Matthew R. Bernier
ASSOCIATE GENERAL COUNSEL

March 1, 2021

VIA ELECTRONIC FILING

Adam J. Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *2020 Annual Service Reliability Report; Undocketed*

Dear Mr. Teitzman:

Please find enclosed for electronic filing on behalf of Duke Energy Florida, LLC ("DEF"), its 2020 Annual Service Reliability Report. DEF also provided two (2) hard copies and two (2) CDs of its Annual Service Reliability Report to the Division of Engineering. Due to the implementation of Rule 25-6.030, F.A.C., the storm-hardening activities were excluded from this year's Reliability Report filing, and that the information will be filed by June 1, 2021 instead.

Additionally, on January 1, 2020, DEF re-organized its Zone boundaries to provide increased operational leadership at the local level to provide higher levels of customer service and ownership by balancing customer count between DEF's four Zones. This organizational change resulted in the Seven Springs and Zephyrhills Operation Centers moving to the North Coastal Zone. The metrics provided in the 2020 Annual Service Reliability Report reflect this organizational change.

Thank you for your assistance in this matter. Please feel free to call me at (850) 521-1428 should you have any questions concerning this filing.

Respectfully,

s/ Matthew R. Bernier

Matthew R. Bernier

MRB/cmw
Enclosures

cc: Tom Ballinger, Director, Division of Engineering

106 East College Avenue, Suite 800 ▪ Tallahassee, Florida 32301
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2020 Annual Service Reliability Report

March 1, 2021

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2020 Year End Customers Served by Region

Zone/Regions	3 Char OP	Op Center	Cust Served	Date
NORTH CENTRAL	APK	APOPKA	106,014	12/31/2020
	DEL	DELAND	87,353	12/31/2020
	JAM	JAMESTOWN	143,062	12/31/2020
	LNG	LONGWOOD	93,467	12/31/2020
			429,896	
NORTH COASTAL	INV	INVERNESS	78,974	12/31/2020
	MON	MONTICELLO	56,897	12/31/2020
	OCA	OCALA	82,174	12/31/2020
	SEV	SEVEN SPRINGS	199,584	12/31/2020
	ZEP	ZEPHYRHILLS	27,692	12/31/2020
			445,321	
SOUTH CENTRAL	BNV	BUENA VISTA	130,430	12/31/2020
	CLR	CLERMONT	38,971	12/31/2020
	HIL	HIGHLANDS	57,538	12/31/2020
	LKW	LAKE WALES	121,845	12/31/2020
	SEO	SE ORLANDO	97,451	12/31/2020
	WGN	WINTER GARDEN	86,132	12/31/2020
			532,367	
SOUTH COASTAL	CLW	CLEARWATER	149,674	12/31/2020
	STP	ST. PETERSBURG	183,488	12/31/2020
	WAL	WALSINGHAM	157,790	12/31/2020
			490,952	
SYSTEM			**1,898,536**	

OVERALL RELIABILITY PERFORMANCE – 2020 (Rule 25-6.0455, F.A.C.)

a. Discuss overall performance absent adjustments

In 2020, Duke Energy Florida, LLC (DEF) experienced 6 different tornados as well as Tropical Storm Eta. Prior to beginning of storm season (June 1) DEF's service territory was impacted by three (3) tornados, two (2) on January 4th, resulting in 0.11 SAIDI minutes and 0.01 SAIDI minutes, respectively, as well as one (1) on April 20th resulting in 0.34 SAIDI minutes. Once storm season started, the tornadic activity continued with one (1) tornado on June 6th resulting in 0.21 SAIDI minutes and one (1) on August 18th resulting in 1.79 SAIDI minutes. From November 11th to November 12th, DEF experienced impacts of Tropical Storm Eta which accounted for 16.88 SAIDI minutes. After the storm season concluded, there was one (1) final tornado that ocurred in DEF's service territory on December 16th resulting in 1.65 SAIDI minutes.

Year	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Weather Excluded SAIDI	*1.1*	*266.9*	*2469.0*	*105.4*	*3.2*	*21.0*

2020 saw a drop in Weather Excluded SAIDI compared to the previous 5-year average. This is a result of the decrease in intensity and number of named storms that made landfall, reducing DEF's unadjusted SAIDI by 442% compared to the prior 5-year average. This large reduction is a result of the large SAIDI in 2016, 2017 and 2018 from the large storms that made impacted DEF's service territory, including Hurricanes Matthew, Irma and Michael. DEF continues to improve its reliability by concentrating on its Grid Investment Plan as well as through its pole replacement, cable replacement and beginning in 2021, the Storm Protection Plan.

Year	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Reported SAIDI	*98.6*	*370.7*	*2572.9*	*226.3*	*111.3*	*124.8*

b. Describe the level of detailed reliability data the Company tracks.

DEF tracks detailed reliability information in various databases. This detailed data is recorded per event which includes affected device, time of day, length of outage, cause of outage, number of customers affected and other pertinent information.

c. Describe Company efforts to increase critical review of detailed reliability data.

In 2020, DEF continued to utilize the IEEE method for internal business goal reporting due to integrated business practices. DEF uses the IEEE Methodology (2.5 Beta) for calculating the reliability indices. This is also the way DEF measures reliability for incentive goals. DEF will continue tracking PSC indices which are reported at year end. The IEEE Method is the industry standard for Reliability measurement and comparison.

DEF continued the practice of auditing outage data to ensure accuracy and using Outage Management System Reconciliation (OMSR) as a platform which allows outage data to be captured in greater detail.

In 2020, DEF conducted analysis and reviewed reliability data that met certain operational thresholds in order to reduce the number of outages and momentary interruptions. From 2019 to 2020, DEF had a 29% decrease in the number of MAIFIe events.

d. Describe the process used by your company to identify and select the level of detailed reliability data.

Customer feedback, benchmarking with other utilities, input from the Florida Public Service Commission (FPSC), performance of assets, and trends are all considered when identifying the level of detailed reliability data.

e. Discuss adjustments.

i. Generation events – see pages 10-11
ii. Transmission events – see page 12
iii. Extreme weather – see pages 13-14
iv. Other Distribution events – see page 15

f. Discuss adjusted performance.

For the 2020 adjusted performance results, please see pages 16-24.

FLORIDA PUBLIC SERVICE COMMISSION
ANNUAL DISTRIBUTION SERVICE RELIABILITY REPORT – ACTUAL

PART I

CAUSES OF OUTAGE EVENTS – ACTUAL **(Absent Adjustments)**

Utility Name: Duke Energy Florida, LLC Year: **2020**

Cause (a)	Customer Minutes Of Interruption	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)
1. Animals	5,181,970	3,884	82.3	68.8
2. Vegetation	55,483,993	9,548	173.0	120.3
3. Lightning	3,243,352	1,002	158.4	98.4
4. Other Weather	59,483,297	6,554	226.6	159.2
5. Vehicle	14,340,034	510	245.6	111.6
6. Defective Equipment	40,916,020	12,022	148.6	84.8
7. Unknown	1,300,066	556	87.7	69.0
Subtotal	179,948,732	34,076	163.6	114.4
All Other Causes *See Attached	56,938,969	16,443	142.2	54.2
System Totals	236,887,701	50,519	156.7	90.3

PSC/ECR 102 (8/06)
Incorporated by reference in Rule 25-6.0455, F.A.C.

CAUSES OF OUTAGE EVENTS – ACTUAL **(Absent Adjustments)**

Utility Name: Duke Energy Florida, LLC Year: **2020**

Cause (a)	Customer Minutes Of Interruption	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)
U/G Primary Cable	13,026,685	1,228	298.1	103.0
Emergency Shutdown-PGN	10,747,603	2,905	79.0	32.4
Line Maintenance	7,449,152	6,123	126.6	130.8
Transmission-Storm	3,108,346	12	750.5	174.8
Right-Of-Way	2,067,759	59	56.9	22.3
Human Error-Public	2,043,539	345	154.1	77.1
U/G Secondary/Service	1,780,708	3,573	185.8	232.3
Substation-Human Error-PGN	1,745,784	15	117.6	73.9
Dig-In	1,672,160	238	194.3	59.6
Transmission-Insulator Failure	1,638,862	33	52.2	51.0
Substation-Breaker Failure	1,348,488	21	54.6	39.6
Substation-Animal	1,070,029	24	35.1	20.0
Substation-Defective Equipment	1,026,197	14	231.9	54.9
Substation-Unknown	1,012,401	25	56.5	29.8
Human Error-PGN Contractor	870,119	222	90.5	54.0
Foreign Material in Line	670,755	65	118.8	147.1
Relay-Relay Problem	635,277	6	51.2	52.7
Transmission-Tree-Nonprevent	504,850	4	59.6	52.3
Overload	494,640	122	120.3	95.6
Substation-Lightning	474,255	5	79.5	46.4
Substation-Bushing-Failure	383,095	4	79.0	61.6
Substation-Switch Failure	323,928	2	124.0	87.4
Relay-Wiring Error	289,814	8	23.5	23.8
Equipment Misapplication	282,306	25	127.9	490.1
Human Error-PGN	234,192	355	71.5	25.0
Miscellaneous	232,704	626	89.5	97.5
Transmission-Switch Error-PGN	219,227	9	13.9	16.7
Relay-Auto Reclose Cutout Sw	192,808	1	77.0	77.0
Substation-Potential Transformer	190,224	4	63.5	49.5

CAUSES OF OUTAGE EVENTS – **(Absent Adjustments)**

Utility Name: Duke Energy Florida, LLC Year:**2020**

All Other Causes Cause (a)	Customer Minutes Of Interruption	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)
O/H Secondary Cable	157,068	255	167.3	235.8
Transmission-Human Error-Contractor	157,000	4	57.4	42.0
Substation-Storm	156,462	5	24.2	18.4
Transmission-Vehicle	145,077	1	1391.9	340.6
Substation-Transformer Failure	129,454	10	17.1	15.1
Transmission-Conductor/Static	95,025	3	30.0	32.9
Relay-Setting Error	63,901	7	4.5	4.6
Transmission-Crossarm Failure	54,540	1	45.3	45.0
Transmission-Human Error-Public	50,352	1	48.1	48.0
Relay-Reclosing Relay Failure	41,899	2	11.0	11.0
Transmission-Tree Preventable	38,883	2	14.1	9.5
Improper Installation	36,005	35	114.9	18.4
Transmission-Bird Excrement	28,040	1	40.0	40.0
Substation-Human Error-Contractor	23,580	1	17.6	18.0
Construction Equipment	17,422	17	122.7	68.6
Vandalism	4,614	23	82.2	76.9
Substation-Planned Outage	2,370	1	5.5	6.0
Substation-Switch Error-Sub	1,370	1	2.0	2.0
All Other Causes	56,938,969	16,443	142.2	54.2

PART II

THREE PERCENT FEEDER LIST - ACTUAL (UNADJUSTED)

Utility Name: Duke Energy Florida, LLC Year: 2020

Primary Circuit Id. No. or Name (a)	Sub-station Origin (b)	Location (c)	Number of Customers					Outage Events "N" (i)	Avg Duration "L-Bar" (j)	CAIDI (k)	Listed Last Year? (l)	No. of Years in the Last 5 (m)	Corrective Action Completion Date (n)
			Residential (d)	Commercial (e)	Industrial (f)	Other (g)	Total (h)						
X121	GATEWAY	WALSINGHAM	98	517	46	26	687	8	172.6	55.1	N	1	6/30/21
K1772	CROOKED LAKE	LAKE WALES	689	142	1	62	894	8	123.7	58.7	N	1	6/30/21
A34	REDDICK	OCALA	1,490	259	-	61	1,810	7	153.3	127.2	N	-	12/31/21
X151	MAXIMO	ST. PETERSBURG	2,157	125	-	91	2,373	6	198.5	35.1	N	-	12/31/21
K1066	LAKE PLACID	HIGHLANDS	1,012	334	5	98	1,449	6	110.8	56.4	Y	1	6/30/21
K1560	FISHEATING CREEK	HIGHLANDS	2,387	120	-	66	2,573	6	107.7	64.2	Y	1	6/30/21
K1825	NORTHRIDGE	LAKE WALES	111	93	-	14	218	6	119.8	64.6	N	-	12/31/21
A379	OBRIEN	MONTICELLO	553	150	1	64	768	6	197.2	219.0	N	1	6/30/21
W1105	DELAND EAST	DELAND	1,281	65	-	96	1,442	5	286.8	129.8	N	-	12/31/21
M33	ZELLWOOD	APOPKA	1,151	221	9	13	1,394	5	117.5	82.1	Y	2	6/30/21
M445	BAY RIDGE	APOPKA	632	137	1	24	794	5	128.0	56.6	N	2	6/30/21
X141	MAXIMO	ST. PETERSBURG	2,059	139	-	103	2,301	5	195.0	96.2	Y	1	6/30/21
A36	REDDICK	OCALA	901	242	-	61	1,204	5	184.8	112.3	N	-	6/30/21
K1885	LAKE OF THE HILLS	LAKE WALES	1,109	76	1	-	1,186	5	113.6	38.7	N	2	6/30/21
A45	GEORGIA PACIFIC	MONTICELLO	990	246	-	113	1,349	5	145.9	101.3	N	-	12/31/21
K3205	PEMBROKE	HIGHLANDS	1	17	-	2	20	5	289.9	316.0	Y	2	6/30/21
K866	WEST LAKE WALES	LAKE WALES	845	191	3	48	1,087	4	125.0	100.2	N	-	6/30/21
W0496	CENTRAL PARK	SE ORLANDO	66	198	6	5	275	4	116.1	47.2	N	-	12/31/21
N195	JENNINGS	MONTICELLO	380	80	1	33	494	4	182.5	133.0	N	1	6/30/21
K975	BONNET CREEK	BUENA VISTA	256	86	-	32	374	4	59.7	44.5	Y	3	6/30/21
W0502	MAGNOLIA RANCH	SE ORLANDO	2,377	73	2	-	2,452	4	131.7	58.2	N	-	6/30/21
K861	SHINGLE CREEK	BUENA VISTA	1,209	162	1	48	1,420	4	213.0	80.0	N	-	12/31/21
X113	GATEWAY	WALSINGHAM	2,065	163	-	37	2,265	4	221.5	58.3	N	-	6/30/21
X97	BAYWAY	ST. PETERSBURG	1,500	169	1	86	1,756	4	132.2	29.3	N	-	12/31/21
W0202	MONASTERY	DELAND	1,285	105	-	54	1,444	4	152.2	65.3	N	-	12/31/21
N332	ST MARKS WEST	MONTICELLO	979	96	-	69	1,144	4	139.2	133.7	Y	3	6/30/21
X63	DISSTON	WALSINGHAM	2,544	216	2	52	2,814	4	183.7	157.4	N	-	12/31/21
N36	CRAWFORDVILLE	MONTICELLO	1,109	111	-	28	1,248	4	120.8	70.2	N	1	6/30/21
X37	THIRTY SECOND STREET	ST. PETERSBURG	2,337	119	-	56	2,512	4	142.9	76.1	N	-	12/31/21
N68	MONTICELLO	MONTICELLO	217	89	-	12	318	4	143.8	52.0	N	2	6/30/21
W0372	ORANGE CITY	DELAND	1,822	59	2	-	1,883	4	120.7	106.5	N	-	12/31/21
C855	ZEPHYRHILLS	ZEPHYRHILLS	2,894	179	12	146	3,231	4	150.6	54.7	N	-	12/31/21
K2247	HEMPLE	WINTER GARDEN	716	56	-	4	776	4	200.0	88.6	N	-	12/31/21
A90	TRENTON	MONTICELLO	921	204	3	68	1,196	4	139.8	98.2	N	2	6/30/21
J141	CROSS BAYOU	WALSINGHAM	779	333	43	57	1,212	4	182.0	88.6	N	-	12/31/21
C103	DUNEDIN	CLEARWATER	2,836	199	-	111	3,146	4	169.2	99.8	N	-	12/31/21
A196	ARCHER	MONTICELLO	332	101	-	66	499	4	157.2	140.1	N	1	6/30/21
A46	CROSS CITY INDUSTRIAL	MONTICELLO	333	126	2	28	489	4	140.7	74.0	Y	1	6/30/21
A96	BROOKSVILLE	INVERNESS	1,221	331	9	77	1,638	4	156.2	109.6	N	-	12/31/21
C906	EAST CLEARWATER	CLEARWATER	2,115	210	-	69	2,394	4	186.4	61.9	N	-	12/31/21
W0809	DELAND	DELAND	629	219	4	48	900	3	142.4	51.4	N	-	12/31/21
K232	LAKE BRYAN	BUENA VISTA	1036	63	0	11	1110	3	298.0	79.4	N	-	12/31/21

LBAR AND CAIDI Includes all devices.

PSC/ECR 102 (8/06)

Incorporated by reference in Rule 25-6.0455, F.A.C.

PART III

SYSTEM RELIABILITY INDICES – ACTUAL (ABSENT ADJUSTMENTS)

Utility Name: Duke Energy Florida, LLC Year: 2020

District or Service Area (a)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)
North Coastal	**153.5**	**99.0**	**1.6**	**6.6**	**2.74%**
Inverness	217.5	123.3	1.76	7.3	5.14%
Monticello	245.9	103.4	2.38	6.4	6.41%
Ocala	186.6	96.3	1.94	6.8	5.33%
Seven Springs	100.1	89.2	1.12	6.4	0.06%
Zephyrhills	67.3	56.9	1.18	5.6	0.00%
South Coastal	**160.8**	**101.3**	**1.59**	**6.4**	**1.29%**
Clearwater	151.0	96.4	1.57	6.6	0.66%
St. Petersburg	153.1	91.5	1.67	5.8	2.44%
Walsingham	178.9	118.7	1.51	6.9	0.55%
North Central	**106.0**	**92.4**	**1.15**	**3.2**	**0.58%**
Apopka	94.9	94.8	1.00	6.9	0.54%
Deland	162.2	111.1	1.46	2.9	1.77%
Jamestown	75.9	69.4	1.09	0.2	0.11%
Longwood	112.4	101.8	1.10	3.8	0.24%
South Central	**82.7**	**66.7**	**1.24**	**5.7**	**1.57%**
Buena Vista	45.5	72.3	0.63	4.2	0.00%
Clermont	74.1	70.9	1.04	3.8	0.15%
SE Orlando	92.4	72.7	1.27	9.1	5.33%
Highlands	113.4	63.6	1.78	7.7	2.66%
Lake Wales	78.5	58.2	1.35	1.9	0.45%
Winter Garden	117.5	69.1	1.70	8.7	2.08%
System	**124.8**	**90.3**	**1.38**	**5.5**	**1.55%**

GENERATION EVENTS – ADJUSTMENTS (Rule 25-6.0455, F.A.C.)

a. Discuss <u>each</u> generation event that resulted in customer outages.

There were no events to report for 2020.

b. Address whether the event was localized or system-wide.

N/A

c. Describe the Company's efforts to avoid or minimize any similar events in the future in terms of the level of costs incurred and outage duration.

N/A

d. Provide the 2020 service reliability data for each generation outage event that is excluded from your Company's 2020 Annual Distribution Reliability Report pursuant to Rule 25-6.0455.

Generation Event	N/A
C	N/A
CMI	N/A
CI	N/A
SAIDI	N/A
SAIFI	N/A

Please see Form 103 below.

PART I

CAUSES OF OUTAGE EVENTS – ADJUSTED

Utility Name: Duke Energy Florida, LLC Year: **2020**

Cause (a)	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)
Generation	N/A	N/A	N/A
System Totals:	N/A	N/A	N/A

PSC/ECR 103 (8/06)
Incorporated by reference in Rule 25-6.0455, F.A.C.

TRANSMISSION EVENTS – ADJUSTMENTS (Rule 25-6.0455, F.A.C.)

a. Discuss <u>each</u> transmission event that resulted in customer outages.

See Attachment A – "DEF Transmission Outages 2020 - Major Events Excluded."

b. Address whether the event was localized or system-wide.

See Attachment A – "DEF Transmission Outages 2020 - Major Events Excluded."

c. Describe the Company's efforts to avoid or minimize any similar events in the future in terms of the level of costs incurred and outage duration.

Outages are reviewed and investigated by local transmission maintenance staff. The results from these investigations are looked at from a system-perspective by DEF's Transmission Department Asset Management Group to determine if the failure is isolated or similar failures are occurring on another part of the system. When similar failures are noted on the system, further investigation is performed to determine if a solution should be implemented system-wide to remedy the problem. If a project is required, it is submitted for prioritization against other projects.

d. Provide the 2020 service reliability data for each transmission outage event that is excluded from your Company's 2020 Annual Distribution Reliability Report pursuant to Rule 25-6.0455.

There were no events outside of Extreme Weather that resulted in CMI in 2020 per Rule 25-6.0455. This information is reflected in Attachment B – "DEF Transmission Outages 2020 - Major Events Only."

EXTREME WEATHER - EXCLUSIONS (Rule 25-6.0455, F.A.C.)

a. Include in the discussion, the type of weather event, strength (wind speeds/surge-flood levels), locations affected, source of meteorological information and the performance of overhead and underground systems.

Distribution

Dates	Type of Weather Event	Strength (Wind Speeds/surge-flood levels)	Locations affected	Source of Metrological Information	Performance of Overhead and Underground Systems
1/4/2020 - 11:00 AM to 11:59 AM	Tornado	Unknown Wind Speed	Deland	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
1/4/2020 - 11:00 PM to 11:59 PM	Tornado	Unknown Wind Speed	Lake Wales	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
4/20/2020 - 9:00 AM to 10:59 AM	Tornado	Unknown Wind Speed	Inverness	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
6/6/2020 - 7:00 PM to 7:59 PM	Tornado	Unknown Wind Speed	SE Orlando	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
8/18/2020 - 3:00 PM to 4:59 PM	Tornado	Unknown Wind Speed	Deland	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
11/11/2020 3:00 PM to 11/12/2020 11:59 AM	Tropical Storm Eta	39 to 73 mph	Clearwater	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
			Inverness		
			Monticello		
			Ocala		
			Seven Springs		
			St. Petersburg		
			Walsingham		
			Zephyrhills		
12/16/2020 3:00 PM to 4:59 PM	Tornado	Unknown Wind Speed	Clearwater	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
			Seven Springs		
			Walsingham		

Transmission

There were four major Extreme Weather events resulting in CMI that were excluded in 2020. This information is reflected in Attachment B – "DEF Transmission Outages 2020 - Major Events Only."

b. Describe the Company's efforts to avoid or minimize in terms of costs incurred and outage duration any similar events in the future (Example: Reference specific storm hardening activity).

