 Other Cause	86.34%	The majority of the outage minutes are due to a Transmission outage. No further action required.
			20 Equipment failure	13.66%	
				100.00%	
DONALDSON - H9320550041	DONALDSON	H9320550041	20 Equipment failure	90.45%	The majority of the outage minutes are due to a jumper failure in rear-lot residential. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	7.39%	
			05 Planned (IEEE)	2.00%	
			04 Wildlife	0.08%	
			09 Public Accident/Damage	0.04%	
			28 Other Cause	0.03%	
			11 Unknown Cause	0.01%	
				100.00%	
DONALDSON - H9320550042	DONALDSON	H9320550042	03 Vegetation	79.80%	The majority of the outage minutes are due to Vegetation outages. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2020.
			20 Equipment failure	10.09%	
			28 Other Cause	9.57%	
			05 Planned (IEEE)	0.47%	
			04 Wildlife	0.07%	
				100.00%	
DONALDSON - H9320550043	DONALDSON	H9320550043	03 Vegetation	84.36%	The majority of the outage minutes are due to tree that fell into the line. The tree was removed & all repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			28 Other Cause	11.26%	
			05 Planned (IEEE)	4.03%	
			04 Wildlife	0.23%	
			EA Weather	0.06%	
			20 Equipment failure	0.05%	
				100.00%	
DONALDSON - H9320550044	DONALDSON	H9320550044	20 Equipment failure	66.18%	The majority of the outage minutes are due to a broken insulator & conductor. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	33.60%	
			04 Wildlife	0.15%	
			28 Other Cause	0.07%	
				100.00%	

