

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the matter of the Annual Report of)
Electric Distribution System Reliability) Case No: 21 -0994 -EL-ESS
Pursuant to Rule 4901:1-10-10(C))

Pursuant to Rule 4901:1-10-10(C) of the Ohio Administrative Code,
Duke Energy Ohio
hereby submits the attached annual report for the year 2020 .

I certify that the following report accurately and completely reflects the annual report requirements pursuant to Rule 4901:1-10-10 of the Ohio Administrative Code.



Signature

Holly M Ross

Printed Name

Manager, Asset Mgmt.

Title

3/23/2021

Date

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1. 4901:1-10-10(C)(1): CAIDI (Customer Average Interruption Duration Index)

<u>Performance Standard</u>	<u>After Exclusions</u>	<u>Before Exclusions</u>
134.34	130.62	186.27

2. 4901:1-10-10(C)(1): SAIFI (System Average Interruption Frequency Index)

<u>Performance Standard</u>	<u>After Exclusions</u>	<u>Before Exclusions</u>
0.91	0.82	1.14

3. 4901:1-10-10(C)(1): Supporting Data

Customers <u>Served</u>	CI* <u>After Exclusions</u>	CI <u>Before Exclusions</u>	CMI* <u>After Exclusions</u>	CMI <u>Before Exclusions</u>
752,024	616,710	860,306	80,557,650	160,250,073

Notes:

*CI = Customer Interruptions
CMI = Customer Minutes Interrupted

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4. 4901:1-10-10(C)(2): Major Event Outages

Date	Description	CI	CMI	CAIDI	SAIFI
4/8/2020	Severe storms, producing widespread straight line wind damage & resulting in 6 confirmed tornadoes throughout South-Eastern & South-Central Ohio.	85,820	54,598,376	636.20	0.11
4/9/2020	Severe storms, producing widespread straight line wind damage & resulting in 6 confirmed tornadoes throughout South-Eastern & South-Central Ohio.	23,379	12,068,968	516.23	0.03
11/15/2020	A very strong, low pressure system creating an unusually strong wind field. Winds averaged 17mph, with gusts over 60mph.	30,448	8,726,195	286.59	0.04
Totals:		139,647	75,393,539		

Notes: These numbers are including transmission outage data on the Major Event days, per the ESSS guidelines: (C)(2): Performance on the same indices during major events and transmission outages, reported in separate categories with their respective supporting data

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5a. 4901:1-10-10(C)(2): Transmission Outages

Outage Start Date	Transmission Circuit Impacted	Outage Start Time	Circuit kV	Outage Cause	Outage Length (minutes)
1/11/2020	043 - 4366	9:59 PM	69	Vegetation	57
3/3/2020	069 - 6961	11:38 AM	69	Vegetation	12
4/2/2020	090 - 9062	2:15 PM	69	Loss of transmission/generation	30
4/5/2020	090 - 9062	2:31 PM	69	Wildlife	36
4/8/2020	097 - 9787	10:10 PM	138	Weather	2,951
4/29/2020	063 - 6365	1:28 PM	69	Vegetation	68
5/23/2020	069 - 6961	5:53 PM	69	Equipment Failure	9
5/28/2020	056 - 5661	4:20 PM	69	Equipment Failure	30
6/10/2020	081 - 1862	5:07 PM	69	Vegetation	212
6/23/2020	043 - 4366	3:04 AM	69	Vegetation	12
7/23/2020	017 - 1765	6:15 PM	69	Equipment Failure	188
7/27/2020	097 - 9787	6:22 PM	138	Vegetation	33
7/30/2020	046 - 4861	1:58 PM	69	Equipment Failure	205
7/30/2020	069 - 6961	7:16 PM	69	Unknown Cause	25
9/2/2020	006 - 689	6:40 AM	138	Other Cause	167
10/23/2020	038 - 5483	3:42 PM	138	Equipment Failure	24
11/30/2020	037 - 3766	5:04 PM	69	Equipment Failure	82
12/15/2020	090 - 9062	11:26 AM	69	Public Accident	52

Notes: Data includes outages which occurred on Major Event Days. Momentary outages have been excluded.

The Transmission Line 9787 outage on 4/8/20 occurred on a Major Event Day. There was a confirmed EF0 tornado that resulted in extensive damage including broken transmission poles and broken trees on the lines. The extensive damage resulted in an abnormally long duration outage.