Distribution

These efforts are addressed in "DEF's 2019-2021 Storm Hardening Plan" that was filed on March 1, 2019 (Attachment J).

Transmission

These efforts are addressed in "DEF's 2019-2021 Storm Hardening Plan" that was filed on March 1, 2019 (Attachment J).

c. If the method of deriving the weather exclusion is different from the method used for 2015, please explain the changes and provide the CMI and CI for 2020 using the prior method.

For Distribution & Transmission – The same exclusion method has been used for years 2015 through 2020.

d. Provide the 2020 service reliability data for each transmission outage event that is excluded from your Company's 2020 Annual Distribution Reliability Report pursuant to Rule 25-6.0455.

Distribution

Dates	Overhead vs. Underground	C	CMI	CI	Duration	L-Bar	N
1/4/2020 - 11:00 AM to 11:59 AM	OH	87,353	206,775	1,140	3,307	472.4	7
	UG		-	-	-	-	-
1/4/2020 - 11:00 PM to 11:59 PM	OH	121,845	11,200	50	224	224.2	1
	UG		-	-	-	-	-
4/20/2020 - 9:00 AM to 10:59 AM	OH	78,974	654,652	2,129	11,009	379.6	29
	UG		-	-	-	-	-
6/6/2020 - 7:00 PM to 7:59 PM	OH	97,451	395,301	1,663	4,927	1,231.7	4
	UG		-	-	-	-	-
8/18/2020 - 3:00 PM to 4:59 PM	OH	87,353	3,391,430	7,602	54,901	963.2	57
	UG		237	1	237	237.1	1
11/11/2020 3:00 PM to 11/12/2020 11:59	OH	936,273	30,198,251	98,851	630,687	733.4	860
	UG		1,841,540	2,562	64,857	600.5	108
12/16/2020 3:00 PM to 4:59 PM	OH	507,048	3,100,576	12,948	10,307	572.6	18
	UG		41,047	358	924	307.9	3

Transmission

There were four major Extreme Weather events resulting in CMI that were excluded in 2020. This information is reflected in Attachment B – "DEF Transmission Outages 2020 - Major Events Only."

OTHER DISTRIBUTION – ADJUSTMENTS (Rule 25-6.0455, F.A.C.)

a. Discuss the causation of each type of distribution event that resulted in customer complaints.

Since DEF has not taken "other" causations as exclusions for any events in 2020, DEF has no information to report in this section.

b. Describe the Company's efforts to avoid or minimize any similar events in the future in terms of the level of costs incurred and outage duration.

Since DEF has not taken "other" causations as exclusions for any events in 2020, DEF has no information to report in this section.

c. Provide the 2020 service reliability data for each distribution outage event that is excluded from your Company's 2021 Annual Distribution Reliability Report pursuant to Rule 25-6.0455.

i. A table
ii. Electronic file
iii. Causation, Date, CMI, CI Total Repair Cost, etc.

Since DEF has not taken "other" causations as exclusions for any events in 2020, DEF has no information to report in this section.

2020 ADJUSTED RELIABILITY (Rule 25-6.0455, F.A.C.)

DEF's 2020 annual adjusted SAIDI was 87.9, a 3% decrease from SAIDI observed in 2019 following an 8% decrease from 2018. The primary driver for 2020 was caused by weather-related outages.

There were 8 days in 2020 that totaled more than 1 SAIDI minute each. All of the 8 days had weather-related outages as the driving factor with more than 60% of the outages for each day being weather-related. These 8 days were February 6th (4.68 SAIDI), February 7th (1.04 SAIDI), April 24th (1.60 SAIDI), May 18th (1.17 SAIDI), May 22nd (1.19 SAIDI), August 9th (1.59 SAIDI), August 30th (1.14 SAIDI) and December 24th (2.16 SAIDI).

In 2020, DEF had more impact from tornados compared to the previous 5 years, with 6 tornados touching down as well as the impact of Tropical Storm Eta. DEF had a reduction in SAIDI compared to 2018 and 2019 and continues to see a decline of SAIFI, MAIFIe, and CEMI5 over the last 5 years. This is part DEF's efforts to focus on minimizing outages through investing in the grid with the Grid Investment Plan.

Year	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Adjusted SAIDI	*79.7*	*85.0*	*82.7*	*98.5*	*90.5*	*87.9*

Year	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Adjusted SAIFI	*0.98*	*0.98*	*0.92*	*1.01*	*0.97*	*0.94*

a. Causes of outages events – see attached forms.

i. 5-yr patterns/trends in outage causation for each of the top 10 causes of outage events, including the frequency, duration, restoration time, cost incurred to restore service, remediation programs and costs.

- See Attachment D – "2020 Adjusted Reliability (5 yr. Trend by Cause Code)" Spreadsheet for 2016 – 2020.

ii. The process used to identify and select the actions to improve the performance in each of the top 10 causes of outages.

DEF prioritizes the reliability improvement action plan by balancing historical and current year performance. System devices are evaluated based on the number of interruptions, customers interrupted (CI) and customer minutes of interruption (CMI). In addition, current year performance is monitored monthly to identify emergent and seasonal issues including load balancing for cold weather and the need for foot patrols of devices experiencing multiple interruptions.

iii. 2020 activities and financial projection levels addressing each of the 10 causes of service outage.

- See Attachment E – "2021 Program Budget" Spreadsheet.

b. Three percent Feeder list

Identify whether any feeders appear on the 3% listing more than once within a consecutive 5-year period and any actions implemented to improve feeder performance.

Feeder K1772:

- DEF Infrared scanned main feeder K1772 in 2018. No hotspots were found. DEF will continue to scan main feeder of K1772 in June/July 2021.
- K1772 experienced 5 feeder level outages in 2020. Two were caused by vehicle accident, 1 was caused by lightning and 2 were caused by failed equipment. One of the failed equipment outages was caused by a recloser that failed and the other was caused by a failed connection to an overhead switch.
- DEF completed backbone trimming in 2019. K1772 is planned to have the backbone trimmed in 2021.
- Operations techs will continue to analyze feeder and perform an in-depth patrol to identify operational issues and initiate mitigation actions.

Feeder A36:

- DEF Infrared scanned main feeder A36 in 2017. DEF will continue to scan main feeder of A36 in June/July 2021.
- A36 experienced 4 feeder level outages in 2020. One outage was caused by nonpreventable tree damage, 1 was caused by a wire that came down during a storm, 1 was caused by a connector failure and 1 was caused by a vehicle accident.
- DEF completed backbone tree trimming in 2020.
- A36 was part of a Self-Optimizing Grid Team that deployed in early 2021.
- Operations techs will continue to analyze feeder and perform an in-depth patrol to identify operational issues and initiate mitigation actions.

Feeder X141:

- DEF Infrared scanned main feeder X141 in 2020. DEF will continue to scan main feeder of A36 in June/July 2021.
- X141 experienced 3 feeder level outages in 2020. Two outages were caused by connector failures and 1 by a failed underground cable on an overhead to underground pole.
- DEF completed backbone tree trimming in 2020.

- Operations techs will continue to analyze feeder and perform an in-depth patrol to identify operational issues and initiate mitigation actions.

Feeder M33:

- DEF Infrared scanned main feeder M33 in 2020. No hotspots were found. DEF will continue to scan main feeder of M33 in June/July 2021.
- M33 experienced 3 feeder level outages in 2020. All 3 outages were caused by connector failures.
- DEF completed backbone tree trimming in 2020.
- DEF completed transformer retrofit on feeder M33 in 2020.
- M33 is planned to be part of a new Self Optimizing Grid Team deploying in 2021.
- Operations techs will continue to analyze feeder and perform an in-depth patrol to identify operational issues and initiate mitigation actions.

Feeder A186:

- DEF Infrared scanned main feeder A186 in 2020. DEF will continue to scan main feeder of M33 in June/July 2021.
- A186 experienced 3 feeder level outages in 2020. All 3 outages were caused by nonpreventable tree damage.
- DEF completed backbone trimming in 2019. A186 is planned to have the backbone trimmed in 2021.
- Operations techs will continue to analyze feeder and perform an in-depth patrol to identify operational issues and initiate mitigation actions.

Feeder A195:

- DEF Infrared scanned main feeder A195 in 2017. DEF will continue to scan main feeder of A195 in June/July 2021.
- A195 experienced 3 feeder level outages in 2020. Two of the outages were caused by afternoon thunderstorms and 1 was caused by nonpreventable tree damage.
- DEF completed backbone trimming in 2019. A195 is planned to have the backbone trimmed in 2021.
- Operations techs will continue to analyze feeder and perform an in-depth patrol to identify operational issues and initiate mitigation actions.

i. The process used to identify and select the actions to improve the performance of feeders in the 3% feeder list, if any

DEF prioritizes the reliability improvement action plan for 3% Feeder List by balancing historical and current year performance. Feeders are evaluated based on the number of interruptions, interruption cause code, customers interrupted (CI), and customer minutes of interruption (CMI). In addition, current year performance is monitored monthly to identify emergent and

seasonal issues including load balancing for cold weather and the need for foot patrols of feeders experiencing multiple interruptions.

ii. 2020 activities and financial projection levels directed at improving feeder performance

Feeders are prioritized for maintenance and replacement work based on several criteria including CMI, number of interruptions, interruption cause code and CEMI repeat outage performance. This process results in a work plan targeted at feeders and devices having the greatest impact on reliability indices and customer satisfaction. This process has resulted in consistent and sustained reliability performance.

The 3% feeder list is based solely on number of feeder interruptions and does not take into consideration any of the additional criteria above. While all feeders on the 3% list are patrolled for corrective action, the possibility exists that they could appear on the list more than once due to their relative impact on system reliability indices.

For the 2021 budget levels, please see Attachment E – "2021 Program Budget" Spreadsheet.

c. Regional Reliability Indices – *see attached forms.*

i. 5-Yr. patterns/trends in each region's reliability for each index and on any overall basis.

- See Attachment F – "2020 Adjusted Reliability (5 yr. Summary by Region)" Spreadsheet.

ii. The process used to identify and select actions to improve the regional reliability trends.

- Regional reliability trends are tracked to ensure alignment with the system level goals they support. Specific device level improvements are measured and prioritized at a system level to ensure maximum benefit for resources expended.

iii. Discuss any 2021 projected activities and financial projection levels directed at improving regional reliability performance.

- See Attachment E – "2021 Program Budget" Spreadsheet. Regional reliability trends are tracked to ensure alignment with the system level goals they support. Specific device level improvements are measured and prioritized at a system level to ensure maximum benefit for resources expended.
- DEF is currently installing Self-Optimizing Grid Teams as a continuation and upgrade of its Self-Healing Teams. This upgraded system segments the distribution grid to minimize the number of customers affected by a

fault. The SCADA communication between the devices and the DEF Distribution Control Center (DCC), allows automatic remote sectionalization to further reduce the number and duration of the outages. DEF currently has 126 teams installed, which involves 424 circuits and 812,612 customers. In 2021, DEF will continue the install Self-Optimizing Grid Teams across its service territory.

- DEF will continue the Targeted Underground (TUG) Program in 2021 as part of the Grid Investment Plan. The purpose of this program is to target areas that are exposed to tree and debris related outages in the area of exposure by converting heavily vegetated neighborhoods prone to power outages from overhead to underground construction to decrease outages, reduce momentary interruptions, improve major storm restoration time, improve customer satisfaction and reduce costs. DEF continued the Targeted Undergrounding (TUG) Program in 2020 completing a total of 36.7 miles of overhead facilities converted to underground facilities.

- In 2020, DEF conducted analysis and reviewed reliability data that meet certain operational thresholds in order to reduce the number of outages and momentary interruptions. From 2019 to 2020, DEF had a 29% reduction in MAIFIe, and the 5-year trend in MAIFIe is downward.

- DEF will continue the implementation of the Transformer Retrofit Program as part of the Grid Investment Plan. This targets the mitigation of outages caused by CSP (Completely Self-Protected) transformers. CSP transformers with no external protection have been a frequent cause of upstream fuse outages. Adding the external fuse to these transformers would limit the number of customers impacted by transformer or service level issues. This outage mitigation will be accomplished by adding external fused cutouts, replacing bare copper wires with covered copper and adding animal mitigation to these locations. The retrofitting of CSP transformers is being done in lieu of replacement as a cost-effective method of outage reduction for DEF customers in these locations.

- DEF will continue the implementation of the Deteriorated Conductor Program in 2021 as part of the Grid Investment Plan. The Deteriorated Conductor Program focuses on replacing small overhead copper conductor with aluminum conductor. Copper conductor on the grid is older, and by replacing it with new aluminum conductor will improve the overall reliability.

- DEF has begun its Storm Protection Plan in 2021 beginning with the Feeder Hardening Program in distribution. The Feeder Hardening program will enable the feeder backbone to better withstand extreme weather events by upgrading the feeder backbone to meet NESC 250C Extreme wind load standard. This includes strengthening structures, updating basic insulation level to current standards, updating conductor to current standards, relocating difficult to access facilities, replacing oil filled equipment as appropriate and will incorporate the Company's pole inspection and replacement activities.

FLORIDA PUBLIC SERVICE COMMISSION
ANNUAL DISTRIBUTION SERVICE RELIABILITY REPORT – ADJUSTED
Top Ten Outage Causes: Form PSC/ECR 102-1(a) (8/06) and Form PSC/ECR 102-1(b) (8/06)

PART I

CAUSES OF OUTAGE EVENTS – **ADJUSTED**

Utility Name: Duke Energy Florida, LLC Year: **2020**

Cause** (a)	Customer Minutes Of Interruption	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)
1.) Animals	5,180,230	3,882	82.1	68.8
2.) Vegetation	48,462,663	9,291	160.3	110.9
3.) Lightning	3,182,721	994	157.0	97.4
4.) Other Weather	32,057,368	5,826	159.3	109.7
5.) Vehicle	14,331,534	509	245.1	111.6
6.) Defective Equipment	39,395,329	11,973	146.4	82.4
7.) Unknown	1,300,066	556	87.7	69.0
Subtotal	143,909,911	33,031	145.9	98.4
All Other Causes *See attached	22,946,834	7,170	181.0	71.4
System Totals:	166,856,745	40,201	152.1	93.5

PSC/ECR 103 (8/06)
Incorporated by reference in Rule 25-6.0455, F.A.C.

CAUSES OF OUTAGE EVENTS – **ADJUSTED**

Utility Name: Duke Energy Florida, LLC Year: **2020**

All Other Causes Cause (a)	Customer Minutes Of Interruption	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)
U/G Primary Cable	12,995,548	1,226	297.7	102.7
Right-Of-Way	2,067,759	59	56.9	22.3
Human Error-Public	2,043,539	345	154.1	77.1
U/G Secondary/Service	1,778,686	3,570	185.6	232.1
Dig-In	1,672,160	238	194.3	59.6
Human Error-PGN Contractor	870,119	222	90.5	54.0
Overload	494,640	122	120.3	95.6
Foreign Material In Line	427,380	64	110.5	102.1
Human Error-PGN	234,192	355	71.5	25.0
Miscellaneous	205,011	621	86.4	88.0
O/H Secondary Cable	90,873	249	143.4	151.2
Improper Installation	36,005	35	114.9	18.4
Construction Equipment	17,422	17	122.7	68.6
Equipment Misapplication	8,886	24	110.0	103.3
Vandalism	4,614	23	82.2	76.9
All Other Causes	22,946,834	7,170	181.0	71.4

PART II

THREE PERCENT FEEDER LIST – ADJUSTED

Utility Name: DUKE ENERGY FLORIDA, LLC. Year: 2020

PRIMARY CIRCUIT ID. NO. OR NAME (a)	SUBSTATION ORIGIN (b)	LOCATION (c)	CUSTOMERS					OUTAGE EVENTS "N" (i)	AVERAGE DURATION "L-Bar" (j)	CAIDI (k)	LISTED LAST YEAR ? (l)	NO. OF YEARS IN THE LAST 5 (m)	CORRECTIVE ACTION COMPLETION DATE (n)
			RESIDENTIAL (d)	COMMERCIAL (e)	INDUSTRIAL (f)	OTHER (g)	TOTAL (h)						
X121	GATEWAY	WALSINGHAM	98	517	46	26	687	7	178.5	51.1	N	1	6/30/21
A34	REDDICK	OCALA	1,490	259	-	61	1,810	6	165.2	127.8	N	-	12/31/21
K1825	NORTHRIDGE	LAKE WALES	111	93	-	14	218	5	119.4	72.5	N	-	12/31/21
M445	BAY RIDGE	APOPKA	632	137	1	24	794	5	131.2	56.2	N	1	6/30/21
K1560	FISHEATING CREEK	HIGHLANDS	2,387	120	-	66	2,573	5	111.7	61.7	Y	1	6/30/21
K1772	CROOKED LAKE	LAKE WALES	689	142	1	62	894	5	126.7	81.0	N	2	6/30/21
W0502	MAGNOLIA RANCH	SE ORLANDO	2,377	73	2	-	2,452	4	130.5	58.1	N	1	6/30/21
K1066	LAKE PLACID	HIGHLANDS	1,012	334	5	98	1,449	4	111.6	58.5	N	-	6/30/21
C906	EAST CLEARWATER	CLEARWATER	2,115	210	-	69	2,394	4	171.0	78.3	N	-	12/31/21
A36	REDDICK	OCALA	901	242	-	61	1,204	4	185.7	111.5	N	2	6/30/21
W0202	MONASTERY	DELAND	1,285	105	-	54	1,444	4	158.5	65.3	N	-	12/31/21
X63	DISSTON	WALSINGHAM	2,544	216	2	52	2,814	4	163.0	84.0	N	-	12/31/21
W1105	DELAND EAST	DELAND	1,281	65	-	96	1,442	4	155.3	91.6	N	-	12/31/21
A379	OBRIEN	MONTICELLO	553	150	1	64	768	4	213.7	259.9	N	1	6/30/21
X151	MAXIMO	ST. PETERSBURG	2,157	125	-	91	2,373	4	177.7	46.7	N	-	12/31/21
A96	BROOKSVILLE	INVERNESS	1,221	331	9	77	1,638	4	136.9	111.4	N	-	12/31/21
N195	JENNINGS	MONTICELLO	380	80	1	33	494	4	198.7	134.8	N	1	6/30/21
K866	WEST LAKE WALES	LAKE WALES	845	191	3	48	1,087	4	124.1	101.2	N	1	6/30/21
X141	MAXIMO	ST. PETERSBURG	2,059	139	-	103	2,301	3	139.2	64.2	Y	2	6/30/21
N36	CRAWFORDVILLE	MONTICELLO	1,109	111	-	28	1,248	3	128.0	88.2	N	1	6/30/21
M33	ZELLWOOD	APOPKA	1,151	221	9	13	1,394	3	156.6	75.1	Y	2	6/30/21
A45	GEORGIA PACIFIC	MONTICELLO	990	246	-	113	1,349	3	150.5	127.6	N	-	12/31/21
W0496	CENTRAL PARK	SE ORLANDO	66	198	6	5	275	3	119.1	59.5	N	-	12/31/21
A46	CROSS CITY INDUSTRIAL	MONTICELLO	333	126	2	28	489	3	146.7	79.7	Y	1	6/30/21
K861	SHINGLE CREEK	BUENA VISTA	1,209	162	1	48	1,420	3	228.4	108.2	N	-	12/31/21
A88	FLORAL CITY	INVERNESS	449	80	-	20	549	3	153.5	127.5	Y	1	6/30/21
N1	MADISON	MONTICELLO	978	137	-	53	1,168	3	170.0	127.1	N	-	12/31/21
A90	TRENTON	MONTICELLO	921	204	3	68	1,196	3	154.1	123.2	N	1	6/30/21
W0028	CASSELBERRY	JAMESTOWN	1,142	126	1	31	1,300	3	154.8	105.6	N	-	12/31/21
C103	DUNEDIN	CLEARWATER	2,836	199	-	111	3,146	3	160.8	108.9	N	-	12/31/21
X113	GATEWAY	WALSINGHAM	2,065	163	-	37	2,265	3	233.5	59.1	N	1	6/30/21
C4322	ODESSA	SEVEN SPRINGS	1,975	124	-	-	2,099	3	133.5	51.8	N	-	12/31/21
X37	THIRTY SECOND STREET	ST. PETERSBURG	2,337	119	-	56	2,512	3	128.7	68.8	N	-	12/31/21
C903	EAST CLEARWATER	CLEARWATER	481	99	2	32	614	3	132.1	87.6	N	-	12/31/21
K232	LAKE BRYAN	BUENA VISTA	1,036	63	-	11	1,110	3	298.0	79.4	N	-	12/31/21
A186	GE ALACHUA	MONTICELLO	442	81	3	38	564	3	271.7	158.4	Y	2	6/30/21
M82	MAITLAND	LONGWOOD	511	80	1	35	627	3	322.7	201.1	N	-	12/31/21
K1104	REEDY LAKE	BUENA VISTA	2,448	130	1	-	2,579	3	143.1	73.9	N	-	12/31/21
N332	ST MARKS WEST	MONTICELLO	979	96	-	69	1,144	3	148.2	135.8	N	1	6/30/21
K1296	SUN N LAKES	HIGHLANDS	1,959	188	-	92	2,239	3	112.8	109.9	N	-	12/31/21
N68	MONTICELLO	MONTICELLO	217	89	-	12	318	3	142.7	48.9	N	1	6/30/21
A195	ARCHER	MONTICELLO	366	65	0	32	463	3	208.00	188.60	N	2	6/30/21

LBAR AND CAIDI Includes all devices.