EMPIRE - H9322890042	EMPIRE	H9322890042	20 Equipment failure	100.00%	The majority of the outage minutes are due to a Transmission outage. No further action required.
				100.00%	
FLORENCE - H9322410042	FLORENCE	H9322410042	20 Equipment failure	92.99%	The majority of the outage minutes are due to a burned jumper. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	4.69%	
			04 Wildlife	1.41%	
			28 Other Cause	0.91%	
				100.00%	
FLORENCE - H9322410045	FLORENCE	H9322410045	20 Equipment failure	98.88%	The majority of the outage minutes are due to a broken jumper. All repairs were made at the time of the outage. No further action required.
			28 Other Cause	0.68%	
			03 Vegetation	0.30%	
			04 Wildlife	0.14%	
				100.00%	
HANDS - H9321280041	HANDS	H9321280041	03 Vegetation	81.73%	The majority of the outage minutes are due to trees in the line. All trees were removed & all repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2021.
			EA Weather	12.14%	
			20 Equipment failure	2.40%	
			04 Wildlife	2.09%	
			19 Lightning strike	0.85%	
			05 Planned (IEEE)	0.37%	
			11 Unknown Cause	0.25%	
			28 Other Cause	0.17%	
				100.00%	
HANDS - H9321280042	HANDS	H9321280042	03 Vegetation	77.20%	The majority of the outage minutes are due to a tree falling into the line & breaking a pole. The tree was removed & the pole was replaced at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2022.
			20 Equipment failure	22.80%	
				100.00%	
HANDS - H9321280043	HANDS	H9321280043	03 Vegetation	74.75%	The majority of the outage minutes are due to Vegetation outages. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2022.
			28 Other Cause	15.40%	
			EA Weather	8.69%	
			05 Planned (IEEE)	0.53%	
			09 Public Accident/Damage	0.40%	
			04 Wildlife	0.18%	
			20 Equipment failure	0.04%	
				100.00%	
HANDS - H9321280044	HANDS	H9321280044	11 Unknown Cause	63.93%	The majority of the outage minutes are due to a major landslide. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	24.56%	
			05 Planned (IEEE)	6.73%	
			28 Other Cause	2.02%	
			20 Equipment failure	1.49%	
			EA Weather	0.53%	
			19 Lightning strike	0.39%	
			04 Wildlife	0.37%	
				100.00%	
HANDS - H9321280045	HANDS	H9321280045	03 Vegetation	88.71%	The majority of the outage minutes are due to Vegetation outages. All trees were removed & all repairs were made at the time of the outages. No further action required. This circuit was trimmed in 2019.
			20 Equipment failure	9.20%	
			28 Other Cause	0.87%	
			EA Weather	0.68%	
			05 Planned (IEEE)	0.55%	
				100.00%	
HEBRON - H9321520041	HEBRON	H9321520041	09 Public Accident/Damage	98.10%	The majority of the outage minutes are due to Public Accidents. All repairs were made at the time of the outages. No further action required. This circuit was trimmed in 2019.
			03 Vegetation	1.22%	
			19 Lightning strike	0.38%	
			20 Equipment failure	0.27%	
			04 Wildlife	0.03%	
				100.00%	
HEBRON - H9321520045	HEBRON	H9321520045	20 Equipment failure	83.76%	The majority of the outage minutes are due to Equipment Failure during feeder switching. All repairs were made at the time of the outages. No further action required.
			28 Other Cause	11.32%	
			11 Unknown Cause	4.88%	
			04 Wildlife	0.04%	
				100.00%	
KENTON - H9320090042	KENTON	H9320090042	EA Weather	63.61%	The majority of the outage minutes are due to a pole down during inclement weather. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2021.
			03 Vegetation	24.44%	
			11 Unknown Cause	8.60%	
			20 Equipment failure	2.26%	
			28 Other Cause	0.71%	
			05 Planned (IEEE)	0.17%	
			04 Wildlife	0.11%	
			09 Public Accident/Damage	0.09%	
				100.00%	
KENTON - H9320090044	KENTON	H9320090044	03 Vegetation	60.45%	The majority of the outage minutes are due to fallen trees. All trees were removed & all repairs were made at the time of the outages. No further action required. This circuit was trimmed in 2018.
			28 Other Cause	27.30%	
			11 Unknown Cause	4.14%	
			09 Public Accident/Damage	2.71%	
			EA Weather	1.52%	
			04 Wildlife	1.45%	
			19 Lightning strike	1.23%	
			20 Equipment failure	0.91%	
			05 Planned (IEEE)	0.29%	
				100.00%	
KY UNIV - H9322870043	KY UNIV	H9322870043	20 Equipment failure	93.54%	The majority of the outage minutes are due to a failed station exit cable. The cable has been repaired. No further action required.
			EA Weather	3.69%	
			11 Unknown Cause	2.40%	
			09 Public Accident/Damage	0.38%	
				100.00%	
LIMABURG - H9321890041	LIMABURG	H9321890041	20 Equipment failure	38.05%	The majority of the outage minutes are due to a failed substation transformer. The substation transformer has been replaced. No further action required. This circuit was trimmed in 2019.
			05 Planned (IEEE)	26.03%	
			11 Unknown Cause	23.01%	
			09 Public Accident/Damage	12.83%	
			03 Vegetation	0.09%	
				100.00%	