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5b. 4901:1-10-10(C)(2): Distribution Circuits Impacted by Transmission Outages

Outage Start Date	CI per Outage	CMI per Outage	# of Impacted Circuits	IDs for Impacted Circuits	CI per Circuit	CMI per Circuit
1/11/2020	2,224	124,938	3	NICHOLSVILLE 41	584	32,120
1/11/2020	2,224	124,938	3	NICHOLSVILLE 42	662	37,072
1/11/2020	2,224	124,938	3	NICHOLSVILLE 43	978	55,746
3/3/2020	4,553	51,829	3	MARKLEY 46	751	8,261
3/3/2020	4,553	51,829	3	MARKLEY 45	2,056	22,616
3/3/2020	4,553	51,829	3	BERKSHIRE 41	1,746	20,952
4/2/2020	177	5,222	1	LOCUST E	177	5,222
4/5/2020	860	20,443	4	GASTON 41	786	18,065
4/5/2020	860	20,443	4	LOCUST G	2	68
4/5/2020	860	20,443	4	LOCUST 41	13	464
4/5/2020	860	20,443	4	LOCUST 42	59	1,846
4/8/2020	16,479	3,843,606	9	FINNEYTOWN 46	2,263	1,836,945
4/8/2020	16,479	3,843,606	9	MT. HEALTHY 42	2,009	79,858
4/8/2020	16,479	3,843,606	9	FINNEYTOWN 44	311	887,133
4/8/2020	16,479	3,843,606	9	MAPLEKNOLL 41	1,343	28,203
4/8/2020	16,479	3,843,606	9	MAPLEKNOLL 45	1,830	38,430
4/8/2020	16,479	3,843,606	9	MT. HEALTHY 44	3,611	75,903
4/8/2020	16,479	3,843,606	9	MT. HEALTHY 43	2,291	75,557
4/8/2020	16,479	3,843,606	9	FINNEYTOWN 45	2,097	257,197
4/8/2020	16,479	3,843,606	9	FINNEYTOWN 41	724	564,380

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5b. 4901:1-10-10(C)(2): Distribution Circuits Impacted by Transmission Outages

Outage Start Date	CI per Outage	CMI per Outage	# of Impacted Circuits	IDs for Impacted Circuits	CI per Circuit	CMI per Circuit
4/29/2020	2,947	104,083	2	MT. WASHINGTON 41	2,099	58,772
4/29/2020	2,947	104,083	2	SUTTON 41	848	45,311
5/23/2020	2,810	21,178	2	MARKLEY 45	2,056	14,392
5/23/2020	2,810	21,178	2	MARKLEY 46	754	6,786
5/28/2020	10,618	280,600	10	TYTUS C	141	3,525
5/28/2020	10,618	280,600	10	TYTUS D	291	7,275
5/28/2020	10,618	280,600	10	JACKSON 42	475	11,875
5/28/2020	10,618	280,600	10	MANCHESTER 43	268	6,700
5/28/2020	10,618	280,600	10	MANCHESTER 41	966	24,150
5/28/2020	10,618	280,600	10	MANCHESTER 46	1,295	32,375
5/28/2020	10,618	280,600	10	MANCHESTER 45	1,394	34,850
5/28/2020	10,618	280,600	10	JACKSON 41	2,758	68,950
5/28/2020	10,618	280,600	10	MANCHESTER 42	1,454	43,620
5/28/2020	10,618	280,600	10	MANCHESTER 44	1,576	47,280
6/10/2020	2,217	436,376	3	Goodwin 41	464	80,272
6/10/2020	2,217	436,376	3	FELICITY 41	1,412	283,812
6/10/2020	2,217	436,376	3	Goodwin 42	341	72,292
6/23/2020	1,970	18,876	3	NICHOLSVILLE 41	586	5,274
6/23/2020	1,970	18,876	3	NICHOLSVILLE 43	989	8,901
6/23/2020	1,970	18,876	3	NICHOLSVILLE 42	395	4,701

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5b. 4901:1-10-10(C)(2): Distribution Circuits Impacted by Transmission Outages