PART III

SYSTEM RELIABILITY INDICES – ADJUSTED

Utility Name: Duke Energy Florida, LLC Year: 2020

District or Service Area (a)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)
North Coastal	**117.2**	**101.9**	**1.15**	**6.4**	**2.32%**
Inverness	168.0	123.4	1.36	7.2	4.12%
Monticello	224.4	117.1	1.92	6.4	5.42%
Ocala	164.6	101.3	1.63	6.7	4.81%
Seven Springs	58.1	81.0	0.72	6.1	0.03%
Zephyrhills	37.0	54.3	0.68	5.2	0.00%
South Coastal	**82.6**	**96.1**	**0.86**	**6.0**	**0.37%**
Clearwater	75.8	94.6	0.80	6.0	0.28%
St. Petersburg	94.5	92.9	1.02	5.5	0.46%
Walsingham	75.3	102.8	0.73	6.6	0.36%
North Central	**85.2**	**101.5**	**0.84**	**3.1**	**0.42%**
Apopka	85.3	101.7	0.84	6.8	0.34%
Deland	108.8	98.3	1.11	2.7	1.27%
Jamestown	64.1	91.9	0.70	0.2	0.11%
Longwood	95.3	118.0	0.81	3.8	0.21%
South Central	**70.4**	**76.7**	**0.92**	**5.7**	**1.17%**
Buena Vista	40.9	75.2	0.54	4.2	0.00%
Clermont	62.3	98.3	0.63	3.8	0.00%
SE Orlando	78.3	77.3	1.01	9.1	5.34%
Highlands	96.6	70.4	1.37	7.7	1.43%
Lake Wales	64.7	69.4	0.93	1.9	0.32%
Winter Garden	100.5	84.6	1.19	8.7	1.43%
SYSTEM	**87.9**	**93.5**	**0.94**	**5.4**	**1.06%**

FEEDER SPECIFIC DATA – Expanded to include OH/UG details

Provide the following information for each feeder circuit in service during 2020. If any data is not available, explain whether the Company has any plans to begin tracking such data and if not, why.

For (A) thru (Y) – See Attachment G – a CD containing Excel File – "2020 Feeder Specific Data."

For (Z) – See Attachment G – "2020 Summer Feeder Peaks."

(A) Feeder ID	*See Attachment G*
(B) Sub-Region in which the feeder is located	*See Attachment G*
(C) Number of overhead lateral lines	*See Attachment G*
(D) Number of overhead lateral miles	*See Attachment G*
(E) Number of Customers served on OH lateral lines	*See Attachment G*
(F) CMI for overhead lateral lines	*See Attachment G*
(G) CI for overhead lateral lines	*See Attachment G*
(H) Number of underground lateral lines	*See Attachment G*
(I) Number of underground lateral miles	*See Attachment G*
(J) Number of customers served on UG lateral lines	*See Attachment G*
(K) CMI for underground lateral lines	*See Attachment G*
(L) CI for underground lateral lines	*See Attachment G*
(M) Number of automatic line sectionalizing devices on the lateral lines	*See Attachment G*
(N) Number of automatic line sectionalizing devices on the feeder	*See Attachment G*
(O) Whether the feeder circuit is looped	*See Attachment G*
(P) Total length of the feeder circuit	*See Attachment G*
(Q) Length of underground portion of the feeder circuit	*See Attachment G*
(R) Number of customers served by underground feeders	*See Attachment G*
(S) CMI for underground feeders	*See Attachment G*
(T) CI for underground feeders	*See Attachment G*
(U) Length of overhead portion of the feeder circuit	*See Attachment G*
(V) Number of customers served by overhead feeders	*See Attachment G*
(W) CMI for overhead feeders	*See Attachment G*
(X) CI for overhead feeders	*See Attachment G*
(Y) Load growth since December 31, 2009	*See Attachment G*
(Z) Peak load recorded through December 31, 2009	*See Attachment G*
(AA) Vegetation Management-number of overhead lateral lines-miles	*See Attachment G*

DISTRIBUTION SUBSTATION (Rule 25-6.0455, F.A.C.)

a. Describe the five-year patterns/trends in reliability performance of distribution substations.

The five-year patterns/trends in reliability performance of distribution substations is best described by the performance indices. These indices are used for calculating system reliability:

- SAIDI – System Average Interruption Duration Index (minutes/customer). SAIDI reflects the average number of minutes a customer was without power system-wide. It is determined by dividing the sum of customer-minutes of interruption by the average number of customers served during a period.

- CAIDI – Customer Average Interruption Duration Index (minutes/customer). CAIDI is the average customer-minutes of interruption per customer interruption. It approximates the average length of time required to complete service restoration. It is determined by dividing the sum of all customer-minutes of interruption durations by the number of customer interruptions during a period. CAIDI measures how long it takes DEF to restore service after an interruption.

- SAIFI – System Average Interruption Frequency Index. SAIFI is the average number of interruptions per customer per a certain period. It is determined by dividing the total number of customer interruptions by the average number of customers served during a period.

- OHMY – Outages per Hundred Miles per Year. OHMY measures the number of forced transmission line events, momentary AND sustained, that are incurred per hundred circuit miles per year. This measure is often grouped by voltage class.

The following charts will show the trending for these Reliability Indices:

Section	Grid SAIDI	SECI SAIDI	Retail SAIDI
North	1.88	7.01	2.0
Central	1.31	0.08	1.4
Coastal	3.01	0.59	3.1
Florida	6.1	7.68	6.6

Table 1: 2020 DEF SAIDI Reliability Indices

In 2020, Grid SAIDI decreased from 2019 and SECI (Seminole Electric Cooperatives, Inc.). SAIDI also decreased from 2019. SECI represents its electric cooperative members in Florida.

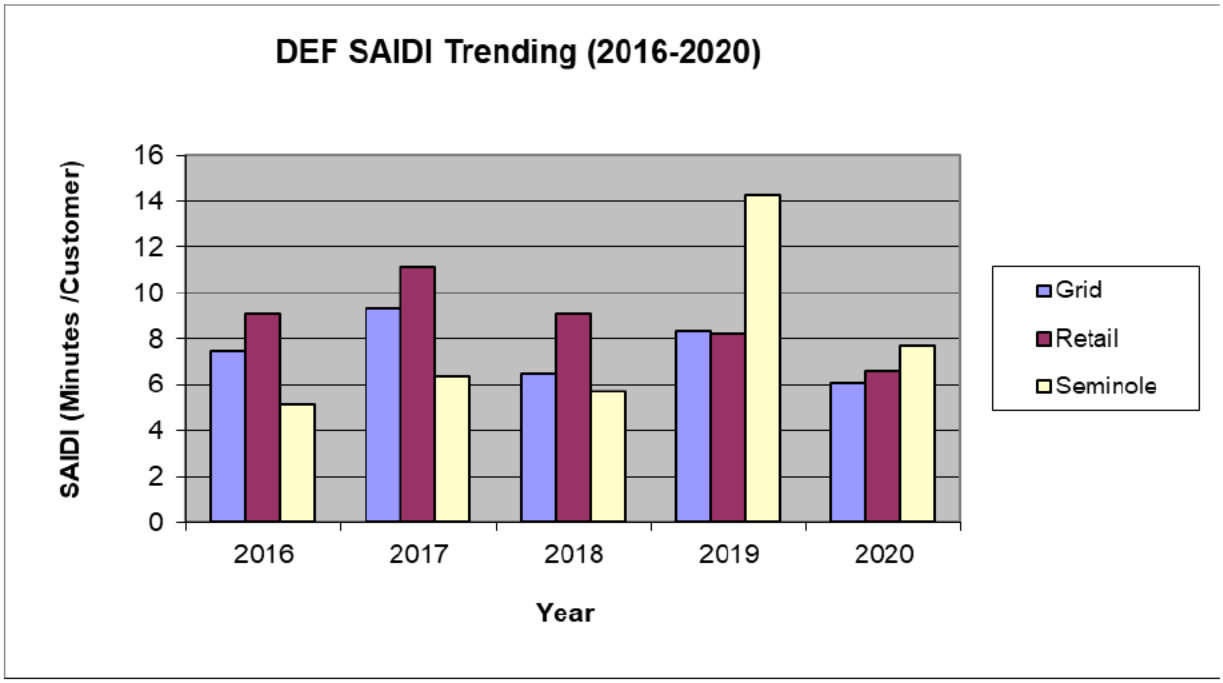


Fig.1: DEF SAIDI Trending (2016 - 2020)

Grid KPIs	2016	2017	2018	2019	2020
Customers (Thousands)	445.65	533.33	440.34	429.79	432.19
CMI (Millions)	18.9	21.7	20.85	25.04	17.83
SAIDI	8.18	9.3	6.5	8.3	6.1
CAIDI	39.68	40.69	43.33	58.26	41.39
SAIFI	0.21	0.22	0.19	0.14	0.15
FSO	N/A	N/A	N/A	N/A	N/A
FOHMY	9.07	9.75	9.92	8.12	8.74

Table 2: DEF Statistics (2016 - 2020)

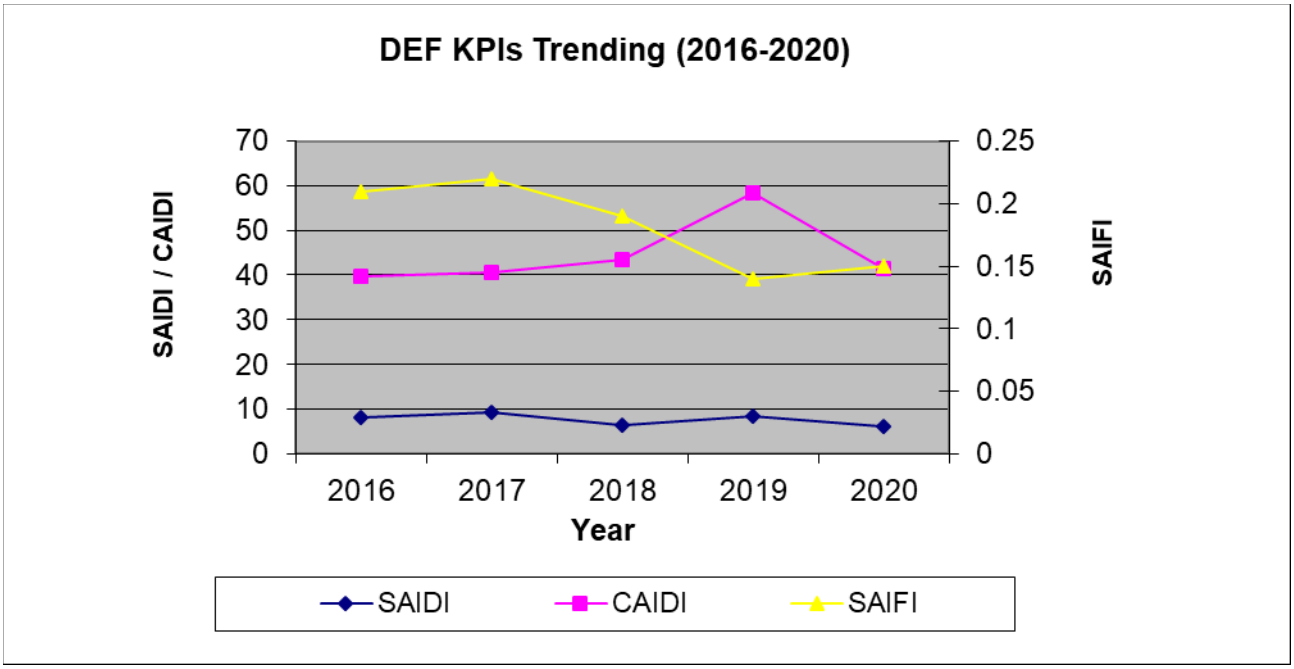


Fig.2: DEF Key Performance Indicators Trending (2016 - 2020)

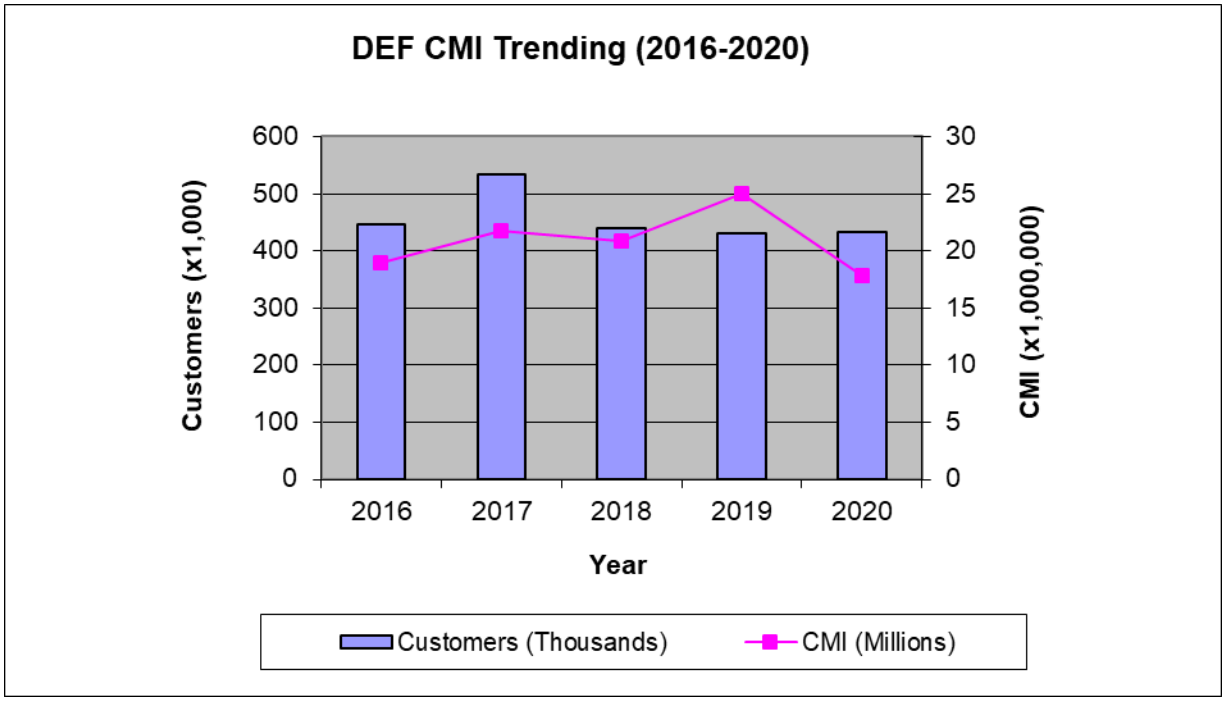


Fig.3: DEF Customers Minute Interruption Trending (2016 - 2020)

DEF CMI Per Month (2016 - 2020)

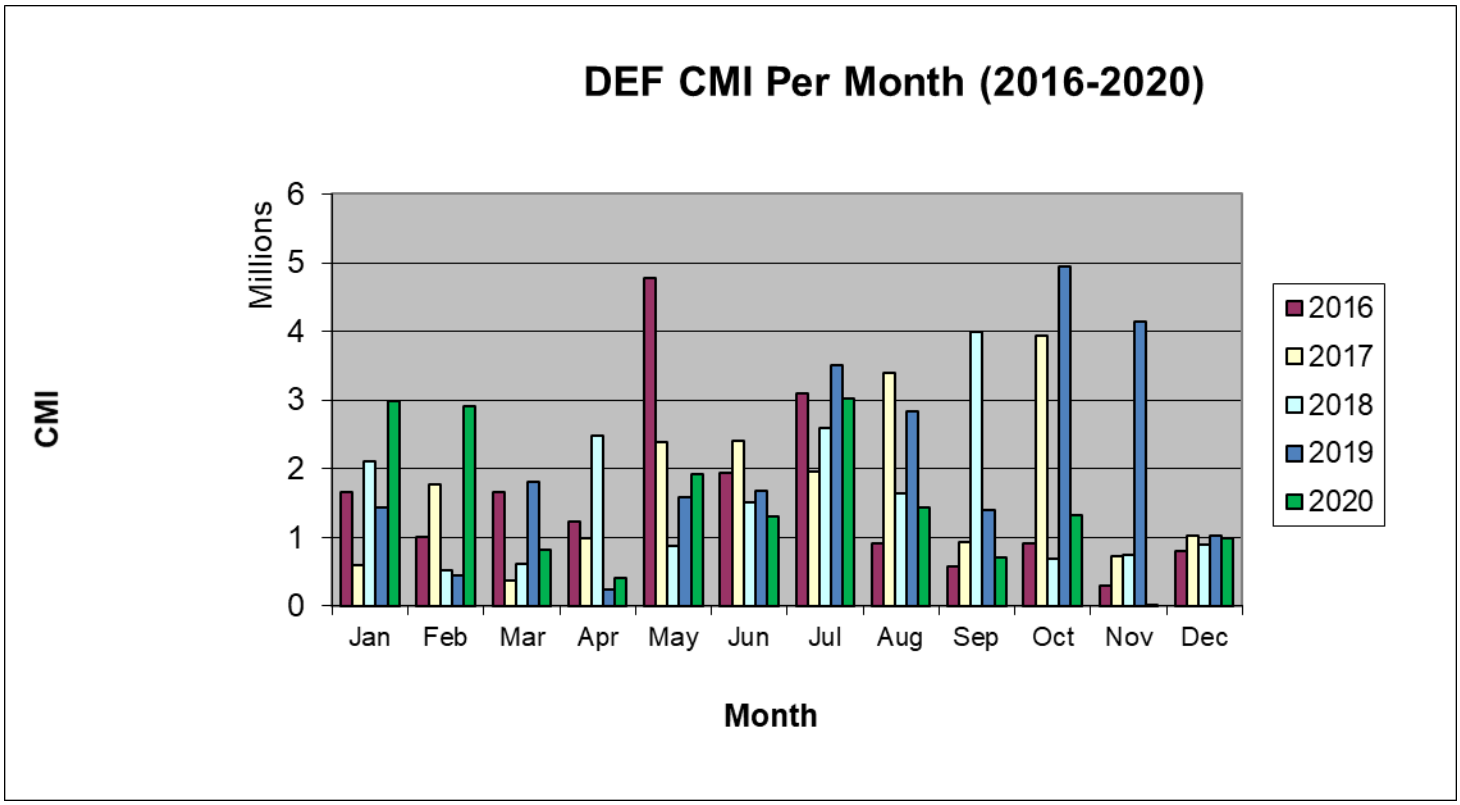


Fig.4: DEF CMI per month (2016 - 2020)

a. Describe Company efforts to track the reliability of distribution substations.

DEF's in-house database, Transmission Outage Management System (TOMS), is used to keep track and record all the events that occur every day. It maintains all the indices mentioned above.

b. Describe the process used by your Company to identify and select the actions to promote substation reliability.

To identify and promote substation reliability, DEF uses different methods, such as monthly substation inspections, predictive and preventive maintenance, infra-red analysis and numerous diagnostics tests. Once a problem is identified, DEF's work management tool is used to track the efforts to correct it.

c. Provide the number of distribution substations inspected during normal operations (non-storm related) for 2007 through 2020.

DEF has inspected each of its current 513 substations.

SUPPLEMENTAL DISTRIBUTION INFORMATION

The next six pages contain the following information:

DUKE ENERGY.

2020

	Unadjusted Data		Adjusted Data	
	CMI	**CI**	**CMI**	**CI**
NORTH CENTRAL	**45,584,898**	**493,212**	**36,630,654**	**360,827**
APOPKA	10,056,057	106,056	9,044,285	88,903
DELAND	14,171,930	127,568	9,500,363	96,641
JAMESTOWN	10,853,264	156,451	9,175,408	99,796
LONGWOOD	10,503,647	103,137	8,910,598	75,487
NORTH COASTAL	**68,348,210**	**690,409**	**52,174,280**	**512,093**
INVERNESS	17,175,598	139,245	13,268,035	107,506
MONTICELLO	13,989,823	135,260	12,765,020	108,998
OCALA	15,336,855	159,228	13,526,398	133,548
SEVEN SPRINGS	19,981,989	223,917	11,590,163	143,173
ZEPHYRHILLS	1,863,945	32,759	1,024,664	18,868
SOUTH CENTRAL	**44,024,959**	**659,807**	**37,493,015**	**489,051**
BUENA VISTA	5,930,916	82,064	5,340,294	70,968
CLERMONT	2,886,008	40,695	2,429,259	24,720
HIGHLANDS	9,004,835	123,852	7,627,718	98,641
LAKE WALES	6,524,094	102,546	5,557,430	78,912
SE ORLANDO	9,559,059	164,247	7,885,107	113,566
WINTER GARDEN	10,120,047	146,403	8,653,207	102,244
SOUTH COASTAL	**78,929,634**	**779,216**	**40,558,796**	**422,014**
CLEARWATER	22,606,989	234,461	11,346,732	119,882
ST. PETERSBURG	28,087,406	306,840	17,333,464	186,553
WALSINGHAM	28,235,239	237,915	11,878,600	115,579
Grand Total	**236,887,701**	**2,622,644**	**166,856,745**	**1,783,985**

CEMI5 Unadjusted Report - 2020

INTERRUPTIONS:	1	2	3	4	5	6	7	8	9	10 +	Cust >5	CEMI >5
NORTH CENTRAL												
Apopka	31,419	13,986	4,608	2,544	713	355	130	47	28	15	575	**0.54%**
Deland	22,415	13,146	7,282	2,952	1,986	887	335	112	46	168	1548	**1.77%**
Jamestown	36,884	25,410	9,038	1,742	333	57	70	13	14	2	156	**0.11%**
Longwood	28,673	12,594	6,386	2,854	375	149	71	1	5		226	**0.24%**
NORTH CENTRAL	**119,391**	**65,136**	**27,314**	**10,092**	**3,407**	**1,448**	**606**	**173**	**93**	**185**	2,505	**0.58%**
NORTH COASTAL												
Inverness	21,566	12,447	5,076	3,676	2,810	1,075	1,101	528	533	824	4,061	**5.14%**
Monticello	15,321	9,032	6,731	4,517	2,494	1,835	862	363	370	216	3,646	**6.41%**
Ocala	26,658	12,865	6,069	4,281	1,568	773	630	360	768	1,851	4,382	**5.33%**
Seven Springs	78,518	34,667	7,354	1,495	247	101		16			117	**0.06%**
Zephyrhills	17,195	5,192	799	323	39						0	**0.00%**
NORTH COASTAL	**159,258**	**74,203**	**26,029**	**14,292**	**7,158**	**3,784**	**2,593**	**1,267**	**1,671**	**2,891**	12,206	**2.74%**
SOUTH CENTRAL												
Buena Vista	30,127	10,986	4,421	826	154						0	**0.00%**
Clermont	13,910	6,435	2,474	506	196	58	1				59	**0.15%**
Highlands	16,306	9,570	3,570	1,354	1,089	487	341	1,013	960	265	3,066	**5.33%**
Lake Wales	40,487	15,320	6,323	3,170	1,982	1,651	729	466	78	76	3,000	**2.66%**
SE Orlando	27,561	12,610	10,585	3,730	1,586	295	73	33	16	24	441	**0.45%**
Winter Garden	22,141	17,373	7,409	4,643	2,836	1,115	505	138	37		1795	**2.08%**
SOUTH CENTRAL	**150,532**	**72,294**	**34,782**	**14,229**	**7,843**	**3,606**	**1,649**	**1,650**	**1,091**	**365**	8,361	**1.57%**
SOUTH COASTAL												
Clearwater	45,450	27,365	9,483	5,328	2,533	759	84	97	28	18	986	**0.66%**
St. Petersburg	61,734	34,283	17,753	7,285	3,252	3,117	891	247	203	22	4,480	**2.44%**
Walsingham	57,236	29,404	13,151	5,807	1,850	369	139	210	60	96	874	**0.55%**
SOUTH COASTAL	**164,420**	**91,052**	**40,387**	**18,420**	**7,635**	**4,245**	**1,114**	**554**	**291**	**136**	6,340	**1.29%**
System	593,601	302,685	128,512	57,033	26,043	13,083	5,962	3,644	3,146	3,577	29,412	1.55%