LIMABURG - H9321890042	LIMABURG	H9321890042	28 Other Cause	65.22%	All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	28.20%	
			20 Equipment failure	1.91%	
			19 Lightning strike	1.76%	
			11 Unknown Cause	1.35%	
			05 Planned (IEEE)	1.34%	
			04 Wildlife	0.14%	
			09 Public Accident/Damage	0.09%	
				100.00%	
LIMABURG - H9321890043	LIMABURG	H9321890043	28 Other Cause	100.00%	The majority of the outage minutes are due to a Transmission outage. No further action required.
				100.00%	
LONGBRANCH - H9320980041	LONGBRANCH	H9320980041	20 Equipment failure	100.00%	The majority of the outage minutes are due to a defective cutout. The cutout was replaced at the time of the outage. No further action required.
				100.00%	
LONGBRANCH - H9320980043	LONGBRANCH	H9320980043	20 Equipment failure	92.80%	The majority of the outage minutes are due to defective cross arm ties. The cross arm ties were replaced at the time of the outage. No further action required.
			11 Unknown Cause	6.10%	
			28 Other Cause	0.53%	
			09 Public Accident/Damage	0.42%	
			04 Wildlife	0.14%	
				100.00%	
MARSHALL - H9323580041	MARSHALL	H9323580041	19 Lightning strike	58.50%	The majority of the outage minutes are due to a lightning strike. The fuse was replaced, but replacement was delayed due to dangerous conditions. No further action required.
			11 Unknown Cause	16.00%	
			EA Weather	9.46%	
			20 Equipment failure	7.33%	
			03 Vegetation	5.12%	
			28 Other Cause	2.57%	
			05 Planned (IEEE)	1.01%	
				100.00%	
MT ZION - H9323050042	MT ZION	H9323050042	05 Planned (IEEE)	45.57%	The majority of the outage minutes are due to Public Accidents. All repairs were made at the time of the outages. No further action required.
			09 Public Accident/Damage	18.92%	
			11 Unknown Cause	17.81%	
			20 Equipment failure	16.27%	
			EA Weather	1.44%	
				100.00%	
MT ZION - H9323050043	MT ZION	H9323050043	20 Equipment failure	47.30%	The majority of the outage minutes are due to defective cable & fuses. The defective cable & fuses were replaced. No further action required. This circuit is scheduled to be trimmed in 2023.
			03 Vegetation	45.47%	
			28 Other Cause	4.88%	
			09 Public Accident/Damage	1.63%	
			04 Wildlife	0.44%	
			05 Planned (IEEE)	0.29%	
				100.00%	