Outage Start Date	CI per Outage	CMI per Outage	# of Impacted Circuits	IDs for Impacted Circuits	CI per Circuit	CMI per Circuit
7/23/2020	2,401	172,028	4	LINCOLN 47	1,033	73,343
7/23/2020	2,401	172,028	4	LINCOLN 42	1,265	91,080
7/23/2020	2,401	172,028	4	LINCOLN 48	102	7,417
7/23/2020	2,401	172,028	4	TERMINAL 41	1	188
7/27/2020	24,150	350,840	13	FINNEYTOWN 41	995	6,965
7/27/2020	24,150	350,840	13	FINNEYTOWN 44	2,827	19,789
7/27/2020	24,150	350,840	13	MAPLEKNOLL 41	1,344	9,408
7/27/2020	24,150	350,840	13	MAPLEKNOLL 45	1,830	12,810
7/27/2020	24,150	350,840	13	MT. HEALTHY 42	2,016	14,112
7/27/2020	24,150	350,840	13	MT. HEALTHY 44	3,643	25,501
7/27/2020	24,150	350,840	13	MAPLEKNOLL 44	1,743	38,346
7/27/2020	24,150	350,840	13	MT. HEALTHY 43	2,299	59,774
7/27/2020	24,150	350,840	13	FINNEYTOWN 43	2,422	67,816
7/27/2020	24,150	350,840	13	FINNEYTOWN 42	2,243	74,019
7/27/2020	24,150	350,840	13	MAPLEKNOLL 43	17	118
7/27/2020	24,150	350,840	13	MAPLEKNOLL 42	258	1,788
7/27/2020	24,150	350,840	13	FINNEYTOWN 45	2,513	20,394
7/30/2020	3,978	478,895	5	IVORYDALE 43	1,276	82,940
7/30/2020	3,978	478,895	5	IVORYDALE 44	35	4,254
7/30/2020	3,978	478,895	5	IVORYDALE 42	991	73,334

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5b. 4901:1-10-10(C)(2): Distribution Circuits Impacted by Transmission Outages

Outage Start Date	CI per Outage	CMI per Outage	# of Impacted Circuits	IDs for Impacted Circuits	CI per Circuit	CMI per Circuit
7/30/2020	3,978	478,895	5	IVORYDALE 41	1,327	246,822
7/30/2020	3,978	478,895	5	ELMWOOD 46	349	71,545
7/30/2020	2,810	68,193	2	MARKLEY 45	2,057	49,368
7/30/2020	2,810	68,193	2	MARKLEY 46	753	18,825
9/2/2020	4,955	668,508	6	ELMWOOD 44	773	23,190
9/2/2020	4,955	668,508	6	ELMWOOD 43	708	116,820
9/2/2020	4,955	668,508	6	ELMWOOD 46	898	147,924
9/2/2020	4,955	668,508	6	ELMWOOD 48	835	139,445
9/2/2020	4,955	668,508	6	ELMWOOD 42	1,654	229,906
9/2/2020	4,955	668,508	6	IVORYDALE 43	87	11,223
10/23/2020	22,725	545,400	19	SIMPSON 41	1	24
10/23/2020	22,725	545,400	19	SIMPSON 42	1	24
10/23/2020	22,725	545,400	19	SIMPSON 48	22	528
10/23/2020	22,725	545,400	19	DIMMICK 43	1,720	41,280
10/23/2020	22,725	545,400	19	DIMMICK 44	2,631	63,144
10/23/2020	22,725	545,400	19	SIMPSON 43	55	1,320
10/23/2020	22,725	545,400	19	SIMPSON 45	73	1,752
10/23/2020	22,725	545,400	19	SIMPSON 47	558	13,392
10/23/2020	22,725	545,400	19	SOCIALVILLE 44	574	13,776
10/23/2020	22,725	545,400	19	SOCIALVILLE 41	2,083	49,992

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5b. 4901:1-10-10(C)(2): Distribution Circuits Impacted by Transmission Outages

Outage Start Date	CI per Outage	CMI per Outage	# of Impacted Circuits	IDs for Impacted Circuits	CI per Circuit	CMI per Circuit
10/23/2020	22,725	545,400	19	SIMPSON 46	678	16,272
10/23/2020	22,725	545,400	19	DIMMICK 41	999	23,976
10/23/2020	22,725	545,400	19	TWENTY MILE 42	925	22,200
10/23/2020	22,725	545,400	19	SIMPSON 44	1,650	39,600
10/23/2020	22,725	545,400	19	SOCIALVILLE 42	1,323	31,752
10/23/2020	22,725	545,400	19	DIMMICK 42	1,582	37,968
10/23/2020	22,725	545,400	19	TWENTY MILE 44	2,301	55,224
10/23/2020	22,725	545,400	19	TWENTY MILE 41	2,579	61,896
10/23/2020	22,725	545,400	19	SOCIALVILLE 43	2,970	71,280
11/30/2020	7,455	600,839	8	MANCHESTER 43	272	21,760
11/30/2020	7,455	600,839	8	MANCHESTER 41	953	76,240
11/30/2020	7,455	600,839	8	MANCHESTER 45	1,391	112,671
11/30/2020	7,455	600,839	8	MANCHESTER 46	1,325	104,675
11/30/2020	7,455	600,839	8	MANCHESTER 42	1,513	122,553
11/30/2020	7,455	600,839	8	MANCHESTER 44	1,570	128,740
11/30/2020	7,455	600,839	8	TYTUS D	291	23,280
11/30/2020	7,455	600,839	8	TYTUS C	140	10,920
12/15/2020	7,099	350,636	5	LOCUST E	175	8,400
12/15/2020	7,099	350,636	5	GASTON 41	820	39,360
12/15/2020	7,099	350,636	5	LOCUST G	792	38,016