CEMI5 Adjusted Report - 2020

INTERRUPTIONS:		1	2	3	4	5	6	7	8	9	10 +	Cust >5	CEMI >5
NORTH CENTRAL													
	Apopka	31,074	12,929	4,684	2,289	884	186	81	47	28	15	357	**0.34%**
	Deland	22,362	13,413	5,564	2,839	1,773	611	248	111	100	40	1,110	**1.27%**
	Jamestown	30,799	18,586	6,921	1,498	331	57	70	13	14	2	156	**0.11%**
	Longwood	28,687	13,098	3,683	1,235	285	140	49	1	5		195	**0.21%**
	NORTH CENTRAL	**112,922**	**58,026**	**20,852**	**7,861**	**3,273**	**994**	**448**	**172**	**147**	**57**	1,818	**0.42%**
NORTH COASTAL													
	Inverness	18,957	10,824	4,821	4,383	1,535	1,147	740	557	581	227	3,252	**4.12%**
	Monticello	15,199	8,999	6,973	4,365	2,484	1,432	785	416	260	192	3,085	**5.42%**
	Ocala	24,786	12,802	5,844	4,085	1,763	628	535	859	303	1,630	3,955	**4.81%**
	Seven Springs	66,847	25,168	5,557	1,190	241	38	16				54	**0.03%**
	Zephyrhills	14,145	1,452	464	22							-	**0.00%**
	NORTH COASTAL	**139,934**	**59,245**	**23,659**	**14,045**	**6,023**	**3,245**	**2,076**	**1,832**	**1,144**	**2,049**	10,346	**2.32%**
SOUTH CENTRAL													
	Buena Vista	29,366	10,992	4,650	645	77						-	**0.00%**
	Clermont	13,639	3,084	867	186	12		1				1	**0.00%**
	Highlands	15,968	9,285	3,568	1,173	1,083	1,032	1,198	719	100	24	3,073	**5.34%**
	Lake Wales	33,709	13,618	5,938	3,193	1,573	642	498	410	10	52	1,612	**1.43%**
	SE Orlando	25,665	13,706	8,519	2,948	606	177	84	14	20	16	311	**0.32%**
	Winter Garden	28,344	13,282	5,633	2,134	2,276	593	483	120	37		1,233	**1.43%**
	SOUTH CENTRAL	**146,691**	**63,967**	**29,175**	**10,279**	**5,627**	**2,444**	**2,264**	**1,263**	**167**	**92**	6,230	**1.17%**
SOUTH COASTAL													
	Clearwater	44,545	17,407	6,162	2,312	506	261	101	33	14	4	413	**0.28%**
	St. Petersburg	54,959	24,963	12,611	5,957	1,310	552	135	118	35	1	841	**0.46%**
	Walsingham	48,745	17,137	5,548	1,578	229	242	209	30	21	74	576	**0.36%**
	SOUTH COASTAL	**148,249**	**59,507**	**24,321**	**9,847**	**2,045**	**1,055**	**445**	**181**	**70**	**79**	1,830	**0.37%**
	System	**547,796**	**240,745**	**98,007**	**42,032**	**16,968**	**7,738**	**5,233**	**3,448**	**1,528**	**2,277**	**20,224**	**1.06%**

MAIFIe - Unadjusted (01/01/2020 - 12/31/2020)

	Customers Served	# momentary events	CME	MAIFIe
NORTH CENTRAL				
Apopka	106,060	583	727,141	**6.9**
Deland	87,383	176	250,393	**2.9**
Jamestown	143,090	32	33,184	**0.2**
Longwood	93,474	274	351,449	**3.8**
NORTH CENTRAL	**430,007**	**1,065**	**1,362,167**	**3.2**
NORTH COASTAL				
Inverness	78,986	438	578,622	**7.3**
Monticello	56,898	414	366,139	**6.4**
Ocala	82,189	439	560,706	**6.8**
Seven Springs	199,724	613	1,271,762	**6.4**
Zephyrhills	27,702	64	154,913	**5.6**
NORTH COASTAL	**445,499**	**1,968**	**2,932,142**	**6.6**
SOUTH CENTRAL				
Buena Vista	139,580	512	583,483	**4.2**
Clermont	39,009	109	147,394	**3.8**
Highlands	57,541	409	525,897	**9.1**
Lake Wales	112,855	593	871,426	**7.7**
SE Orlando	97,479	144	182,092	**1.9**
Winter Garden	86,140	483	746,348	**8.7**
SOUTH CENTRAL	**532,604**	**2,250**	**3,056,640**	**5.7**
SOUTH COASTAL				
Clearwater	149,668	482	982,151	**6.6**
St. Petersburg	183,527	554	1,056,835	**5.8**
Walsingham	157,817	640	1,086,684	**6.9**
SOUTH COASTAL	**491,012**	**1,676**	**3,125,670**	**6.4**
System	**1,899,122**	**6,959**	**10,476,619**	**5.5**

MAIFIe - Adjusted (01/01/2020 - 12/31/2020)

	Customers Served	# momentary events	CME	MAIFIe
NORTH CENTRAL				
Apopka	106,060	582	725,392	**6.8**
Deland	87,383	168	237,392	**2.7**
Jamestown	143,090	32	33,184	**0.2**
Longwood	93,474	274	351,449	**3.8**
NORTH CENTRAL	**430,007**	**1,056**	**1,347,417**	**3.1**
NORTH COASTAL				
Inverness	78,986	430	566,513	**7.2**
Monticello	56,898	414	366,139	**6.4**
Ocala	82,189	431	548,699	**6.7**
Seven Springs	199,724	581	1,208,340	**6.1**
Zephyrhills	27,702	60	144,633	**5.2**
NORTH COASTAL	**445,499**	**1,916**	**2,834,324**	**6.4**
SOUTH CENTRAL				
Buena Vista	139,580	512	583,483	**4.2**
Clermont	39,009	109	147,394	**3.8**
Highlands	57,541	409	525,897	**9.1**
Lake Wales	112,855	593	871,426	**7.7**
SE Orlando	97,479	144	182,092	**1.9**
Winter Garden	86,140	483	746,348	**8.7**
SOUTH CENTRAL	**532,604**	**2,250**	**3,056,640**	**5.7**
SOUTH COASTAL				
Clearwater	149,668	443	897,637	**6.0**
St. Petersburg	183,527	528	1,005,648	**5.5**
Walsingham	157,817	620	1,040,671	**6.6**
SOUTH COASTAL	**491,012**	**1,591**	**2,943,956**	**6.0**
System	**1,899,122**	**6,813**	**10,182,337**	**5.4**

DUKE ENERGY.

SYSTEM RELIABILITY INDICES – ABSENT ADJUSTMENTS
Utility Name: Duke Energy Florida

2020		
Region	Operation Center	SAIDI
NORTH COASTAL		**153.5**
	Inverness	217.5
	Monticello	245.9
	Ocala	186.6
	Seven Springs	100.1
	Zephyrhills	67.3
SOUTH COASTAL		**160.8**
	Clearwater	151.0
	St. Petersburg	153.1
	Walsingham	178.9
NORTH CENTRAL		**106.0**
	Apopka	94.9
	Deland	162.2
	Jamestown	75.9
	Longwood	112.4
SOUTH CENTRAL		**82.7**
	Buena Vista	45.5
	Clermont	74.1
	Highlands	113.4
	Lake Wales	78.5
	SE Orlando	92.4
	Winter Garden	117.5
SYSTEM		**124.8**

Note: SAIDI indices are the contribution to the system level.

DUKE ENERGY.

SYSTEM RELIABILITY INDICES – ADJUSTED
Utility Name: Duke Energy Florida

2020		
Region	Operation Center	SAIDI
NORTH COASTAL		**117.2**
	Inverness	168.0
	Monticello	224.4
	Ocala	164.6
	Seven Springs	58.1
	Zephyrhills	37.0
SOUTH COASTAL		**82.6**
	Clearwater	75.8
	St. Petersburg	94.5
	Walsingham	75.3
NORTH CENTRAL		**85.2**
	Apopka	85.3
	Deland	108.8
	Jamestown	64.1
	Longwood	95.3
SOUTH CENTRAL		**70.4**
	Buena Vista	40.9
	Clermont	62.3
	Highlands	96.6
	Lake Wales	64.7
	SE Orlando	78.3
	Winter Garden	100.5
SYSTEM		**87.9**

Note: SAIDI indices are the contribution to the system level.

RELIABILITY-RELATED CUSTOMER COMPLAINTS

Please see Attachment H – "2020 Reliability Report" for DEF's spreadsheet comparing DEF vs. PSC 2020 reliability-related complaints.

a. Describe the five-year patterns/trends in reliability related customer complaints.

DEF receives its customer complaints from the FPSC via a variety of methods (Formal Complaints, Courtesy Calls and Internet Transfers). The 5-year trend is shown below with DEF reliability-related complaint data:

		FPSC Formal (15 Day/Logged) Complaints			
Complaint Category		Year End Total			
	2016	2017	2018	2019	2020
Outages - Momentary	8	6	8	7	15
Outages - Frequent	39	35	77	47	35
Outages – Extended	2	23	10	13	7
Voltage	5	2	3	7	10
Equipment/Facilities	4	10	16	13	12
Tree Trimming	6	6	6	8	7
Safety	0	0	0	0	0
Total	64	82	120	95	86

b. Describe Company efforts to correlate reliability related complaints with reliability indices for applicable feeder, lateral and subregion.

Reliability complaints are typically driven by localized delivery system performance. The most effective remedy is surgical corrective action based on patrol/survey of a discrete segment in conjunction with analysis of outage cause(s) and duration. Corrective action scope is typically increased when appropriate to ensure maximum impact on established reliability indices such as SAIDI, MAIFIe, CEMI4, and CELID3.

c. Describe the process used by your company to identify and select systematic actions to improve reliability due to customer complaints (if no such program exists explain why).

Systematic corrective actions are prioritized based on expected improvement to established reliability indices such as SAIDI, MAIFIe, CEMI4, and CELID3. Reliability complaints are typically driven by localized delivery system performance. The most effective remedy is surgical corrective action based on patrol/survey of a discrete segment in conjunction with analysis of outage cause(s) and duration. Corrective actions are compared to the reliability work plan to ensure no unnecessary duplication of effort.

WOOD POLE INSPECTION PROGRAM

a. Provide a detailed description of the Company's wood pole inspection program.

DEF's wood pole inspection program's philosophy is to determine the condition of the wood pole plant and provide remediation for any wood poles that are showing signs of decay or fall below the minimum strength requirements outlined by NESC standards.

DEF is utilizing the expertise of Osmose Utilities Services, Inc. for distribution and Quanta Utility Engineering Services (QUES) for transmission to perform the inspections on an eight-year cycle. Inspections include visual inspection, sound and boring and full excavation down to 18 inches below ground line to determine the condition of all poles except for CCA poles less than 16 years of age and poles that cannot be excavated due to obstructions. For CCA poles less than 16 years of age, inspections include visual and sound as well as selective boring to determine the pole condition. In addition, inspections are providing remediation of decayed poles through external and internal treatments. In distribution, if the pole is below NESC standards and has the minimum remaining wood above ground line, reinforcement of the pole with steel C-trusses is often performed to bring the pole back to original strength.

For additional information, please see Attachment K – "Transmission – Wood Pole Inspection - TECP-MIM-TRM-00118-Rev.001."

b. 2020 accomplishments

Distribution

DEF inspected 86,357 wood distribution poles during 2020. This completes 6 years and 8 months of the second 8-year inspection cycle. In addition to the inspections, GPS coordinates and physical attributes were updated and/or verified and inspection results were collected in a central database on all poles inspected.

The distribution wood pole inspection program is planned to complete approximately 1/8 of the distribution pole fleet per year. In cycle 1, the route of the inspections was performed to inspect the coastal poles first, moving inland as the program proceeded. Cycle 2 is being conducted in a manner that provides a more even distribution of work to DEF's engineering and line resources.

Transmission

In 2020, DEF's Transmission Ground Patrols / Sound & Bore inspected 3,371 wood pole structures. This represents approximately 18.6% of the wood pole structures on the DEF Transmission system. For the summary report of the inspection data – See Attachment Attachment L – "DEF's 2020 Annual Wood Pole Inspection Report" filed with the FPSC on March 1, 2021. For a full report of inspection data – See Attachment M – a CD containing Excel file - "2020 Florida Pole Inspection Data."

c. Projected accomplishments for 2021

Distribution

DEF's goal for 2021 is to continue cycle two inspections of the system. DEF will continue to utilize the same inspection procedures in 2021 that were used in the past. Projected cost for the 2021 distribution pole inspection program is $6.3m.

Transmission

Plans for 2021 are to perform visual and sounding inspections on 1/4 of the wood pole system and sound and bore inspections on at least 1/8 of the wood pole system. DEF Transmission plans to inspect at least 1/6 of our non-wood system. All three inspections wood - visuals and sound & bore, and non-wood visual inspections, are performed by a contractor. The entire transmission system will also be aerially patrolled twice via helicopter in 2021.

d. Wood pole inspection reports.

Each wood pole inspection report contains the following:

- A description of the methods used for structural analysis and pole inspection,
- A description of the selection criteria that was used to determine which poles would be inspected, and
- A summary report of the inspection data.

Distribution

Please see Attachment L – "DEF's 2020 Annual Wood Pole Inspection Report" filed with the FPSC on March 1, 2021.

For a description of the methods used for structural analysis and pole inspection – please refer to Attachment K – "Wood Pole Inspection Plan," pages 6 - 8.

For the full report of the inspection data - See Attachment M – a CD containing Excel file – "2020 DEF Distribution Pole Inspection Data."

Transmission

Please see Attachment L – "DEF's 2020 Annual Wood Pole Inspection Report" filed with the FPSC on March 1, 2021.

For a description of the methods used for structural analysis and pole inspection – please refer to Attachment K – "Wood Pole Inspection Plan."

For the full report of the inspection data – See Attachment M – a CD containing Excel file – "2020 Florida Pole Inspection Data."

CCA Pole Sampling Report

Pursuant to Order No. PSC-08-0615-PAA-EI issued September 23, 2008 in Docket No. 080219-EI, the FPSC approved modification to the sounding and boring excavation requirements of Order No. 06-0144-PAA-EI with regard to CCA wood poles less than 16 years old. On Pages 3 and 4 of Order No. PSC-08-0615-PAA-EI, it states,

> *"ORDERED that, consistent with the deviation granted to Gulf Power Company in Order No. PSC-07-0078-PAA-EU, Progress Energy Florida, Inc., Florida Power & Light Company, and Tampa Electric Company shall be required to sound and selectively bore all CCA poles under the age of 16 years, but shall not be required to perform full excavation on these poles. It is further*
>
> *ORDERED that Progress Energy Florida, Inc., Florida Power & Light Company, and Tampa Electric Company shall also be required to perform full excavation sampling to validate their inspection method. It is further*
>
> *ORDERED that the results of the utilities' sampling shall be filed in their annual distribution reliability reports."*

2020 CCA Pole Sampling Results

Please see Attachment L – "DEF's 2020 Annual Wood Pole Inspection Report" filed with the FPSC on March 1, 2021. The "CCA Sampling Results for 2020" is included in DEF's Wood Pole Inspection Report as "Attachment B."

Reliability Report Attachment Index

Attachment A

OUTAGE_ID	LOCATION	OUTAGE_START_TIME	INITIATINGCAUSE	SUSTAINEDCAUSE	RETAIL_CMI	GRID_CMI
74,712	North Bartow (NBTW) - West Lake Wales (WLWL) 69kV Line	01/01/2020 18:13:27	Line Equipment - Crossarm	Line Equipment - Crossarm	0	33
74,744	Fort Meade (FTMD) - Homeland (HMLD) 69kV Line	01/07/2020 21:28:21	Line Equipment - Splice/Joint (Line Conductor)	Line Equipment - Conductor (Line)	328	399
74,831	LOCKHART	01/01/2020 09 07:38	Animal - Squirrel	Breaker Equipment - Failed to Reclose	104,509	104,509
74,877	Horse Creek (HORS) - Horse Creek 2 (HOR2) 69kV Line	01/24/2020 00 56:23	(Non-Duke)	Other - No Reclose by Design or Policy	0	226
74,986	Holopaw (HOLO) - West Lake Wales (WLWL) 230kV Line	02/07/2020 05 00:12	Line Equipment - Insulator (Line, Porcelain)	Line Equipment - Insulator (Line, Porcelain)	6,824	6,824
75,166	Crystal River East (CREA) - Crystal River South (CRSO) 115kV Line	02/26/2020 18:31:15	Line Equipment - Structure (Wood)	Line Equipment - Structure (Wood)	129,150	219,150
75,358	HEMPLE	03/16/2020 17:27:31	Human Error - Design Problem (Power Delivery)	Human Error - Design Problem (Power Delivery)	486,628	486,628
75,684	NORTHRIDGE	04/07/2020 19:25:43	Transformer Equipment - Physical Connection (Clamp, etc.)	Transformer Equipment - Physical Connection (Clamp, etc.)	39,839	39,839
75,078	Occidental Swift Creek #1 (OSC1) - Occidental Metering (OXYM) 115kV Line	02/20/2020 23:32:31	Animal - Bird Nest	Animal - Bird Nest	28,026	28,066
75,096	Lake Weir (LWER) - (CEC) Lynn (LYNN) 69kV Line	02/22/2020 04 08:48	Line Equipment - Conductor (Line)	Line Equipment - Conductor (Line)	0	2,023,053
74,807	WALSINGHAM*	01/11/2020 07:45:00	Animal - Squirrel	Animal - Squirrel	312,288	312,288
74,812	Ulmerton (ULMR) BK4	01/07/2020 10 05:09	Relay and Control Systems - Relay Failure/Misoperation	Relay and Control Systems - Relay Failure/Misoperation	1,970,956	1,970,956
74,829	UCF	01/16/2020 02:28:25	Animal - Raccoon	Animal - Raccoon	209,243	209,243
74,844	BONNET CREEK	01/17/2020 07 56:16	Unknown - Unknown, after Patrol	Breaker Equipment - Failed to Reclose	12,456	12,456
74,911	CYPRESSWOOD	01/29/2020 17:16:26	Unknown - Unknown, after Patrol	Breaker Equipment - Physical Connection/Hardware (Breaker)	41,125	41,125
74,916	GE Pinellas (GEPN) - Largo (LRGO) 69kV Line	02/03/2020 16:15:56	CCVT, etc.)	CCPD, CCVT, etc.)	389,488	389,488
74,757	NORTHEAST*	01/07/2020 10:19:00	Relay and Control Systems - Relay Failure/Misoperation	Relay and Control Systems - Relay Failure/Misoperation	1,311	1,311
74,932	CURRY FORD	01/26/2020 18:26:57	Unknown - Unknown	Breaker Equipment - Failed to Reclose	37,356	37,356
75,150	LURAVILLE*	02/24/2020 05 02:48	O&M (Planned or Scheduled) - Operating Switching	O&M (Planned or Scheduled) - Operating Switching	1,370	1,370
75,292	SPRING LAKE	03/09/2020 17:10:57	Switch Equipment/Malfunction - Disconnect	Switch Equipment/Malfunction - Disconnect	327,860	327,860
74,793	Havana (HVNA) - (TEC) Hinson (HIN8) 69kV Line	01/11/2020 10:30:36	Weather/Environment - Rain (Includes Fog,Mist,Drizzle)	Vegetation - Tree Falling from Outside ROW	0	285,998
75,618	DELAND*	04/01/2020 00 02:32	Breaker Equipment - Operating Mechanism	Breaker Equipment - Operating Mechanism	1,209	1,209
75,144	ORANGE CITY*	01/04/2020 11:31:36	Weather/Environment - Tornado/Twister	Human Error - Incorrect Relay Setting	14,465	14,465
75,296	FISHEATING CREEK	02/12/2020 12:35:37	Transformer Equipment - Tap Changer (Manual)	Transformer Equipment - Tap Changer (Manual)	53,506	53,506
75,318	BROOKSVILLE	02/29/2020 10:17:38	Breaker Equipment - Operating Mechanism	Breaker Equipment - Operating Mechanism	153,524	153,524
75,622	BROOKSVILLE	04/04/2020 08 01:00	Breaker Equipment - Operating Mechanism	Breaker Equipment - Operating Mechanism	154,160	154,160
76,028	Avon Park (AVPK) - South Polk (SOPK) 230kV Line	04/13/2020 19:36:58	Line Equipment - Insulator (Line, Porcelain)	Line Equipment - Insulator (Line, Porcelain)	0	61
76,924	New River (NWRV) - (TECO) Handcart (HCRT) 69kV Line	05/28/2020 16 08:55	Weather/Environment - Wind	Line Equipment - Structure (Wood)	0	298,225
76,926	Clermont East (CMTE) - Lake Louisa (LLOU) 69kV Line	05/28/2020 15:48:47	Lightning - Lightning,Correlated in lightning detection systm)	Relay and Control Systems - Reclosing blocked during active work	0	27,846
79,134	MARLEY ROAD	07/29/2020 09:28:04	O&M (Planned or Scheduled) - Preventive Maintenance Activity	Transformer Equipment - Under Investigation (Transformer?)		2,310
76,218	DUNDEE*	04/18/2020 12:32:02	Public Interference - Vehicle	Public Interference - Vehicle	145,119	145,119
77,168	Meadow Woods South (MDWS) - Taft (TAFT) 69kV Line	06/07/2020 18:20:47	Lightning - Lightning,Correlated in lightning detection systm)	Line Equipment - Static Wire (OHGW)	277,507	277,507
78,200	ARBUCKLE CREEK	07/01/2020 18:43:41	O&M (Planned or Scheduled) - Preventive Maintenance Activity	Relay and Control Systems - Relay Failure/Misoperation	2,173	2,173
79,412	Inglis Mining (IGLM) BK1	08/17/2020 07:24:00	Animal - Squirrel	Animal - Squirrel		390
80,030	DISSTON*	09/16/2020 09:39:00	Human Error - Construction (PD Contractor)	Breaker Equipment - Under Investigation (Breaker)	315,336	315,336
80,222	BELLEAIR*	07/24/2020 19:22:00	Vegetation - Tree/Tree Limbs Touching or Falling	Breaker Equipment - Close Coil	148,054	148,054
80,566	Lake Weir (LWER) - (CEC) Lynn (LYNN) 69kV Line	10/22/2020 17 51:24	Line Equipment - Static Wire (OHGW)	-	0	350,941
81,224	Brookridge (BKRG) - Twin County Ranch (TWCO) 115kV Line	11/22/2020 21:47:54	Public Interference - Vehicle	Public Interference - Vehicle	0	3,731
81,530	Whidden Creek 1 (WDC1) BK2	12/19/2020 07:17:21	Unknown - Under Investigation (Unknown)	Other - No Reclose by Design or Policy		127
77,658	MONTVERDE	06/05/2020 16 05:21	Breaker Equipment - Insulating/Interrupting Medium	Breaker Equipment - Insulating/Interrupting Medium	25,212	25,212
78,454	Ginnie (GINI) - Trenton (TNTN) 69kV Line	07/21/2020 16:25:11	Vegetation - Tree Falling from Outside ROW	Line Equipment - Conductor (Line)	0	138,450
78,676	PINECASTLE*	07/27/2020 16:26:43	Lightning - Lightning,Correlated in lightning detection systm)	Breaker Equipment - Bushing Potential Device	92,696	92,696
79,766	SKY LAKE*	08/27/2020 06:39:29	Transformer Equipment - Cooling Equipment (Transformer)	Transformer Equipment - Cooling Equipment (Transformer)	51,224	51,224
78,774	Occidental Swift Creek #1 (OSC1) - Occidental Metering (OXYM) 115kV Line	07/30/2020 17:34:30	Vegetation - Tree Falling from Outside ROW	Line Equipment - Conductor (Line)	98,166	98,770
78,024	CRYSTAL RIVER S*	06/19/2020 11:20:41	Crane)	Crane)	50,404	50,404
79,634	Fort White (FWHT) - Jasper South (JASS) 69kV Line	08/25/2020 08 58:13	Vegetation - Tree Falling from Outside ROW	Line Equipment - Conductor (Line)	0	18,926
76,470	MAXIMO*	05/10/2020 19:34:16	Animal - Bird Nest	Animal - Bird Nest	265,710	265,710
78,924	BELLEAIR*	08/01/2020 19:22:24	Vegetation - Tree/Tree Limbs Touching or Falling	Breaker Equipment - Close Coil	78,375	78,375
79,102	Casselberry (CSBY) - Lake Aloma (LALO) 69kV Line	08/09/2020 18 08:54	Lightning - Lightning,Correlated in lightning detection systm)	-	2	2
80,848	Occidental Swift Creek 1 (OSC1) BK2	10/29/2020 11:30:48	Bus Equipment - Arrestor (Station Bus)	Bus Equipment - Arrestor (Station Bus)		55
76,564	New River (NWRV) - (TECO) Cabbage Hill (CABH) 69kV Line	05/18/2020 09 58:12	Line Equipment - Conductor (Line)	Line Equipment - Conductor (Line)	0	6,963
80,314	East Clearwater (ECLW) BK2 Load	10/04/2020 12:45:43	Transformer Equipment - Under Investigation (Transformer?)	Transformer Equipment - Under Investigation (Transformer?)	9,275	9,275
80,638	Occidental Swift Creek 1 (OSC1) BK3	10/24/2020 20:27:36	Transformer Equipment - Winding, Internal Elements	Transformer Equipment - Winding, Internal Elements		798
80,228	ZEPHYRHILLS*	08/09/2020 17 00:00	Weather/Environment - Wind	Breaker Equipment - Close Coil	98,640	98,640
77,868	RIO PINAR	06/24/2020 08:26:52	Miscellaneous - Distribution System Equipment	Breaker Equipment - Failed to Reclose	70,349	70,349
79,460	ZEPHYRHILLS*	08/16/2020 17:48:00	Animal - Bird Nest	Animal - Bird Nest	505,096	505,096
80,250	SANTOS	09/12/2020 13 56:00	Weather/Environment - Lightning Suspected, yet not correlated	-	23,103	23,103
78,098	Floral City (FLRC) - Inverness (INVS) 69kV Line	07/11/2020 12:23:49	Lightning - Lightning,Correlated in lightning detection systm)	Breaker Equipment - Trip Coil	0	9,060