OAKBROOK STA - H9322100041	OAKBROOK STA	H9322100041	20 Equipment failure	54.00%	The majority of the outage minutes are due to defective cable & broken conductor. The defective cable & broken conductor were repaired at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2023.
			03 Vegetation	22.36%	
			11 Unknown Cause	9.69%	
			09 Public Accident/Damage	7.27%	
			04 Wildlife	6.55%	
			19 Lightning strike	0.09%	
			28 Other Cause	0.05%	
				100.00%	
OAKBROOK STA - H9322100042	OAKBROOK STA	H9322100042	03 Vegetation	53.82%	The majority of the outage minutes are due to a Public Accident. All repairs were made soon after the outage. No further action required. This circuit was trimmed in 2019.
			09 Public Accident/Damage	41.88%	
			20 Equipment failure	3.42%	
			04 Wildlife	0.65%	
			05 Planned (IEEE)	0.15%	
			28 Other Cause	0.06%	
			11 Unknown Cause	0.02%	
				100.00%	
RICHWOOD - H9321990042	RICHWOOD	H9321990042	09 Public Accident/Damage	42.73%	The majority of the outage minutes are due to a Public Accident. All repairs were made soon after the outage. No further action required. This circuit is scheduled to be trimmed in 2023.
			03 Vegetation	25.17%	
			20 Equipment failure	22.18%	
			28 Other Cause	7.61%	
			19 Lightning strike	1.20%	
			05 Planned (IEEE)	0.91%	
			04 Wildlife	0.20%	
				100.00%	
SILVER GROVE - H9320620041	SILVER GROVE	H9320620041	03 Vegetation	61.38%	The majority of the outage minutes are due to a jumper being opened. No further action required. This circuit was trimmed in 2019.
			11 Unknown Cause	20.33%	
			EA Weather	9.04%	
			09 Public Accident/Damage	6.61%	
			04 Wildlife	1.85%	
			20 Equipment failure	0.71%	
			05 Planned (IEEE)	0.08%	
				100.00%	
SILVER GROVE - H9320620042	SILVER GROVE	H9320620042	03 Vegetation	96.63%	The majority of the outage minutes are due to a tree that broke two poles. The poles were replaced & all other repairs were made at the time of the outage. No further action required. This circuit was trimmed in 2019.
			11 Unknown Cause	3.20%	
			20 Equipment failure	0.10%	
			19 Lightning strike	0.08%	
				100.00%	
VERONA - H9321250041	VERONA	H9321250041	03 Vegetation	96.33%	The majority of the outage minutes are due to trees taking down lines. All repairs were made at the time of the outages & a work order was created for Vegetation Management to complete a hazard tree analysis. No further action required. This circuit is scheduled to be trimmed in 2021.
			28 Other Cause	2.90%	
			09 Public Accident/Damage	0.32%	
			05 Planned (IEEE)	0.29%	
			20 Equipment failure	0.16%	
				100.00%	
VERONA - H9321250043	VERONA	H9321250043	09 Public Accident/Damage	78.46%	The majority of the outage minutes are due to a Public Accident. All repairs were made soon after the outage. No further action required. This circuit is scheduled to be trimmed in 2021.
			03 Vegetation	20.80%	
			11 Unknown Cause	0.30%	
			EA Weather	0.29%	
			28 Other Cause	0.16%	
				100.00%	
VILLA - H9322430041	VILLA	H9322430041	03 Vegetation	89.17%	The majority of the outage minutes are due to hazard trees getting into lines. All repairs were made at the time of the outages & a work order was created for Vegetation Management to complete a hazard tree analysis. No further action required. This circuit was trimmed in 2019.
			28 Other Cause	6.62%	
			19 Lightning strike	2.90%	
			04 Wildlife	1.22%	
			20 Equipment failure	0.09%	
				100.00%	
VILLA - H9322430042	VILLA	H9322430042	20 Equipment failure	100.00%	The majority of the outage minutes are due to Equipment Failures. All equipment was repaired or replaced at the time of the outages. No further action required. This circuit was trimmed in 2019.
				100.00%	
VILLA - H9322430043	VILLA	H9322430043	03 Vegetation	72.24%	The majority of the outage minutes are due to a tree damaging the line. The tree was removed & all repairs were made at the time of the outage. No further action required. This circuit was trimmed in 2019.
			11 Unknown Cause	20.31%	
			19 Lightning strike	3.03%	
			28 Other Cause	2.73%	
			04 Wildlife	0.85%	
			05 Planned (IEEE)	0.47%	
			20 Equipment failure	0.33%	
			09 Public Accident/Damage	0.04%	
				100.00%	
VILLA - H9322430044	VILLA	H9322430044	EA Weather	62.61%	The majority of the outage minutes are due to outages during inclement weather. All repairs were made at the time of the outages. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	18.86%	
			04 Wildlife	8.64%	
			20 Equipment failure	8.44%	
			28 Other Cause	0.86%	
			05 Planned (IEEE)	0.52%	
			19 Lightning strike	0.07%	
				100.00%	
WEST END STA - H40C0150041	WEST END STA	H40C0150041	28 Other Cause	41.64%	The majority of the outage minutes are due to a recloser lockout while it was in one-shot mode for line work & a Vegetation outage caused by a tree in the line. The recloser is no longer in one-shot mode & the tree was removed & all repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2022.
			03 Vegetation	25.83%	
			09 Public Accident/Damage	21.13%	
			05 Planned (IEEE)	9.98%	
			20 Equipment failure	1.33%	
			04 Wildlife	0.10%	
				100.00%	