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5b. 4901:1-10-10(C)(2): Distribution Circuits Impacted by Transmission Outages

Outage Start Date	CI per Outage	CMI per Outage	# of Impacted Circuits	IDs for Impacted Circuits	CI per Circuit	CMI per Circuit
12/15/2020	7,099	350,636	5	LOCUST 41	2,471	128,492
12/15/2020	7,099	350,636	5	LOCUST 42	2,841	136,368

Notes: Data includes outages which occurred on Major Event Days. Momentary outages have been excluded.

The Transmission Line 9787 outage on 4/8/20 occurred on a Major Event Day. There was a confirmed EF0 tornado that resulted in extensive damage including broken transmission poles and broken trees on the lines. The extensive damage resulted in an abnormally long duration outage.

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5c. 4901:1-10-10(C)(2): Index values during transmission outages

Outage start date	CAIDI during outage	SAIFI during outage
1/11/2020	56.1772	0.0030
3/3/2020	11.3835	0.0061
4/2/2020	29.5000	0.0002
4/5/2020	23.7722	0.0011
4/8/2020	233.2427	0.0219
4/29/2020	35.3182	0.0039
5/23/2020	7.5367	0.0037
5/28/2020	26.4268	0.0141
6/10/2020	196.8318	0.0029
6/23/2020	9.5815	0.0026
7/23/2020	71.6486	0.0032
7/27/2020	14.5275	0.0321
7/30/2020	120.3858	0.0053
7/30/2020	24.2680	0.0037
9/2/2020	134.9158	0.0066
10/23/2020	24.0000	0.0302
11/30/2020	80.5954	0.0099
12/15/2020	49.3923	0.0094

Notes:

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6a. 4901:1-10-10(C)(3)(a): Data excluding major events and transmission outages

Outage Cause	Events	Customers Interrupted	Customers Minutes Interrupted
Equipment failure	2,752	175,990	19,339,880
Lightning strike	248	7,012	1,225,279
Other Cause	667	36,068	3,805,652
Planned (IEEE)	1,869	18,778	2,654,781
Public Accident	809	153,334	18,491,245
Unknown Cause	384	25,624	2,195,454
Vegetation	1,875	157,693	27,470,399
Weather	314	19,040	3,463,723
Wildlife	1,382	23,171	1,911,237
Totals:	10,300	616,710	80,557,650

Notes: Data excluding major events and transmission outages

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6b. 4901:1-10-10(C)(3)(b): Data for major events only

Outage Cause	Events	Customers Interrupted	Customers Minutes Interrupted
Equipment failure	67	21,695	6,711,030
Lightning strike	28	966	851,890
Loss of transmission/generation	2	15	5,467
Other Cause	30	896	1,382,195
Planned (IEEE)	13	176	102,148
Public Accident	20	8,233	2,004,397
Unknown Cause	43	8,520	4,542,969
Vegetation	513	52,178	36,039,083
Weather	302	30,351	19,881,886
Wildlife	4	138	28,869
Totals:	1,022	123,168	71,549,933

Notes: Data for major events only, transmission is EXCLUDED

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6c. 4901:1-10-10(C)(3)(c): Data for transmission outages only

Outage Cause	Events	Customers Interrupted	Customers Minutes Interrupted
Equipment failure	48	49,987	2,098,940
Loss of transmission/generation	1	177	5,222
Other Cause	7	4,955	668,508
Public Accident	5	7,099	350,636
Unknown Cause	2	2,810	68,193
Vegetation	29	38,061	1,086,941
Weather	11	16,479	3,843,606
Wildlife	9	860	20,444
Totals:	112	120,428	8,142,489

Notes: This data is all Transmission outages, including those that occurred on Major Event Days. Momentary Outages have been excluded.

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7. 4901:1-10-10(C)(4): Momentary Interruptions

Total Number = 1,856

Notes: All Momentary interruptions. MED's Included, Transmission Included.