78,300 NORTHEAST*	07/16/2020 18:10:00 Lightning - Lightning,Correlated in lightning detection systm)	Breaker Equipment - Insulating/Interrupting Medium	413,919	413,919
76,360 LAND O LAKES	05/03/2020 03:18:21 Relay and Control Systems - Reclosing blocked during active work	Relay and Control Systems - Reclosing blocked during active work	192,808	192,808
78,782 RIO PINAR	07/30/2020 19 00:21 Miscellaneous - Distribution System Equipment	Breaker Equipment - Physical Connection/Hardware (Breaker)	161,014	161,014
80,270 Horse Creek (HORS) - Horse Creek 2 (HOR2) 69kV Line	10/02/2020 07:39:52 Unknown - Unknown, after Patrol	Other - No Reclose by Design or Policy	0	240
77,138 Fort Meade (FTMD) - Sand Mountain (SMTN) 69kV Line	06/04/2020 22:16:49 Unknown - Unknown, after Patrol	Other - No Reclose by Design or Policy	12,413	12,413
80,118 CLERMONT*	08/27/2020 02 57:00 Transformer Equipment - TCUL	Transformer Equipment - TCUL	39,030	39,030
79,862 Frostproof (FSPF) - Lake Wales (LKWL) 69kV Line	09/06/2020 19 01:01 Weather/Environment - Lightning Suspected, yet not correlated	Line Equipment - Conductor (Line)	75,426	75,426
80,140 Horse Creek (HORS) - Horse Creek 2 (HOR2) 69kV Line	09/25/2020 06:14:10 Unknown - Unknown, after Patrol	Other - No Reclose by Design or Policy	0	2
81,394 TAYLOR AVENUE*	12/06/2020 08:42:00 Line Equipment - Conductor (Line)	Breaker Equipment - Under Investigation (Breaker)	315,128	315,128
78,420 EAST CLEARWATER*	07/18/2020 16:20:35 Weather/Environment - Rain (Includes Fog,Mist,Drizzle)	Breaker Equipment - Close Coil	224,637	224,637
76,582 BAYWAY	05/18/2020 10 51:48 Weather/Environment - Rain (Includes Fog,Mist,Drizzle)	Public Interference - Other Foreign Debris	695,167	695,167
76,194 FORTIETH STREET*	04/21/2020 12:49:00 Human Error - Incorrect Wiring	Human Error - Incorrect Wiring	4,952	4,952
80,360 ALACHUA	09/28/2020 07:32:00 Transformer Equipment - Bushing (Transformer)	Transformer Equipment - Bushing (Transformer)	5,365	5,365
78,492 Maximo (MXMO) BK2 + 115kV Bus 2	07/21/2020 22 56:00 Animal - Snake	Animal - Snake	68,700	68,700
78,506 Horse Creek (HORS) - Horse Creek 2 (HOR2) 69kV Line	07/22/2020 12 00:53 Unknown - Unknown, after Patrol	Other - No Reclose by Design or Policy	0	205
76,404 BITHLO	05/04/2020 17:18:41 Breaker Equipment - Bushings (Breaker)	Breaker Equipment - Bushings (Breaker)	343,881	343,881
77,238 PEMBROKE	06/06/2020 06:12:10 Miscellaneous - Distribution System Equipment	etc.)	20,947	20,947
77,310 LAKEWOOD*	06/07/2020 11:20:58 Breaker Equipment - Failed to Reclose	Breaker Equipment - Physical Connection/Hardware (Breaker)	50,002	50,002
77,446 South Polk (SOPK) - South Fort Meade (SFMD) 115kV Line	06/19/2020 00 08:43 Unknown - Unknown, after Patrol	Unknown - Unknown, after Patrol	0	17
80,324 Dunedin (DNDN) 69kV Bus 1	10/05/2020 09 53:54 Human Error - Duke Switching Error	Human Error - Duke Switching Error	839,798	839,798
76,858 LAND O LAKES	05/26/2020 12 07:55 Human Error - Incorrect Relay Setting	Human Error - Incorrect Relay Setting	33,624	33,624
80,112 WINTER GARDEN	09/05/2020 06:12:42 Breaker Equipment - Failed to Reclose	Breaker Equipment - Failed to Reclose	30,240	30,240
77,314 LAKE WALES	05/21/2020 18 05:06 Miscellaneous - Distribution System Equipment	System)	1,851	1,851
77,606 Fort White (FWHT) - Jasper South (JASS) 115kV East Circuit	06/23/2020 14:35:38 Vegetation - Tree Falling from Outside ROW	Vegetation - Tree Falling from Outside ROW	0	63,184
77,934 Dunnellon Town (DNLN) - Inglis (INGL) 69kV Line	07/05/2020 02:20:24 Lightning - Lightning,Correlated in lightning detection systm)	Other - No Reclose by Design or Policy	0	18,631
78,396 CRAWFORDVILLE	07/14/2020 23 02:00 Animal - Snake	Animal - Snake	121,663	121,663
76,988 Floral City (FLRC) - Inverness (INVS) 69kV Line	05/30/2020 20:14:01 Weather/Environment - Lightning Suspected, yet not correlated	Breaker Equipment - Operating Mechanism	5,238	18,845
78,694 UCF (UCFL) - UCF North (UCFN) 69kV Line	07/28/2020 16:40:36 Line Equipment - Insulator (Line, Polymer)	Line Equipment - Insulator (Line, Porcelain)	3,058	3,058
78,696 UCF (UCFL) - UCF North (UCFN) 69kV Line	07/28/2020 15:21:20 Lightning - Lightning,Correlated in lightning detection systm)	Line Equipment - Insulator (Line, Porcelain)	3,031	3,031
80,114 Fort White (FWHT) - Jasper South (JASS) 69kV Line	09/23/2020 03 58:18 Line Equipment - Crossarm	Line Equipment - Crossarm	0	146,095
80,382 East Clearwater (ECLW) 69kV Bus 2	10/04/2020 12:45:43 Lightning - Lightning,Correlated in lightning detection systm)	Bus Equipment - Insulator (Bus)	9,275	9,275
76,210 Fort White (FWHT) - Suwannee American Cement (SWAC) 115kV Line	04/23/2020 21:11:58 Weather/Environment - Wind	Vegetation - Tree/Tree Limbs Touching or Falling	0	60,104
76,828 SEVEN SPRINGS*	02/07/2020 06:37:00 Weather/Environment - Rain (Includes Fog,Mist,Drizzle)	Breaker Equipment - Operating Mechanism	43,254	43,254
77,598 Fort White (FWHT) - Jasper South (JASS) 115kV West Circuit	06/23/2020 14:35:37 Vegetation - Tree Falling from Outside ROW	Vegetation - Tree Falling from Outside ROW	0	10,129
77,656 DENHAM*	06/24/2020 11 51:00 Breaker Equipment - Operating Mechanism	Breaker Equipment - Operating Mechanism	43,229	43,229
77,860 Dundee (DUND) - Lake Wales (LKWL) 69kV Line	07/01/2020 16:29:52 Lightning - Lightning,Correlated in lightning detection systm)	Line Equipment - Structure (Wood)	37,593	37,593
77,646 BELLEAIR*	06/18/2020 04 59:51 Breaker Equipment - Electrical Controls/Circuitry	Breaker Equipment - Electrical Controls/Circuitry	39,730	39,730
78,502 BAYWAY	07/21/2020 22 56:00 Animal - Snake	Animal - Snake	19,377	19,377
79,738 Denham (DNHM) - (TECO) Cabbage Hill (CABH) 69kV Line	08/31/2020 11 03:09 Lightning - Lightning,Correlated in lightning detection systm)	Other - No Reclose by Design or Policy	0	19,595
80,194 Country Oaks (COAK) - East Lake Wales (ELWL) 69kV Line	09/27/2020 20 55:45 Lightning - Lightning,Correlated in lightning detection systm)	Line Equipment - Static Wire (OHGW)	95,839	106,521
79,540 Fort Meade (FTMD) - Homeland (HMLD) 69kV Line	08/20/2020 14:38:46 Vegetation - Tree Falling from Outside ROW	Vegetation - Tree Falling from Outside ROW	7,553	7,678
79,652 ELFERS*	08/21/2020 12 51:00 Lightning - Lightning,Observed striking line or equipment	Other - No Reclose by Design or Policy	151,007	151,007
78,754 MONTVERDE	07/29/2020 15 02:00 Human Error - Incorrect Wiring	Human Error - Incorrect Wiring	105,139	105,139
79,046 Horse Creek (HORS) - Horse Creek 2 (HOR2) 69kV Line	08/07/2020 15 58:46 Weather/Environment - Lightning Suspected, yet not correlated	Other - No Reclose by Design or Policy	0	37
80,464 CROSS BAYOU*	10/13/2020 10:40:00 Breaker Equipment - Failed to Reclose	Breaker Equipment - Close Coil	24,980	24,980
80,528 Chiefland (CHIF) - Inglis (INGL) 69kV Line	10/19/2020 14:25:53 Line Equipment - Crossarm	Line Equipment - Crossarm	54,928	66,248
78,770 SUNFLOWER	07/29/2020 02:16:25 Miscellaneous - Distribution System Equipment	Breaker Equipment - Electrical Controls/Circuitry	121,628	121,628
80,570 South Polk (SOPK) - South Fort Meade (SFMD) 115kV Line	10/23/2020 07 06:59 Unknown - Unknown, after Patrol	Unknown - Unknown, after Patrol	0	7
81,320 Denham (DNHM) - (TECO) Cabbage Hill (CABH) 69kV Line	12/01/2020 07:42:29 Line Equipment - Structure (Wood)	Line Equipment - Structure (Wood)	0	37,021
81,456 Tri-City (TRIC) 115kV Bus 2	12/14/2020 06:47:31 Switch Equipment/Malfunction - Gang Switch Flash	Switch Equipment/Malfunction - Gang Switch Flash	635,277	635,277
79,636 Clermont East (CMTE) - Montverde (MTVD) 69kV Line	08/25/2020 12 00:26 Human Error - Construction (PD Contractor)	Human Error - Construction (PD Contractor)	258,519	258,519
80,636 Atwater (AWTR) - Liberty (LBTY) 115kV Line	10/27/2020 01 59:29 Relay and Control Systems - Relay Failure/Misoperation	Relay and Control Systems - Relay Failure/Misoperation	0	16,476
77,418 FROSTPROOF	06/16/2020 15 55:46 Miscellaneous - Distribution System Equipment	Breaker Equipment - Failed to Reclose	107,220	107,220
78,548 Hanson (HNSN) 115kV Bus 1	07/23/2020 15:28:38 Lightning - Lightning,Correlated in lightning detection systm)	Relay and Control Systems - Relay Failure/Misoperation	0	228,783
80,090 New River (NWRV) - (TECO) Cabbage Hill (CABH) 69kV Line	09/20/2020 12 06:02 Line Equipment - Insulator (Line, Polymer)	Line Equipment - Insulator (Line, Polymer)	0	2,701
77,012 Fisheating Creek (FISH) BK1 Load	06/01/2020 05:11:09 Unknown - Unknown, after Completed Engineer Investigation	Unknown - Unknown, after Completed Engineer Investigation	201,391	201,391
79,768 WILDWOOD CITY	08/27/2020 13:25:00 Breaker Equipment - Failed to Reclose	Breaker Equipment - Electrical Controls/Circuitry	103,010	103,010
76,706 Frostproof (FSPF) - Lake Wales (LKWL) 69kV Line	05/21/2020 17 58:00 Line Equipment - Crossarm	Line Equipment - Crossarm	39,810	39,810
79,356 Horse Creek (HORS) - Horse Creek 2 (HOR2) 69kV Line	08/14/2020 21:19:05 Unknown - Unknown, after Patrol	Other - No Reclose by Design or Policy	0	124

79,518 Fort Green Springs (FGNS) - Vandolah (VAND) 69kV Circuit 1	08/19/2020 20:34:21 Breaker Equipment - Trip Coil	Breaker Equipment - Trip Coil	8	8
79,520 Fort Green Springs (FGNS) - Vandolah (VAND) 69kV Circuit 2	08/19/2020 20:34:21 Breaker Equipment - Trip Coil	Breaker Equipment - Trip Coil	8	8
79,522 Fort Green Springs (FGNS) - Fort Meade (FTMD) 69kV Line	08/19/2020 20:34:21 Breaker Equipment - Trip Coil	Breaker Equipment - Trip Coil	8	8
79,524 Fort Green Springs (FGNS) - Peacock (PCOK) 69kV Line	08/19/2020 20:34:21 Unknown - Unknown, after Patrol	Breaker Equipment - Trip Coil	8	8,867
79,534 EAST CLEARWATER*	08/19/2020 20:44:00 Vegetation - Tree/Tree Limbs Touching or Falling	Breaker Equipment - Interrupters	91,729	91,729
77,496 Horse Creek (HORS) - Horse Creek 2 (HOR2) 69kV Line	06/19/2020 20:47:39 Unknown - Unknown, after Patrol	Other - No Reclose by Design or Policy	0	192
77,592 Spring Lake (SPLK) BK5	06/23/2020 10:23:31 Human Error - Incorrect Wiring	Human Error - Incorrect Wiring	289,814	289,814
77,944 Martin West (MTNW) - Zuber (ZUBR) 69kV Line	07/06/2020 04:22:05 Vegetation - Tree Falling from Outside ROW	Vegetation - Tree Falling from Outside ROW	0	879,894
78,794 Alafaya (ALFY) - UCF North (UCFN) 69kV Line	07/31/2020 00 56:13 Human Error - Duke Switching Error	Human Error - Duke Switching Error	97,599	97,599
77,120 Champions Gate (CHMP) - Citrus Center (CITC) 69kV Line	06/04/2020 10 56:47 Lightning - Lightning,Correlated in lightning detection systm)	Relay and Control Systems - Relay Failure/Misoperation	44,486	44,486
78,002 BAY HILL*	07/01/2020 15:19:22 Miscellaneous - Distribution System Equipment	Breaker Equipment - Close Coil	24,771	24,771

Attachment B

DEF TRANSMISSION Outages-Major Events Only

OUTAGE_ID	LOCATION	OUTAGE_START_TIME	INITIATINGCAUSE	SUSTAINEDCAUSE
74,961	Fort Green Springs (FGNS) - Peacock (PCOK) 69kV Line	02/06/2020 13:49:28	Weather/Environment - Wind	Line Equipment - Structure (Wood)
74,974	Madison (MDSN) - Suwannee Transmission (SWTR) 115kV Line	02/06/2020 19:34:22	Weather/Environment - Wind	Line Equipment - Structure (Wood)
74,946	Bradfordville West (BRDW) - Drifton (DFTN) 115kV Line	02/06/2020 10:47:46	Weather/Environment - Wind	Vegetation - Tree Falling from Outside ROW
81,490	Cross Bayou (XBYU) - GE Pinellas (GEPN) 69kV Line	12/16/2020 15:50:12	Weather/Environment - Tornado/Twister	Line Equipment - Structure (Wood)

Attachment C and C1

Summary of Severe Weather Dates **2020**

a Include in the discussion, the type of weather event, strength (wind speeds/surge-flood levels), locations affected, source of meteorological information, and the performance of overhead and underground systems

Dates	Type of Weather Event	Strength (Wind Speeds/surge-flood levels)	Locations affected	Source of Metrological Information	Performance of Overhead and Underground Systems
1/4/2020 - 11:00 AM to 11:59 AM	Tornado	Unknown Wind Speed	Deland	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
1/4/2020 - 11:00 PM to 11:59 PM	Tornado	Unknown Wind Speed	Lake Wales	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
4/20/2020 - 9:00 AM to 10:59 AM	Tornado	Unknown Wind Speed	Inverness	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
6/6/2020 - 7:00 PM to 7:59 PM	Tornado	Unknown Wind Speed	SE Orlando	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
8/18/2020 - 3:00 PM to 4:59 PM	Tornado	Unknown Wind Speed	Deland	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
11/11/2020 3:00 PM to 11/12/2020 11:59 AM	Tropical Storm Eta	39 to 73 mph	Clearwater	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
			Inverness		
			Monticello		
			Ocala		
			Seven Springs		
			St. Petersburg		
			Walsingham		
			Zephyrhills		
12/16/2020 3:00 PM to 4:59 PM	Tornado	Unknown Wind Speed	Clearwater	National Weather Service	See response to Section (d) - pg. 10 of Reliability Report
			Seven Springs		
			Walsingham		

b. Describe the Company's efforts to avoid or minimize in terms of costs incurred and outage duration any similar events in the future.
(Example: Reference specific storm hardening activity.)

tem b Please see response to Storm Hardening Facilities filed in the 2020 SPP.

c. If the method of deriving the weather exclusion is different from the method used for 2018, please explain the changes and provide the CMI and CI for 2019 using the prior method.

c. The exclusion method used is the same since 2005.

d. (Appendix) Provide the 2020 service reliability data for each extreme weather outage event that is excluded from your Company's 2021 Annual Distribution Reliability Report pursuant to Rule 25-6.0455.

i. A Table
ii. Electronic File
iii. Overhead and Underground statistics & forensics. (C, CMI, CI, L-Bar, repair cost, etc.)