WHITE TOWER - H9323040041	WHITE TOWER	H9323040041	09 Public Accident/Damage	68.54%	The majority of the outage minutes are due to a Public Accident involving a Transmission pole. All repairs were made at the time of the outage. No further action required.
			03 Vegetation	20.51%	
			20 Equipment failure	9.86%	
			05 Planned (IEEE)	0.39%	
			EA Weather	0.31%	
			04 Wildlife	0.18%	
			19 Lightning strike	0.09%	
			11 Unknown Cause	0.07%	
			28 Other Cause	0.06%	
				100.00%	
WHITE TOWER - H9323040042	WHITE TOWER	H9323040042	09 Public Accident/Damage	75.23%	The majority of the outage minutes are due to a Public Accident involving a Transmission pole. All repairs were made at the time of the outage. No further action required.
			20 Equipment failure	19.00%	
			19 Lightning strike	4.67%	
			EA Weather	1.11%	
				100.00%	
WHITE TOWER - H9323040043	WHITE TOWER	H9323040043	09 Public Accident/Damage	77.40%	The majority of the outage minutes are due to a Public Accident involving a Transmission pole. All repairs were made at the time of the outage. No further action required.
			20 Equipment failure	14.08%	
			11 Unknown Cause	6.10%	
			03 Vegetation	1.04%	
			19 Lightning strike	0.82%	
			05 Planned (IEEE)	0.37%	
			04 Wildlife	0.08%	
			EA Weather	0.06%	
			28 Other Cause	0.04%	
				100.00%	
WILDER - H9320590042	WILDER	H9320590042	20 Equipment failure	56.40%	The majority of the outage minutes are due to an automatic splice failure & a Vegetation outage caused by a tree falling into the line. All repairs were made at the time of the outage & additional work has been proposed to have the spans replaced.
			03 Vegetation	21.92%	
			EA Weather	12.47%	
			19 Lightning strike	8.92%	
			05 Planned (IEEE)	0.23%	
			28 Other Cause	0.04%	
			11 Unknown Cause	0.03%	
				100.00%	
WILDER - H9320590043	WILDER	H9320590043	19 Lightning strike	49.62%	The majority of the outage minutes are due to a major landslide. All repairs were made at the time of the outage & additional work has been proposed to have the spans replaced.
			28 Other Cause	48.48%	
			20 Equipment failure	0.69%	
			05 Planned (IEEE)	0.63%	
			03 Vegetation	0.58%	
			09 Public Accident/Damage	0.01%	
				100.00%	
WILDER - H9320590044	WILDER	H9320590044	20 Equipment failure	74.71%	The majority of the outage minutes are due to Equipment Failures. All equipment was repaired or replaced at the time of the outages & work has been proposed to replace additional equipment.
			28 Other Cause	19.90%	
			09 Public Accident/Damage	4.96%	
			19 Lightning strike	0.32%	
			04 Wildlife	0.09%	
			11 Unknown Cause	0.02%	
			05 Planned (IEEE)	0.01%	
				100.00%	
WILDER - H9320590045	WILDER	H9320590045	EA Weather	57.71%	The majority of the outage minutes are due to a recloser lockout due to a momentary. All repairs were made at the time of the outage & standards is working on a solution. No further action required.
			28 Other Cause	13.65%	
			04 Wildlife	10.73%	
			20 Equipment failure	9.58%	
			03 Vegetation	8.33%	
				100.00%	
WILDER - H9320590046	WILDER	H9320590046	20 Equipment failure	84.06%	The majority of the outage minutes are due to an automatic splice failure. All repairs were made at the time of the outage. No further action required.
			11 Unknown Cause	7.77%	
			03 Vegetation	6.57%	
			05 Planned (IEEE)	1.36%	
			04 Wildlife	0.14%	
			28 Other Cause	0.10%	
				100.00%	

WILDER - H9320590047	WILDER	H9320590047	20 Equipment failure	47.79%	The majority of the outage minutes are due to broken conductor due to a landslide. The conductor was repaired at the time of the outage. Additional work has been proposed to have spans replaced.
			28 Other Cause	34.49%	
			05 Planned (IEEE)	14.58%	
			19 Lightning strike	2.69%	
			04 Wildlife	0.44%	
				100.00%	
WILDER - H9320590048	WILDER	H9320590048	28 Other Cause	68.56%	The majority of the outage minutes are due to broken conductor due to a landslide. The conductor was repaired at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	12.24%	
			20 Equipment failure	11.27%	
			05 Planned (IEEE)	7.93%	
				100.00%	
YORK - H9320770041	YORK	H9320770041	03 Vegetation	44.29%	The majority of the outage minutes are due to a landslide into a Transmission line. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2021.
			20 Equipment failure	29.66%	
			28 Other Cause	24.54%	
			19 Lightning strike	0.64%	
			04 Wildlife	0.48%	
			05 Planned (IEEE)	0.39%	
			11 Unknown Cause	0.01%	
				100.00%	
YORK - H9320770042	YORK	H9320770042	28 Other Cause	50.66%	The majority of the outage minutes are due to a landslide into a Transmission line. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2020.
			03 Vegetation	49.14%	
			05 Planned (IEEE)	0.16%	
			04 Wildlife	0.05%	
				100.00%	
YORK - H9320770043	YORK	H9320770043	28 Other Cause	50.27%	The majority of the outage minutes are due to a landslide into a Transmission line. All repairs were made at the time of the outage. No further action required. This circuit is scheduled to be trimmed in 2021.
			03 Vegetation	48.47%	
			20 Equipment failure	1.18%	
			04 Wildlife	0.08%	
				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 herbicide use provides 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 vegetation management 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 Requirements for Arboriculture Operations, and ANSI A300 for tree care practices. Duke Energy Kentucky recently achieved Tree Line USA utility certification by the Arbor Day Foundation.

Contracting Vegetation Management

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

Primary- All Conductors

- Side clearances will be a minimum of 10 ft. from the nearest primary conductor. If vegetation is not encroaching the line and will hold until the next cycle, then the tree will be bypassed.
- Minimum accepted height clearance above the conductor will be fifteen (15) feet above the conductors. All hazardous overhang (dead, dying, diseased, structurally unsound) shall be removed ground to sky.
- For conventional and bucket work, under the primary clearances will be a minimum of 10 ft. from the lowest primary conductor or 5 ft. below all neutrals, open wire and wrapped secondary. For conventional and bucket work, if vegetation is not encroaching the line and will hold until the next cycle, then the tree will be bypassed. Where mechanical tree trimmers are used – the Right-of Way (ROW) will be mowed to the whole width of the ROW.

Secondary Lines:

- Secondary, including open wire secondary distribution conductors (without a primary distribution line and excluding a service drop), shall be trimmed on an as needed basis. Any scheduled work shall require a minimum of 5 ft. of clearance on all sides.

- Multiplex cables and guy wires (without a primary distribution line and excluding a service drop), shall be trimmed on an as needed basis. Any scheduled reactive work shall require the 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. When pruned, 12 inches of clearance shall be obtained.

Services Lines:

- Street light wires and Services shall be trimmed on an as needed basis Any scheduled work shall require the 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. When streetlight wires are pruned, 12 inches of clearance shall be obtained. Brush/Wood Removal:

- In areas with low customer/property owner impact (i.e. non-landscaped areas, wooded areas) brush and debris can be windrowed along the side of the ROW corridor and cut into smaller pieces to lay flat to the ground. Contractor shall not leave any debris in ditches, waterways or drains. Wood shall be cut into manageable lengths (18”-24”) and stacked along the ROW edge

- In areas with customer/property owner impact (i.e. landscaped areas, maintained areas, high use areas) brush and debris should be chipped, captured and removed from site. No brush is to be left overnight without the consent of the property owner or their agent. Wood shall be cut into manageable pieces (typically 18”-24”) and left on-site. Lawn areas and hardscapes (patios, sidewalks, driveways, etc.) shall be cleaned up and returned to the condition prior to Work at time of entry on the property.

- 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.