Dates	Overhead vs. Underground	C	CMI	CI	Duration	L-Bar	N
1/4/2020 - 11:00 AM to 11:59 AM	OH	87,353	206,775	1,140	3,307	472.4	7
	UG		-	-	-	-	-
1/4/2020 - 11:00 PM to 11:59 PM	OH	121,845	11,200	50	224	224.2	1
	UG		-	-	-	-	-
4/20/2020 - 9:00 AM to 10:59 AM	OH	78,974	654,652	2,129	11,009	379.6	29
	UG		-	-	-	-	-
6/6/2020 - 7:00 PM to 7:59 PM	OH	97,451	395,301	1,663	4,927	1,231.7	4
	UG		-	-	-	-	-
8/18/2020 - 3:00 PM to 4:59 PM	OH	87,353	3,391,430	7,602	54,901	963.2	57
	UG		237	1	237	237.1	1
11/11/2020 3:00 PM to 11/12/2020 11:59 AM	OH	936,273	30,198,251	98,851	630,687	733.4	860
	UG		1,841,540	2,562	64,857	600.5	108
12/16/2020 3:00 PM to 4:59 PM	OH	507,048	3,100,576	12,948	10,307	572.6	18
	UG		41,047	358	924	307.9	3

Distribution
Exclusion Summary - 2020

Cause Code Types		C	CMI	CI	Duration	L-Bar	N
Reported Actual Data		1,898,536	236,887,701	2,622,644	7,914,128	156.7	50,519
Exclusions:							
Severe Weather (Distribution)	(Tornados & Named Storms)		36,682,663	111,101	769,376	723.8	1,063
Distribution (Non Severe Weather)			-	-	-	-	-
Transmission (Severe Weather)			3,085,894	12,414	9,464	860.4	11
Transmission (Non Severe Weather)			12,065,644	326,065	14,074	65.2	216
Emergency Shutdowns (Severe Weather)	(DEF/Govt/Customer Decisions)		68,630	3,763	2,393	184.1	13
Emergency Shutdowns (Non Severe Weathe	(DEF/Govt/Customer Decisions)		10,678,973	328,368	226,993	78.5	2,892
Prearranged (Severe Weather)			3,822	26	147	147.0	1
Prearranged (Non Severe Weather)			7,445,330	56,922	775,236	126.6	6,122
Adjusted Data		1,898,536	166,856,745	1,783,985	6,116,446	152.1	40,201

Attachment C2

Actual Data: Customer Minutes of Interruption (CMI), Customer Interruptions (CI) and Documented Exclusions

Year: 2020	Customer minutes of Interruption (CMI)		Customer Interruptions (CI)	
	Value	% of Actual	Value	% of Actual
Reported Actual Data	236,887,701	100%	2,622,644	100%
Documented Exclusions				
Planned Service Interruptions	18,124,303	7.65%	385,290	14.69%
Named Storm	32,039,791	13.53%	101,413	3.87%
Tornadoes	7,801,218	3.29%	25,891	0.99%
Ice on Lines				
Planned Load Management Events				
Generation/Transmission Events	12,065,644	5.09%	326,065	12.43%%
Extreme Weather (EOC Activation/Fire)				
Reported Adjusted Data	166,856,745	70.44%	1,783,985	68.02%%

Attachment D

CAUSES OF OUTAGE EVENTS – ADJUSTED

Utility Name: Duke Energy Florida LLC Years: **2016 to 2020**

	2020			2019			2018			2017			2016		
Cause (a)	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CA DI) (d)	Number of Outage Events(N) (b)	Average Duration (L-Bar) (c)	Average Restoration Time (CAIDI) (d)
1. Animals	3,882	82.1	68.8	5,127	82.0	67 3	4,566	81.6	69.1	5,596	80.0	63.9	5,369	80 3	63.1
2. Vegetation	9,291	160.3	110.9	8,883	159.6	108.1	8,522	148.3	106.6	8,143	150.1	102.8	7,879	144 8	99.8
3. Lightning	994	157.0	97.4	943	168.3	106 0	1,517	157.4	103.2	1,261	151.4	80.2	1,216	150 3	85.8
4. Other Weather	5,826	159.3	109.7	5,658	153.1	105 2	6,463	143.5	110.8	5,478	145.2	95.4	4,965	133.7	97.2
5. Vehicle	509	245.1	111.6	445	249.9	119 2	599	232.7	105.2	505	223.2	103.2	429	235 2	102 0
6. Defective Equipment	11,973	146.4	82.4	11,921	145.8	87 0	12,038	151.8	97.3	10,475	150.0	91.0	9,195	146.7	82.4
7. Unknown	556	87.7	69.0	859	84.5	54 5	766	83.2	58.7	998	93.9	64.5	1,097	90 3	63.1
All Other Causes	7,170	181.0	71.4	8,223	169.0	75.7	8,310	173.0	82.6	8,287	179.8	76.1	7,390	173 8	72.6
System Totals:	40,201	152.1	93.5	42,059	146.8	93.1	42,781	146.6	97.3	40,743	145.4	89.5	37,540	139 9	86.4

Attachment E

DUKE ENERGY.

2021 PROGRAM BUDGET

CAPITAL													
	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Annual
592 - DEF Live Front Swtchgr Replace	142,773	330,739	421,133	234,029	373,436	327,483	326,330	235,685	239,304	192,559	49,449	0	2,872,920
956 - DEF Fuse Replacement	1,142,893	2,031,676	3,556,303	3,862,971	4,468,793	4,714,610	3,992,661	3,609,858	3,017,176	4,796,428	3,262,829	2,309,177	40,765,377
ATS - ATS Replace	0	0	0	98,623	0	98,578	0	99,352	0	101,522	104,382	0	502,457
CBLDT - UG Cable Repl DT	211,196	209,365	206,329	206,253	205,692	206,369	205,300	208,899	212,821	214,140	223,010	220,485	2,529,860
CMCDT - Corr Maint Cap DT	254,340	202,001	199,969	200,007	199,479	99,970	0	0	0	0	0	0	1,155,768
CMCEDT - Corr Maint Cap Emerg DT	125,665	0	0	0	0	0	0	0	0	0	0	0	125,665
CMCEOH - Corr Maint Cap Emerg OH	62,129	70,917	115,831	118,872	145,935	149,362	145,727	126,159	96,915	78,596	74,657	64,276	1,249,376
CMCEUG - Corr Maint Cap Emerg UG	64,587	87,401	115,179	120,932	160,824	143,973	120,442	116,288	100,467	89,160	79,828	60,783	1,259,863
CMCOH - OH Replace (Other - Planned)	0	0	0	0	78,681	0	0	0	0	0	0	0	78,681
CMCOWP - Corr Maint Cap OH Wire Pri	759	753	1,176	1,225	1,505	1,460	1,798	926	867	769	799	725	12,762
CMCOWS - Corr Maint Cap OH Wire Sec Svc	11,291	11,199	11,044	11,040	17,423	18,037	17,951	11,743	11,376	11,225	11,444	10,874	154,647
CMCUG - Corr Maint Cap UG Oth	42,860	61,448	84,068	102,729	116,456	126,112	116,286	108,511	100,663	81,934	59,807	49,349	1,050,224
CTP1PH - Cst Trnf Pdmt Repl 1PH Leak	0	0	0	33,212	55,203	44,313	44,085	11,222	11,437	0	0	0	199,471
CTP3PH - Cst Trnf Pdmt Repl 3PH Leak	0	0	0	99,490	99,219	24,889	0	0	0	0	0	0	223,598
DAIDR - Distribution Automation Rplc	0	0	0	0	131,708	0	0	0	0	0	0	0	131,708
DLS - OH Line Switch Repl	16,751	24,924	28,703	24,597	24,533	24,605	16,329	20,728	16,871	25,456	17,597	8,705	249,798
GENSWGR - Switchgear Replacement	0	195,015	144,786	96,545	144,428	96,509	96,156	97,281	98,803	49,690	51,106	0	1,070,318
HYDR - Recloser Repl Hydraulic	44,743	16,652	16,472	32,949	32,860	131,764	16,407	16,613	118,178	39,627	5,834	0	472,098
MHR - Manhole Lid Retrofit	0	0	197,940	296,967	217,201	0	0	0	0	0	0	0	712,108
NANC - NAN Replacements	20,429	35,490	20,075	20,079	20,025	15,054	19,998	30,349	5,137	15,502	0	0	202,139
POLCM - Pole Replacement Reactive	611,526	626,025	616,988	623,249	615,093	630,098	620,501	624,756	636,421	599,899	568,491	506,575	7,279,621
POLIR - Pole Replace Insp FUP	1,303,193	1,588,423	1,543,261	1,528,875	1,517,931	1,523,291	1,501,640	1,406,077	1,412,501	1,287,030	1,226,228	306,625	16,145,077
POLOTH - Pole Insp FUP Other Prop Units	9,724	8,433	15,426	8,303	11,829	14,243	10,627	9,619	12,253	9,864	6,429	3,813	120,564
POLRNF - Pole Reinforcement	82,344	93,678	92,523	91,998	91,289	91,644	90,654	92,571	94,492	94,623	98,787	97,579	1,112,183
RCR - Capacitor Replacement	131,908	198,015	229,165	240,267	189,183	116,939	31,488	36,646	33,982	22,785	30,149	23,220	1,283,748
RGR - Regulator Replacement	127,581	120,620	125,412	125,448	107,233	107,475	101,141	78,216	122,204	92,195	69,474	56,282	1,233,280
RNET - Network Sec Main Replace	201,190	199,341	196,605	196,558	196,016	196,628	195,690	198,915	202,566	203,826	211,799	209,435	2,408,568
RRR - Recloser Electronic Replace	67,327	152,777	226,976	264,891	198,123	340,389	141,332	238,138	377,229	223,782	209,820	9,893	2,450,678
RTP1PH - Pad Transf 1PH Oil Leak Rplc	74,741	105,809	156,248	176,993	186,890	208,386	186,550	158,396	107,666	86,677	33,948	22,367	1,504,671
RTP3PH - Pad Transf 3PH Oil Leak Rplc	184,504	320,478	385,135	430,535	519,750	520,984	496,472	479,586	371,219	280,067	144,118	71,336	4,204,186
RTR1PH - Pad Transf 1PH Non Leak Rplc	100,530	120,759	145,346	176,500	170,848	155,719	129,243	125,729	101,176	69,636	44,231	27,361	1,367,079
RTR3PH - Pad Transf 3PH Non Leak Rplc	87,818	130,769	258,991	431,777	430,599	409,988	301,022	239,172	110,401	88,841	68,460	22,596	2,580,435
RTXO - Transf OH Repl	7,956	15,796	31,284	46,939	66,316	66,465	66,228	63,034	32,006	12,073	8,270	0	416,367
RUCLG - UG Lg Cable Pri only Replace	853,176	1,819,452	776,479	1,100,013	414,886	263,095	89,400	661,219	153,242	809,304	235,721	243,022	7,419,008
RUCSEC - UG Cable Repl Sec Svc	713,680	353,593	526,408	819,152	911,797	1,336,647	1,578,728	1,551,512	1,804,981	1,636,790	1,295,481	907,413	13,436,182
RUCSM - UG Sm Cable Pri only Replace	2,111,044	2,091,345	2,056,580	2,055,242	2,049,614	2,057,320	2,045,695	2,087,332	2,129,740	2,143,345	845,107	834,648	22,507,011
SPCCCAP - SPCC Containment Cap	0	13,639	13,434	0	0	0	0	0	0	0	0	0	27,073
VNPTRR - Vault Netwk Prot & Transf Rplc	0	0	0	132,330	131,973	132,265	0	0	0	0	0	0	396,567
590 - DEF Trans Retrofit Accelerated	2,082,193	1,876,167	1,546,797	1,199,104	1,208,636	1,080,065	946,382	1,060,042	2,392,120	771,207	680,048	672,067	15,514,827
591 - DEF Deteriorated Conductor	5,689,386	4,181,078	4,491,599	3,578,032	2,260,413	1,562,879	1,783,983	1,272,328	1,080,960	497,130	280,889	277,539	26,956,216
RIOTC - Outage Invest Improv Cap	360,666	715,875	686,054	789,351	695,789	743,103	603,755	610,372	713,846	624,118	532,130	275,301	7,350,360
RSH - Base Storm Hardening	492,539	488,202	901,836	721,184	719,203	601,349	478,623	487,199	496,496	312,259	195,282	193,040	6,087,212
594 - DEF Segmentation & Automation	4,072,612	4,333,678	6,407,724	4,991,768	5,659,536	4,622,647	6,969,115	4,342,396	2,324,176	1,823,480	754,475	2,109,914	48,411,521
687 - DEF Circuit Capacity	1,643,962	1,712,735	2,484,216	2,680,110	2,820,629	2,088,220	980,729	357,693	229,326	111,386	72,760	279,127	15,460,892
793 - DEF Substation Upgrades	771,974	778,061	961,129	962,743	781,816	815,579	608,474	398,667	398,440	10,916	10,916	12,525	6,511,240
974 - DEF ATS Replace & SCADA Enable	0	0	213,106	106,563	318,815	639,266	530,593	322,536	218,582	439,789	0	0	2,789,250
516 - DEF Targeted OH/UG Conversion	3,499,384	4,129,945	4,978,265	6,135,648	6,950,152	7,292,880	6,895,666	6,986,095	6,806,725	6,332,724	5,518,013	5,670,383	71,195,881
HWYN - Highway Nonreimb Cap	1,582,075	1,569,861	1,554,339	1,555,101	1,550,450	1,554,038	1,548,386	1,565,697	1,591,481	1,601,670	1,645,768	1,628,531	18,947,398
DMAJDL - Major Reliability D Line Cap	804,749	646,952	1,008,977	1,347,836	1,377,844	1,567,568	2,357,256	1,393,269	1,189,485	1,105,517	1,115,751	1,068,041	14,983,245
DCAPINC - CAPACITY INCREASE - DIST STA	3,415,368	3,248,110	3,915,617	1,457,519	1,463,124	1,512,173	1,585,461	1,445,105	1,193,311	790,603	776,276	581,138	21,383,804
DCKTADD - CIRCUIT ADDITIONS - DIST STA	0	14,564	36,071	36,131	21,943	161,745	367,779	358,981	358,773	356,791	284,114	107,974	2,104,868
SPPFDHD - SPP Feeder Hardening	5,138,159	5,989,418	6,663,577	6,888,917	7,335,617	7,371,091	6,463,344	5,104,332	3,417,021	2,077,902	1,470,765	1,368,261	59,288,404
SCDL - Sys Capacity D Line	611,887	1,013,214	963,712	957,725	1,036,813	1,209,299	1,476,341	1,543,868	1,885,761	1,688,839	1,185,099	636,592	14,209,151
Sum:	38,973,611	41,934,391	49,328,290	47,417,324	48,503,555	47,216,567	46,301,771	39,993,112	36,028,598	31,901,678	23,559,541	20,946,970	472,105,407
O&M													
	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Annual
ENVREM - Other Environ Remediation	25,415	33,890	47,449	59,316	55,922	59,316	57,618	67,787	50,839	49,144	25,415	33,890	566,000
OHTXSPL - OH Transformer Oil Spill	6,736	8,976	12,578	15,721	14,813	15,721	15,269	17,961	13,471	13,026	6,736	9,000	150,008
PDSPL1 - Pdmt Single Phase Spill	65,500	87,283	122,136	152,634	143,918	152,634	148,274	174,409	130,843	126,497	65,500	87,283	1,456,913
PDSPL3 - Pdmt Three Phase Spill	16,270	21,689	30,366	37,957	35,781	37,957	36,881	43,378	32,529	31,457	16,270	21,797	362,332
AVOM - Avian Protection OM	2,051	2,880	4,196	5,348	5,025	5,348	5,185	6,165	4,522	4,366	2,051	2,880	50,017
CCEMT - Critical Environ Maint	10,311	13,800	19,371	24,256	22,861	24,256	23,554	27,739	20,771	20,072	10,311	13,800	231,100
CEINS - Critical Environ Inspections	4,249	5,554	7,776	9,720	9,163	9,720	9,443	11,108	8,332	8,053	4,165	5,554	92,837
POLINS - Pole Inspection	283,877	378,503	529,905	662,381	624,530	662,381	643,455	757,005	567,755	548,831	378,502	283,876	6,321,000

POLOV - Pole Repair Overloaded Pole	8,514	11,353	15,895	19,867	18,732	19,867	20,301	22,708	17,030	16,464	8,514	11,353	190,598
RIOUT - Outage Invest Improv	125,417	167,222	234,114	292,644	275,920	292,644	284,279	334,448	250,836	242,479	125,417	167,222	2,792,641
SPCCINS - SPCC Inspection	700	935	1,307	1,635	1,542	1,635	1,589	1,870	1,402	1,354	700	935	15,604
SPCCOM - SPCC Inspection Repair FUP	68	90	126	157	149	157	153	180	135	131	68	90	1,501
956 - DEF Fuse Replacement	21,215	28,286	39,596	49,498	46,668	49,498	48,083	56,573	42,427	41,011	28,286	21,215	472,355
DPRJOMM - OM on Maintain Capital	113,945	151,935	212,703	265,880	250,687	265,880	258,286	303,862	227,898	220,298	151,935	113,945	2,537,254
590 - DEF Trans Retrofit Accelerated	19,842	26,451	37,032	46,291	43,648	46,291	44,970	52,901	39,674	38,352	26,451	19,842	441,745
591 - DEF Deteriorated Conductor	18,658	24,877	34,830	43,544	41,049	43,544	42,295	49,763	37,321	36,072	24,877	18,658	415,488
PQINSE - PQ Cust Engin Inspect OM	135,236	135,236	139,665	139,665	139,665	139,665	145,412	139,665	139,665	139,665	139,665	145,412	1,678,615
594 - DEF Segmentation & Automation	118,293	126,497	187,673	146,206	165,960	135,239	204,651	126,801	67,429	52,882	21,603	60,667	1,413,900
687 - DEF Circuit Capacity	54,415	58,385	78,047	79,565	83,257	66,916	37,343	16,340	10,151	4,541	1,713	10,800	501,474
793 - DEF Substation Upgrades	6,671	6,721	8,335	8,344	6,743	6,974	5,184	3,389	3,384	0	0	0	55,745
974 - DEF ATS Replace & SCADA Enable	0	0	6,537	3,269	9,791	19,587	16,317	9,869	6,647	13,370	0	0	85,386
516 - DEF Targeted OH/UG Conversion	64,947	70,294	74,836	89,560	115,763	117,854	118,262	118,087	114,246	114,949	115,812	163,482	1,278,091
DPRJOMH - OM on Highway-Mods	14,161	14,119	14,000	14,001	13,979	13,983	13,978	14,092	14,239	14,322	14,611	14,517	170,004
DPRJOMS - OM on Capacity Capital	29,681	28,955	29,025	29,856	29,837	29,751	28,893	27,892	27,597	30,352	24,406	24,184	340,428
SPPFDHD - SPP Feeder Hardening	204,977	240,068	267,464	276,396	294,744	295,587	260,025	204,713	136,226	82,785	58,191	54,351	2,375,528
Sum:	1,351,149	1,643,999	2,154,962	2,473,709	2,450,145	2,512,406	2,469,699	2,588,704	1,965,367	1,850,473	1,251,198	1,284,754	23,996,565
Totals:	40,324,760	43,578,390	51,483,252	49,891,032	50,953,700	49,728,973	48,771,470	42,581,816	37,993,965	33,752,151	24,810,739	22,231,723	496,101,972

Attachment F

SYSTEM RELIABILITY INDICES – ADJUSTED

Utility Name: Duke Energy Florida, LLC Year: **2016 to 2020**

	2020					2019					2018					2017					2016				
District or Service Area (a)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)	SAIDI (b)	CAIDI (c)	SAIFI (d)	MAIFIe (e)	CEMI5 (f)
North Coastal Region*	117 2	101 9	1 15	6 4	2 32%	169 5	108 5	1 56	9 7	5 50%	168 3	111 0	1 52	13 6	4 80%	154 3	106 6	1 45	8 2	2 83%	154 8	111 3	1 39	7 8	4 00%
South Coastal Region*	82 6	96 1	0 86	6 0	0 37%	72 0	83 8	0 86	7 9	0 19%	95 2	99 8	0 95	10 8	0 49%	75 0	85 1	0 88	6 8	0 21%	72 7	81 1	0 90	7 3	0 68%
North Central Region	85 2	101 5	0 84	3 1	0 42%	87 0	107 7	0 81	4 7	0 41%	86 4	90 4	0 96	3 6	0 42%	75 5	90 0	0 84	7 6	0 37%	78 1	87 0	0 90	8 6	0 36%
South Central Region	70 4	76 7	0 92	5 7	1 17%	85 9	84 6	1 02	8 8	0 79%	84 3	90 4	0 93	11 4	0 44%	69 6	83 3	0 84	6 9	0 87%	78 8	78 2	1 01	7 0	1 06%
System Averages	87 9	93 5	0 94	5 4	1 06%	90 5	93 1	0 97	7 6	1 02%	98 5	97 3	1 01	9 7	0 95%	82 7	89 5	0 92	7 2	0 73%	85 0	86 4	0 98	7 6	1 09%

*2020 Had a structure change therefore North Coastal and South Coastal numbers are not comparable to previous years.

Attachment G

2020 FEEDER SPECIFIC DATA

PROVIDED ON CD

Attachment G

2020 Summer Feeder Peaks

Load Area	NAME	BANK	FEEDER NAME	PLANNER PEAK MVA
SOUTH COASTAL	ALDERMAN	1	C5000	7.0
SOUTH COASTAL	ALDERMAN	1	C5001	5.1
SOUTH COASTAL	ALDERMAN	1	C5003	7.4
SOUTH COASTAL	ALDERMAN	2	C5008	8.6
SOUTH COASTAL	ALDERMAN	2	C5009	9.2
SOUTH COASTAL	ALDERMAN	3	C5010	4.6
SOUTH COASTAL	ALDERMAN	3	C5011	5.7
SOUTH COASTAL	ALDERMAN	3	C5012	11.4
SOUTH COASTAL	ALDERMAN	2	C5013	8.1
SOUTH COASTAL	ANCLOTE	8	C4201	9.5
SOUTH COASTAL	ANCLOTE	8	C4202	8.8
SOUTH COASTAL	ANCLOTE	8	C4203	9.5
SOUTH COASTAL	ANCLOTE	8	C4204	7.4
SOUTH COASTAL	ANCLOTE	7	C4206	5.5
SOUTH COASTAL	ANCLOTE	7	C4207	10.8
SOUTH COASTAL	ANCLOTE	7	C4208	7.4
SOUTH COASTAL	BAYBORO PLANT	2	X0009	8.2
SOUTH COASTAL	BAYBORO PLANT	1	X0010	3.5
SOUTH COASTAL	BAYBORO PLANT	2	X0013	3.8
SOUTH COASTAL	BAYBORO PLANT	1	X0015	3.7
SOUTH COASTAL	BAYBORO PLANT	2	X0016	9.4
SOUTH COASTAL	BAYBORO PLANT	2	X0018	9.0
SOUTH COASTAL	BAYBORO PLANT	1	X0019	8.3
SOUTH COASTAL	BAYBORO PLANT	1	X0020	5.7
SOUTH COASTAL	BAYBORO PLANT	2	X0021	7.1
SOUTH COASTAL	BAYVIEW	1	C0651	11.4
SOUTH COASTAL	BAYVIEW	1	C0652	9.9
SOUTH COASTAL	BAYVIEW	1	C0653	9.5
SOUTH COASTAL	BAYVIEW	1	C0654	10.8
SOUTH COASTAL	BAYVIEW	2	C0655	7.7
SOUTH COASTAL	BAYVIEW	2	C0656	10.1
SOUTH COASTAL	BAYVIEW	2	C0657	10.3
SOUTH COASTAL	BAYVIEW	2	C0658	7.4
SOUTH COASTAL	BAYWAY	2	X0096	9.1
SOUTH COASTAL	BAYWAY	2	X0097	10.8
SOUTH COASTAL	BAYWAY	2	X0099	11.1
SOUTH COASTAL	BAYWAY	2	X0100	2.7
SOUTH COASTAL	BELLEAIR	1	C1002	10.7
SOUTH COASTAL	BELLEAIR	1	C1003	9.4
SOUTH COASTAL	BELLEAIR	1	C1004	2.0
SOUTH COASTAL	BELLEAIR	2	C1005	10.7
SOUTH COASTAL	BELLEAIR	2	C1007	6.9

SOUTH COASTAL	BELLEAIR	2	C1008	11.7
SOUTH COASTAL	BELLEAIR	1	J1001	9.8
SOUTH COASTAL	BROOKER CREEK	1	C5400	8.1
SOUTH COASTAL	BROOKER CREEK	1	C5401	3.5
SOUTH COASTAL	BROOKER CREEK	1	C5402	7.2
SOUTH COASTAL	BROOKER CREEK	2	C5404	7.8
SOUTH COASTAL	BROOKER CREEK	2	C5405	10.6
SOUTH COASTAL	BROOKER CREEK	2	C5406	9.2
SOUTH COASTAL	CENTRAL PLAZA	1	X0262	10.6
SOUTH COASTAL	CENTRAL PLAZA	2	X0263	0.8
SOUTH COASTAL	CENTRAL PLAZA	1	X0264	7.5
SOUTH COASTAL	CENTRAL PLAZA	2	X0265	5.1
SOUTH COASTAL	CENTRAL PLAZA	1	X0266	1.2
SOUTH COASTAL	CENTRAL PLAZA	2	X0267	5.0
SOUTH COASTAL	CENTRAL PLAZA	1	X0268	7.8
SOUTH COASTAL	CLEARWATER	1	C0004	7.1
SOUTH COASTAL	CLEARWATER	1	C0005	11.7
SOUTH COASTAL	CLEARWATER	1	C0006	2.0
SOUTH COASTAL	CLEARWATER	1	C0007	5.5
SOUTH COASTAL	CLEARWATER	2	C0008	1.8
SOUTH COASTAL	CLEARWATER	2	C0009	2.4
SOUTH COASTAL	CLEARWATER	2	C0010	9.3
SOUTH COASTAL	CLEARWATER	2	C0011	9.4
SOUTH COASTAL	CLEARWATER	3	C0012	9.7
SOUTH COASTAL	CLEARWATER	3	C0013	4.9
SOUTH COASTAL	CLEARWATER	3	C0014	7.0
SOUTH COASTAL	CLEARWATER	3	C0015	6.1
SOUTH COASTAL	CLEARWATER	4	C0016	9.6
SOUTH COASTAL	CLEARWATER	4	C0017	9.5
SOUTH COASTAL	CLEARWATER	4	C0018	6.5
SOUTH COASTAL	CLEARWATER	4	C0019	5.4
SOUTH COASTAL	CROSS BAYOU	3	J0140	6.2
SOUTH COASTAL	CROSS BAYOU	3	J0141	11.9
SOUTH COASTAL	CROSS BAYOU	1	J0142	12.6
SOUTH COASTAL	CROSS BAYOU	1	J0143	11.1
SOUTH COASTAL	CROSS BAYOU	1	J0144	1.5
SOUTH COASTAL	CROSS BAYOU	1	J0145	8.8
SOUTH COASTAL	CROSS BAYOU	2	J0146	8.2
SOUTH COASTAL	CROSS BAYOU	2	J0147	10.8
SOUTH COASTAL	CROSS BAYOU	2	J0148	10.9
SOUTH COASTAL	CROSS BAYOU	3	J0150	9.9
SOUTH COASTAL	CROSSROADS	1	X0132	8.0
SOUTH COASTAL	CROSSROADS	1	X0133	8.4
SOUTH COASTAL	CROSSROADS	1	X0134	7.8
SOUTH COASTAL	CROSSROADS	2	X0135	9.3
SOUTH COASTAL	CROSSROADS	2	X0136	2.4
SOUTH COASTAL	CROSSROADS	2	X0137	3.3
SOUTH COASTAL	CROSSROADS	2	X0138	6.9

SOUTH COASTAL	CURLEW	3	C4972	7.6
SOUTH COASTAL	CURLEW	3	C4973	8.5
SOUTH COASTAL	CURLEW	2	C4976	10.6
SOUTH COASTAL	CURLEW	2	C4985	5.4
SOUTH COASTAL	CURLEW	2	C4986	9.1
SOUTH COASTAL	CURLEW	3	C4987	6.0
SOUTH COASTAL	CURLEW	3	C4988	9.0
SOUTH COASTAL	CURLEW	1	C4989	8.8
SOUTH COASTAL	CURLEW	1	C4990	9.5
SOUTH COASTAL	CURLEW	1	C4991	11.0
SOUTH COASTAL	DENHAM	1	C0151	8.4
SOUTH COASTAL	DENHAM	1	C0152	8.4
SOUTH COASTAL	DENHAM	2	C0153	9.8
SOUTH COASTAL	DENHAM	2	C0154	6.6
SOUTH COASTAL	DENHAM	2	C0155	9.0
SOUTH COASTAL	DENHAM	3	C0156	11.7
SOUTH COASTAL	DENHAM	3	C0157	10.7
SOUTH COASTAL	DENHAM	3	C0158	11.4
SOUTH COASTAL	DENHAM	1	C0159	10.1
SOUTH COASTAL	DISSTON	1	X0060	10.7
SOUTH COASTAL	DISSTON	1	X0061	4.2
SOUTH COASTAL	DISSTON	1	X0062	11.4
SOUTH COASTAL	DISSTON	1	X0063	10.7
SOUTH COASTAL	DISSTON	2	X0064	9.4
SOUTH COASTAL	DISSTON	2	X0065	2.7
SOUTH COASTAL	DISSTON	2	X0066	11.6
SOUTH COASTAL	DISSTON	2	X0067	8.8
SOUTH COASTAL	DUNEDIN	1	C0102	8.8
SOUTH COASTAL	DUNEDIN	1	C0103	9.7
SOUTH COASTAL	DUNEDIN	2	C0104	8.3
SOUTH COASTAL	DUNEDIN	2	C0106	5.7
SOUTH COASTAL	DUNEDIN	3	C0107	9.7
SOUTH COASTAL	DUNEDIN	3	C0108	7.9
SOUTH COASTAL	EAST CLEARWATER	1	C0900	9.7
SOUTH COASTAL	EAST CLEARWATER	1	C0901	6.2
SOUTH COASTAL	EAST CLEARWATER	1	C0902	11.8
SOUTH COASTAL	EAST CLEARWATER	1	C0903	7.1
SOUTH COASTAL	EAST CLEARWATER	2	C0904	9.9
SOUTH COASTAL	EAST CLEARWATER	2	C0905	7.6
SOUTH COASTAL	EAST CLEARWATER	2	C0906	8.6
SOUTH COASTAL	EAST CLEARWATER	2	C0907	10.5
SOUTH COASTAL	EAST CLEARWATER	3	C0908	5.7
SOUTH COASTAL	EAST CLEARWATER	3	C0909	8.5
SOUTH COASTAL	EAST CLEARWATER	3	C0910	10.4
SOUTH COASTAL	EAST CLEARWATER	3	C0911	8.2
SOUTH COASTAL	ELFERS	2	C0950	7.1
SOUTH COASTAL	ELFERS	2	C0951	6.8
SOUTH COASTAL	ELFERS	2	C0952	7.9

SOUTH COASTAL	ELFERS	2	C0953	7.0
SOUTH COASTAL	ELFERS	1	C0954	4.8
SOUTH COASTAL	ELFERS	1	C0955	10.7
SOUTH COASTAL	ELFERS	1	C0956	10.7
SOUTH COASTAL	ELFERS	1	C0957	9.3
SOUTH COASTAL	FIFTY FIRST STREET	2	X0101	6.1
SOUTH COASTAL	FIFTY FIRST STREET	1	X0102	8.4
SOUTH COASTAL	FIFTY FIRST STREET	2	X0103	9.7
SOUTH COASTAL	FIFTY FIRST STREET	1	X0104	5.5
SOUTH COASTAL	FIFTY FIRST STREET	2	X0105	8.9
SOUTH COASTAL	FIFTY FIRST STREET	1	X0106	4.0
SOUTH COASTAL	FIFTY FIRST STREET	2	X0107	7.7
SOUTH COASTAL	FIFTY FIRST STREET	1	X0108	6.5
SOUTH COASTAL	FLORA-MAR	1	C4000	8.1
SOUTH COASTAL	FLORA-MAR	1	C4001	8.2
SOUTH COASTAL	FLORA-MAR	1	C4002	10.2
SOUTH COASTAL	FLORA-MAR	1	C4003	8.7
SOUTH COASTAL	FLORA-MAR	2	C4006	10.2
SOUTH COASTAL	FLORA-MAR	2	C4007	7.8
SOUTH COASTAL	FLORA-MAR	2	C4008	7.4
SOUTH COASTAL	FLORA-MAR	2	C4009	8.8
SOUTH COASTAL	FORTIETH STREET	1	X0081	5.4
SOUTH COASTAL	FORTIETH STREET	1	X0082	8.9
SOUTH COASTAL	FORTIETH STREET	2	X0083	7.7
SOUTH COASTAL	FORTIETH STREET	2	X0084	8.0
SOUTH COASTAL	FORTIETH STREET	2	X0085	6.6
SOUTH COASTAL	G E PINELLAS	1	J0231	2.4
SOUTH COASTAL	G E PINELLAS	2	J0234	2.4
SOUTH COASTAL	G E PINELLAS	2	J0235	1.2
SOUTH COASTAL	GATEWAY	1	X0111	9.8
SOUTH COASTAL	GATEWAY	1	X0112	7.6
SOUTH COASTAL	GATEWAY	1	X0113	8.7
SOUTH COASTAL	GATEWAY	1	X0114	3.9
SOUTH COASTAL	GATEWAY	2	X0118	8.0
SOUTH COASTAL	GATEWAY	2	X0119	8.0
SOUTH COASTAL	GATEWAY	2	X0120	8.6
SOUTH COASTAL	GATEWAY	3	X0121	9.6
SOUTH COASTAL	GATEWAY	3	X0122	3.5
SOUTH COASTAL	GATEWAY	3	X0123	6.5
SOUTH COASTAL	GATEWAY	3	X0125	5.4
SOUTH COASTAL	HIGHLANDS	2	C2802	8.3
SOUTH COASTAL	HIGHLANDS	2	C2803	8.3
SOUTH COASTAL	HIGHLANDS	2	C2804	6.8
SOUTH COASTAL	HIGHLANDS	1	C2805	8.5
SOUTH COASTAL	HIGHLANDS	1	C2806	9.9
SOUTH COASTAL	HIGHLANDS	1	C2807	7.8
SOUTH COASTAL	HIGHLANDS	2	C2808	8.4
SOUTH COASTAL	KENNETH	1	X0050	9.2

SOUTH COASTAL	KENNETH	1	X0051	7.8
SOUTH COASTAL	KENNETH	1	X0052	0.4
SOUTH COASTAL	KENNETH	1	X0053	9.9
SOUTH COASTAL	KENNETH	2	X0054	0.4
SOUTH COASTAL	KENNETH	2	X0055	4.9
SOUTH COASTAL	KENNETH	2	X0056	8.1
SOUTH COASTAL	KENNETH	2	X0057	9.7
SOUTH COASTAL	LAND-O-LAKES	1	C0140	10.0
SOUTH COASTAL	LAND-O-LAKES	1	C0141	11.1
SOUTH COASTAL	LAND-O-LAKES	1	C0143	13.7
SOUTH COASTAL	LAND-O-LAKES	2	C0146	8.7
SOUTH COASTAL	LAND-O-LAKES	2	C0148	6.0
SOUTH COASTAL	LARGO	1	J0402	3.4
SOUTH COASTAL	LARGO	1	J0403	9.5
SOUTH COASTAL	LARGO	1	J0404	8.0
SOUTH COASTAL	LARGO	1	J0405	7.0
SOUTH COASTAL	LARGO	2	J0406	7.4
SOUTH COASTAL	LARGO	2	J0407	11.0
SOUTH COASTAL	LARGO	2	J0408	5.6
SOUTH COASTAL	LARGO	2	J0409	6.6
SOUTH COASTAL	MAXIMO	3	X0140	9.5
SOUTH COASTAL	MAXIMO	3	X0141	9.5
SOUTH COASTAL	MAXIMO	3	X0142	9.4
SOUTH COASTAL	MAXIMO	1	X0143	11.2
SOUTH COASTAL	MAXIMO	1	X0144	0.7
SOUTH COASTAL	MAXIMO	1	X0146	8.2
SOUTH COASTAL	MAXIMO	1	X0147	10.3
SOUTH COASTAL	MAXIMO	2	X0149	10.9
SOUTH COASTAL	MAXIMO	2	X0150	8.1
SOUTH COASTAL	MAXIMO	2	X0151	11.4
SOUTH COASTAL	MAXIMO	2	X0152	0.7
SOUTH COASTAL	NEW PORT RICHEY	1	C0441	7.7
SOUTH COASTAL	NEW PORT RICHEY	1	C0442	7.0
SOUTH COASTAL	NEW PORT RICHEY	2	C0443	9.7
SOUTH COASTAL	NEW PORT RICHEY	2	C0444	7.2
SOUTH COASTAL	NORTHEAST	1	X0282	6.7
SOUTH COASTAL	NORTHEAST	1	X0283	6.6
SOUTH COASTAL	NORTHEAST	1	X0284	12.4
SOUTH COASTAL	NORTHEAST	1	X0285	8.4
SOUTH COASTAL	NORTHEAST	1	X0286	9.2
SOUTH COASTAL	NORTHEAST	2	X0287	11.2
SOUTH COASTAL	NORTHEAST	2	X0288	7.9
SOUTH COASTAL	NORTHEAST	2	X0289	9.8
SOUTH COASTAL	NORTHEAST	2	X0290	6.6
SOUTH COASTAL	NORTHEAST	2	X0291	3.0
SOUTH COASTAL	OAKHURST	1	J0221	8.4
SOUTH COASTAL	OAKHURST	3	J0223	8.8
SOUTH COASTAL	OAKHURST	3	J0224	9.4

SOUTH COASTAL	OAKHURST	2	J0226	10.7
SOUTH COASTAL	OAKHURST	2	J0227	8.8
SOUTH COASTAL	OAKHURST	1	J0228	9.7
SOUTH COASTAL	OAKHURST	1	J0229	8.2
SOUTH COASTAL	ODESSA	2	C4320	13.0
SOUTH COASTAL	ODESSA	1	C4322	13.3
SOUTH COASTAL	ODESSA	2	C4323	10.3
SOUTH COASTAL	ODESSA	2	C4328	8.7
SOUTH COASTAL	ODESSA	1	C4329	5.5
SOUTH COASTAL	OLDSMAR	2	C0604	1.7
SOUTH COASTAL	PALM HARBOR	1	C0752	8.0
SOUTH COASTAL	PALM HARBOR	1	C0753	8.1
SOUTH COASTAL	PALM HARBOR	2	C0755	9.2
SOUTH COASTAL	PALM HARBOR	2	C0756	7.8
SOUTH COASTAL	PALM HARBOR	2	C0757	10.0
SOUTH COASTAL	PASADENA	2	X0211	10.6
SOUTH COASTAL	PASADENA	2	X0212	5.7
SOUTH COASTAL	PASADENA	2	X0213	5.9
SOUTH COASTAL	PASADENA	2	X0214	6.8
SOUTH COASTAL	PASADENA	2	X0215	3.6
SOUTH COASTAL	PASADENA	1	X0216	5.4
SOUTH COASTAL	PASADENA	1	X0217	4.2
SOUTH COASTAL	PASADENA	1	X0219	10.4
SOUTH COASTAL	PASADENA	1	X0220	7.9
SOUTH COASTAL	PILSBURY	1	X0252	3.9
SOUTH COASTAL	PILSBURY	1	X0253	2.1
SOUTH COASTAL	PILSBURY	1	X0254	9.9
SOUTH COASTAL	PILSBURY	1	X0255	9.2
SOUTH COASTAL	PILSBURY	2	X0256	1.2
SOUTH COASTAL	PILSBURY	2	X0257	10.6
SOUTH COASTAL	PILSBURY	2	X0258	9.3
SOUTH COASTAL	PILSBURY	2	X0259	12.3
SOUTH COASTAL	PINELLAS WELL FIELD	1	C801	1.4
SOUTH COASTAL	PINELLAS WELL FIELD	1	C802	0.7
SOUTH COASTAL	PORT RICHEY WEST	2	C0202	9.5
SOUTH COASTAL	PORT RICHEY WEST	2	C0203	8.3
SOUTH COASTAL	PORT RICHEY WEST	1	C0205	5.0
SOUTH COASTAL	PORT RICHEY WEST	1	C0206	9.7
SOUTH COASTAL	PORT RICHEY WEST	1	C0207	6.8
SOUTH COASTAL	PORT RICHEY WEST	3	C0208	7.6
SOUTH COASTAL	PORT RICHEY WEST	3	C0209	9.6
SOUTH COASTAL	PORT RICHEY WEST	3	C0210	8.4
SOUTH COASTAL	SAFETY HARBOR	1	C3518	6.6
SOUTH COASTAL	SAFETY HARBOR	2	C3521	8.7
SOUTH COASTAL	SAFETY HARBOR	2	C3523	7.0
SOUTH COASTAL	SAFETY HARBOR	2	C3524	8.9
SOUTH COASTAL	SAFETY HARBOR	1	C3525	9.0
SOUTH COASTAL	SAFETY HARBOR	1	C3527	9.5

SOUTH COASTAL	SAFETY HARBOR	1	C3528	8.3
SOUTH COASTAL	SEMINOLE	2	J0889	12.0
SOUTH COASTAL	SEMINOLE	2	J0890	10.5
SOUTH COASTAL	SEMINOLE	2	J0891	6.4
SOUTH COASTAL	SEMINOLE	1	J0892	10.9
SOUTH COASTAL	SEMINOLE	1	J0893	6.7
SOUTH COASTAL	SEMINOLE	1	J0894	9.4
SOUTH COASTAL	SEMINOLE	1	J0895	10.8
SOUTH COASTAL	SEMINOLE	2	J888	7.0
SOUTH COASTAL	SEVEN SPRINGS	4	C4500	6.8
SOUTH COASTAL	SEVEN SPRINGS	4	C4501	9.5
SOUTH COASTAL	SEVEN SPRINGS	6	C4502	7.1
SOUTH COASTAL	SEVEN SPRINGS	5	C4507	7.4
SOUTH COASTAL	SEVEN SPRINGS	5	C4508	12.5
SOUTH COASTAL	SEVEN SPRINGS	5	C4509	7.8
SOUTH COASTAL	SEVEN SPRINGS	4	C4510	7.0
SOUTH COASTAL	SEVEN SPRINGS	6	C4512	8.0
SOUTH COASTAL	SIXTEENTH STREET	1	X0031	9.3
SOUTH COASTAL	SIXTEENTH STREET	2	X0032	9.3
SOUTH COASTAL	SIXTEENTH STREET	1	X0033	3.9
SOUTH COASTAL	SIXTEENTH STREET	2	X0034	10.6
SOUTH COASTAL	SIXTEENTH STREET	1	X0035	3.0
SOUTH COASTAL	SIXTEENTH STREET	2	X0036	7.8
SOUTH COASTAL	SIXTEENTH STREET	2	X0042	5.8
SOUTH COASTAL	SIXTEENTH STREET	1	X0043	5.1
SOUTH COASTAL	SIXTEENTH STREET	1	X0045	8.8
SOUTH COASTAL	SIXTEENTH STREET	2	X0046	9.3
SOUTH COASTAL	STARKEY ROAD	1	J0112	7.6
SOUTH COASTAL	STARKEY ROAD	1	J0113	5.0
SOUTH COASTAL	STARKEY ROAD	1	J0114	7.6
SOUTH COASTAL	STARKEY ROAD	2	J0115	9.5
SOUTH COASTAL	STARKEY ROAD	2	J0116	11.5
SOUTH COASTAL	STARKEY ROAD	2	J0117	3.4
SOUTH COASTAL	STARKEY ROAD	2	J0118	8.9
SOUTH COASTAL	TARPON SPRINGS	1	C0301	6.8
SOUTH COASTAL	TARPON SPRINGS	1	C0302	8.7
SOUTH COASTAL	TARPON SPRINGS	1	C0303	9.4
SOUTH COASTAL	TARPON SPRINGS	1	C0304	10.9
SOUTH COASTAL	TARPON SPRINGS	2	C0305	9.9
SOUTH COASTAL	TARPON SPRINGS	2	C0306	7.8
SOUTH COASTAL	TARPON SPRINGS	2	C0307	11.2
SOUTH COASTAL	TARPON SPRINGS	2	C0308	7.4
SOUTH COASTAL	TAYLOR AVENUE	2	J2902	8.3
SOUTH COASTAL	TAYLOR AVENUE	2	J2903	9.5
SOUTH COASTAL	TAYLOR AVENUE	2	J2904	9.9
SOUTH COASTAL	TAYLOR AVENUE	1	J2905	8.6
SOUTH COASTAL	TAYLOR AVENUE	1	J2906	8.6
SOUTH COASTAL	TAYLOR AVENUE	1	J2907	10.4

SOUTH COASTAL	THIRTY SECOND STREET	1	X0022	8.8
SOUTH COASTAL	THIRTY SECOND STREET	1	X0023	4.0
SOUTH COASTAL	THIRTY SECOND STREET	1	X0024	5.1
SOUTH COASTAL	THIRTY SECOND STREET	1	X0025	7.6
SOUTH COASTAL	THIRTY SECOND STREET	2	X0026	7.6
SOUTH COASTAL	THIRTY SECOND STREET	2	X0027	11.6
SOUTH COASTAL	THIRTY SECOND STREET	2	X0028	9.0
SOUTH COASTAL	THIRTY SECOND STREET	3	X0029	8.0
SOUTH COASTAL	THIRTY SECOND STREET	3	X0030	11.9
SOUTH COASTAL	THIRTY SECOND STREET	3	X0037	9.3
SOUTH COASTAL	TRI-CITY	3	J5030	7.5
SOUTH COASTAL	TRI-CITY	3	J5032	9.3
SOUTH COASTAL	TRI-CITY	2	J5034	9.0
SOUTH COASTAL	TRI-CITY	2	J5036	4.4
SOUTH COASTAL	TRI-CITY	2	J5038	8.3
SOUTH COASTAL	TRI-CITY	3	J5040	8.5
SOUTH COASTAL	ULMERTON	1	J0240	8.4
SOUTH COASTAL	ULMERTON	1	J0241	9.3
SOUTH COASTAL	ULMERTON	1	J0242	11.7
SOUTH COASTAL	ULMERTON	1	J0243	9.6
SOUTH COASTAL	ULMERTON	2	J0244	8.2
SOUTH COASTAL	ULMERTON	2	J0245	4.6
SOUTH COASTAL	ULMERTON	2	J0246	5.0
SOUTH COASTAL	ULMERTON	2	J0247	9.1
SOUTH COASTAL	ULMERTON WEST	1	J0680	6.0
SOUTH COASTAL	ULMERTON WEST	1	J0682	10.6
SOUTH COASTAL	ULMERTON WEST	1	J0684	9.0
SOUTH COASTAL	ULMERTON WEST	2	J0689	5.3
SOUTH COASTAL	ULMERTON WEST	2	J0690	8.1
SOUTH COASTAL	ULMERTON WEST	2	J0691	7.6
SOUTH COASTAL	ULMERTON WEST	2	J0692	6.4
SOUTH COASTAL	VINOY	1	X0070	9.8
SOUTH COASTAL	VINOY	2	X0071	6.0
SOUTH COASTAL	VINOY	2	X0072	11.3
SOUTH COASTAL	VINOY	2	X0074	2.4
SOUTH COASTAL	VINOY	2	X0075	3.4
SOUTH COASTAL	VINOY	1	X0076	4.4
SOUTH COASTAL	VINOY	1	X0077	4.9
SOUTH COASTAL	VINOY	1	X0078	11.4
SOUTH COASTAL	VINOY	1	X0079	4.3
SOUTH COASTAL	VINOY	1	X0080	7.1
SOUTH COASTAL	WALSINGHAM	2	J0551	11.4
SOUTH COASTAL	WALSINGHAM	2	J0552	9.4
SOUTH COASTAL	WALSINGHAM	2	J0553	7.4
SOUTH COASTAL	WALSINGHAM	2	J0554	10.8
SOUTH COASTAL	WALSINGHAM	1	J0555	7.6
SOUTH COASTAL	WALSINGHAM	1	J0556	9.1
SOUTH COASTAL	WALSINGHAM	1	J0557	10.8

SOUTH COASTAL	WALSINGHAM	1	J0558	8.1
SOUTH COASTAL	ZEPHYRHILLS	2	C0851	10.1
SOUTH COASTAL	ZEPHYRHILLS	2	C0852	7.9
SOUTH COASTAL	ZEPHYRHILLS	2	C0853	4.5
SOUTH COASTAL	ZEPHYRHILLS	1	C0854	5.2
SOUTH COASTAL	ZEPHYRHILLS	1	C0855	9.5
SOUTH COASTAL	ZEPHYRHILLS	1	C0856	9.3
SOUTH COASTAL	ZEPHYRHILLS	1	C0857	4.6
SOUTH COASTAL	ZEPHYRHILLS NORTH	2	C0340	3.3
SOUTH COASTAL	ZEPHYRHILLS NORTH	2	C0341	8.3
SOUTH COASTAL	ZEPHYRHILLS NORTH	1	C0342	7.6
SOUTH COASTAL	ZEPHYRHILLS NORTH	1	C0343	9.1
SOUTH COASTAL	ZEPHYRHILLS NORTH	1	C0344	11.0
SOUTH COASTAL	ZEPHYRHILLS NORTH	2	C0345	3.9
SOUTH CENTRAL	ARBUCKLE CREEK	1	K1361	3.7
SOUTH CENTRAL	AVALON	4	K37	6.7
SOUTH CENTRAL	AVALON	4	K38	0.3
SOUTH CENTRAL	AVON PARK NORTH	2	K0891	6.6
SOUTH CENTRAL	AVON PARK NORTH	2	K0892	2.1
SOUTH CENTRAL	AVON PARK NORTH	1	K0893	6.9
SOUTH CENTRAL	AVON PARK NORTH	1	K0894	4.8
SOUTH CENTRAL	AVON PARK PLANT	5	K0116	4.4
SOUTH CENTRAL	AVON PARK PLANT	5	K0117	5.4
SOUTH CENTRAL	AVON PARK PLANT	4	K0118	5.6
SOUTH CENTRAL	AVON PARK PLANT	4	K0119	8.1
SOUTH CENTRAL	BABSON PARK	1	K1195	3.3
SOUTH CENTRAL	BABSON PARK	1	K1196	3.8
SOUTH CENTRAL	BARNUM CITY	1	K1501	9.1
SOUTH CENTRAL	BARNUM CITY	2	K1503	11.2
SOUTH CENTRAL	BARNUM CITY	1	K3360	8.5
SOUTH CENTRAL	BARNUM CITY	2	K3362	11.8
SOUTH CENTRAL	BARNUM CITY	1	K3364	5.5
SOUTH CENTRAL	BAY HILL	3	K67	10.0
SOUTH CENTRAL	BAY HILL	3	K68	9.8
SOUTH CENTRAL	BAY HILL	1	K72	6.3
SOUTH CENTRAL	BAY HILL	1	K73	8.1
SOUTH CENTRAL	BAY HILL	1	K74	9.6
SOUTH CENTRAL	BAY HILL	2	K75	9.6
SOUTH CENTRAL	BAY HILL	2	K76	7.9
SOUTH CENTRAL	BAY HILL	2	K77	4.9
SOUTH CENTRAL	BAY HILL	3	K79	8.8
SOUTH CENTRAL	BOGGY MARSH	2	K957	8.1
SOUTH CENTRAL	BOGGY MARSH	1	K958	8.0
SOUTH CENTRAL	BOGGY MARSH	1	K959	9.8
SOUTH CENTRAL	BOGGY MARSH	2	K960	10.8
SOUTH CENTRAL	BOGGY MARSH	2	K961	10.0
SOUTH CENTRAL	BOGGY MARSH	1	K964	9.9
SOUTH CENTRAL	BONNET CREEK	2	K1230	2.1

SOUTH CENTRAL	BONNET CREEK	2	K1231	7.5
SOUTH CENTRAL	BONNET CREEK	2	K1232	4.8
SOUTH CENTRAL	BONNET CREEK	2	K1234	4.2
SOUTH CENTRAL	BONNET CREEK	1	K973	2.7
SOUTH CENTRAL	BONNET CREEK	1	K974	4.8
SOUTH CENTRAL	BONNET CREEK	1	K975	5.3
SOUTH CENTRAL	BONNET CREEK	1	K976	6.7
SOUTH CENTRAL	CABBAGE ISLAND	3	K1613	4.9
SOUTH CENTRAL	CABBAGE ISLAND	2	K1614	6.8
SOUTH CENTRAL	CABBAGE ISLAND	3	K1615	1.9
SOUTH CENTRAL	CABBAGE ISLAND	2	K1616	8.8
SOUTH CENTRAL	CABBAGE ISLAND	2	K1618	6.9
SOUTH CENTRAL	CANOE CREEK	1	W0105	3.2
SOUTH CENTRAL	CELEBRATION	2	K2701	8.8
SOUTH CENTRAL	CELEBRATION	3	K2703	7.0
SOUTH CENTRAL	CELEBRATION	2	K2704	4.1
SOUTH CENTRAL	CELEBRATION	3	K2706	9.7
SOUTH CENTRAL	CENTRAL PARK	1	K0495	12.0
SOUTH CENTRAL	CENTRAL PARK	2	K499	4.4
SOUTH CENTRAL	CENTRAL PARK	3	K800	6.6
SOUTH CENTRAL	CENTRAL PARK	1	W0493	8.3
SOUTH CENTRAL	CENTRAL PARK	1	W0494	4.5
SOUTH CENTRAL	CENTRAL PARK	2	W0496	5.1
SOUTH CENTRAL	CENTRAL PARK	2	W0497	8.8
SOUTH CENTRAL	CENTRAL PARK	2	W0498	5.2
SOUTH CENTRAL	CENTRAL PARK	3	W0500	8.2
SOUTH CENTRAL	CENTRAL PARK	3	W0501	6.0
SOUTH CENTRAL	CHAMPIONS GATE	2	K1761	7.1
SOUTH CENTRAL	CHAMPIONS GATE	1	K1762	12.0
SOUTH CENTRAL	CHAMPIONS GATE	2	K1763	7.7
SOUTH CENTRAL	CHAMPIONS GATE	1	K1764	9.5
SOUTH CENTRAL	CITRUSVILLE	1	K0035	5.1
SOUTH CENTRAL	CITRUSVILLE	1	K0061	1.3
SOUTH CENTRAL	CITRUSVILLE	1	K0062	8.0
SOUTH CENTRAL	CLARCONA	1	M0337	11.3
SOUTH CENTRAL	CLARCONA	2	M0339	3.2
SOUTH CENTRAL	CLARCONA	2	M0340	5.9
SOUTH CENTRAL	CLARCONA	3	M0342	8.2
SOUTH CENTRAL	CLARCONA	1	M0343	10.3
SOUTH CENTRAL	CLARCONA	2	M0345	11.1
SOUTH CENTRAL	CLARCONA	2	M0346	9.9
SOUTH CENTRAL	CLARCONA	3	M0348	6.5
SOUTH CENTRAL	CLARCONA	3	M0351	7.0
SOUTH CENTRAL	CLERMONT	1	K601	10.7
SOUTH CENTRAL	CLERMONT	1	K602	9.6
SOUTH CENTRAL	CLERMONT	1	K603	9.8
SOUTH CENTRAL	CLERMONT	2	K605	7.1
SOUTH CENTRAL	CLERMONT	2	K606	10.4

SOUTH CENTRAL	CLERMONT	2	K607	8.4
SOUTH CENTRAL	COLONIAL	1	K2476	10.7
SOUTH CENTRAL	COLONIAL	1	K2477	8.4
SOUTH CENTRAL	CONWAY	2	W0404	8.3
SOUTH CENTRAL	CONWAY	2	W0405	8.1
SOUTH CENTRAL	CONWAY	1	W0407	6.8
SOUTH CENTRAL	CONWAY	1	W0408	9.6
SOUTH CENTRAL	COUNTRY OAKS	1	K1443	4.3
SOUTH CENTRAL	COUNTRY OAKS	1	K1446	1.9
SOUTH CENTRAL	COUNTRY OAKS	2	K1447	8.6
SOUTH CENTRAL	CROOKED LAKE	1	K1771	5.2
SOUTH CENTRAL	CROOKED LAKE	1	K1772	4.0
SOUTH CENTRAL	CROWN POINT	1	K278	9.7
SOUTH CENTRAL	CROWN POINT	1	K279	8.2
SOUTH CENTRAL	CURRY FORD	1	W0595	8.9
SOUTH CENTRAL	CURRY FORD	1	W0597	9.3
SOUTH CENTRAL	CURRY FORD	1	W0601	12.6
SOUTH CENTRAL	CURRY FORD	2	W596	8.9
SOUTH CENTRAL	CURRY FORD	2	W598	7.8
SOUTH CENTRAL	CYPRESSWOOD	1	K0317	3.7
SOUTH CENTRAL	CYPRESSWOOD	2	K0561	4.0
SOUTH CENTRAL	CYPRESSWOOD	2	K0562	11.2
SOUTH CENTRAL	CYPRESSWOOD	1	K0563	5.3
SOUTH CENTRAL	DAVENPORT	1	K0007	12.7
SOUTH CENTRAL	DAVENPORT	1	K0008	5.2
SOUTH CENTRAL	DAVENPORT	1	K0009	7.6
SOUTH CENTRAL	DESOTO CITY	1	K3220	6.1
SOUTH CENTRAL	DESOTO CITY	1	K3221	1.2
SOUTH CENTRAL	DESOTO CITY	2	K3222	1.9
SOUTH CENTRAL	DINNER LAKE	2	K1684	1.6
SOUTH CENTRAL	DINNER LAKE	2	K1685	7.2
SOUTH CENTRAL	DINNER LAKE	2	K1687	2.4
SOUTH CENTRAL	DINNER LAKE	2	K1688	4.3
SOUTH CENTRAL	DINNER LAKE	2	K1689	5.3
SOUTH CENTRAL	DINNER LAKE	1	K1690	6.8
SOUTH CENTRAL	DINNER LAKE	1	K1691	8.0
SOUTH CENTRAL	DUNDEE	2	K3244	7.9
SOUTH CENTRAL	DUNDEE	2	K3245	7.7
SOUTH CENTRAL	DUNDEE	2	K3246	1.8
SOUTH CENTRAL	EAST LAKE WALES	1	K1030	6.8
SOUTH CENTRAL	EAST LAKE WALES	2	K1031	3.1
SOUTH CENTRAL	EAST LAKE WALES	1	K1032	4.9
SOUTH CENTRAL	FISHEATING CREEK	1	K1560	9.5
SOUTH CENTRAL	FORT MEADE	3	K0170	0.1
SOUTH CENTRAL	FORT MEADE	3	K0171	2.3
SOUTH CENTRAL	FOUR CORNERS	1	K1404	11.1
SOUTH CENTRAL	FOUR CORNERS	2	K1406	5.5
SOUTH CENTRAL	FOUR CORNERS	1	K1407	5.5

SOUTH CENTRAL	FOUR CORNERS	2	K1409	3.4
SOUTH CENTRAL	FOUR CORNERS	3	K1411	6.3
SOUTH CENTRAL	FOUR CORNERS	3	K1414	5.6
SOUTH CENTRAL	FOUR CORNERS	3	K1416	11.7
SOUTH CENTRAL	FROSTPROOF	1	K0100	5.7
SOUTH CENTRAL	FROSTPROOF	1	K0101	5.6
SOUTH CENTRAL	FROSTPROOF	1	K0102	5.9
SOUTH CENTRAL	FROSTPROOF	2	K0103	1.8
SOUTH CENTRAL	FROSTPROOF	2	K0104	5.0
SOUTH CENTRAL	GROVELAND	1	K673	7.1
SOUTH CENTRAL	GROVELAND	1	K674	11.4
SOUTH CENTRAL	GROVELAND	2	K675	5.9
SOUTH CENTRAL	HAINES CITY	2	K0016	3.4
SOUTH CENTRAL	HAINES CITY	2	K0017	9.4
SOUTH CENTRAL	HAINES CITY	1	K0018	11.7
SOUTH CENTRAL	HAINES CITY	1	K0019	5.7
SOUTH CENTRAL	HAINES CITY	2	K0020	6.3
SOUTH CENTRAL	HAINES CITY	1	K0021	9.4
SOUTH CENTRAL	HAINES CITY	1	K0022	9.4
SOUTH CENTRAL	HEMPLE	2	K2244	9.2
SOUTH CENTRAL	HEMPLE	3	K2246	9.1
SOUTH CENTRAL	HEMPLE	2	K2247	7.7
SOUTH CENTRAL	HEMPLE	3	K2249	7.0
SOUTH CENTRAL	HEMPLE	1	K2250	9.5
SOUTH CENTRAL	HEMPLE	2	K2252	4.6
SOUTH CENTRAL	HEMPLE	3	K2253	9.0
SOUTH CENTRAL	HEMPLE	1	K2255	10.2
SOUTH CENTRAL	HOLOPAW	2	W0629	7.3
SOUTH CENTRAL	HOLOPAW	1	W0630	5.3
SOUTH CENTRAL	HOWEY	1	K564	3.5
SOUTH CENTRAL	HOWEY	1	K565	6.5
SOUTH CENTRAL	HUNTERS CREEK	1	K40	11.4
SOUTH CENTRAL	HUNTERS CREEK	2	K42	4.9
SOUTH CENTRAL	HUNTERS CREEK	2	K43	9.7
SOUTH CENTRAL	HUNTERS CREEK	3	K45	10.3
SOUTH CENTRAL	HUNTERS CREEK	3	K48	7.0
SOUTH CENTRAL	HUNTERS CREEK	3	K49	12.9
SOUTH CENTRAL	HUNTERS CREEK	1	K51	8.7
SOUTH CENTRAL	INTERCESSION CITY	1	K0966	2.3
SOUTH CENTRAL	INTERCESSION CITY	1	K0967	6.7
SOUTH CENTRAL	INTERNATIONAL DRIVE	3	K4815	7.5
SOUTH CENTRAL	INTERNATIONAL DRIVE	2	K4817	6.1
SOUTH CENTRAL	INTERNATIONAL DRIVE	3	K4818	7.6
SOUTH CENTRAL	INTERNATIONAL DRIVE	2	K4820	6.3
SOUTH CENTRAL	ISLEWORTH	1	K773	7.5
SOUTH CENTRAL	ISLEWORTH	2	K779	10.4
SOUTH CENTRAL	ISLEWORTH	3	K781	9.7
SOUTH CENTRAL	ISLEWORTH	3	K782	11.6

SOUTH CENTRAL	ISLEWORTH	2	K784	3.3
SOUTH CENTRAL	ISLEWORTH	3	K789	12.0
SOUTH CENTRAL	ISLEWORTH	2	K792	10.5
SOUTH CENTRAL	LAKE BRYAN	3	K230	4.7
SOUTH CENTRAL	LAKE BRYAN	3	K231	5.5
SOUTH CENTRAL	LAKE BRYAN	3	K232	6.0
SOUTH CENTRAL	LAKE BRYAN	2	K238	8.4
SOUTH CENTRAL	LAKE BRYAN	2	K239	8.0
SOUTH CENTRAL	LAKE BRYAN	1	K240	2.2
SOUTH CENTRAL	LAKE BRYAN	1	K242	2.3
SOUTH CENTRAL	LAKE BRYAN	2	K244	9.9
SOUTH CENTRAL	LAKE LUNTZ	1	K3282	10.9
SOUTH CENTRAL	LAKE LUNTZ	2	K3283	9.9
SOUTH CENTRAL	LAKE LUNTZ	1	K3284	11.8
SOUTH CENTRAL	LAKE LUNTZ	2	K3285	11.3
SOUTH CENTRAL	LAKE LUNTZ	2	K3286	9.8
SOUTH CENTRAL	LAKE LUNTZ	1	K3287	7.1
SOUTH CENTRAL	LAKE MARION	1	K1286	9.9
SOUTH CENTRAL	LAKE MARION	2	K1287	12.4
SOUTH CENTRAL	LAKE MARION	1	K1288	5.7
SOUTH CENTRAL	LAKE OF THE HILLS	1	K1884	7.0
SOUTH CENTRAL	LAKE OF THE HILLS	1	K1885	4.8
SOUTH CENTRAL	LAKE PLACID	1	K0757	3.5
SOUTH CENTRAL	LAKE PLACID	1	K0758	4.8
SOUTH CENTRAL	LAKE PLACID	2	K1066	7.1
SOUTH CENTRAL	LAKE PLACID	2	K1320	5.8
SOUTH CENTRAL	LAKE PLACID NORTH	1	K0024	3.8
SOUTH CENTRAL	LAKE PLACID NORTH	2	K0027	2.3
SOUTH CENTRAL	LAKE WALES	1	K0053	5.4
SOUTH CENTRAL	LAKE WALES	1	K0054	7.7
SOUTH CENTRAL	LAKE WALES	1	K0055	7.2
SOUTH CENTRAL	LAKE WALES	2	K0056	2.6
SOUTH CENTRAL	LAKE WALES	2	K0057	5.1
SOUTH CENTRAL	LAKE WALES	2	K0058	7.0
SOUTH CENTRAL	LAKE WILSON	1	K881	9.8
SOUTH CENTRAL	LAKE WILSON	1	K882	7.4
SOUTH CENTRAL	LAKE WILSON	2	K883	8.4
SOUTH CENTRAL	LAKE WILSON	2	K884	7.3
SOUTH CENTRAL	LAKEWOOD	1	K1693	7.0
SOUTH CENTRAL	LAKEWOOD	1	K1694	4.8
SOUTH CENTRAL	LAKEWOOD	1	K1695	5.6
SOUTH CENTRAL	LAKEWOOD	2	K1705	5.4
SOUTH CENTRAL	LAKEWOOD	2	K1706	9.1
SOUTH CENTRAL	LEISURE LAKES	1	K1415	6.5
SOUTH CENTRAL	LOUGHMAN	1	K5078	4.5
SOUTH CENTRAL	LOUGHMAN	1	K5079	8.9
SOUTH CENTRAL	MAGNOLIA RANCH	2	W0502	13.2
SOUTH CENTRAL	MAGNOLIA RANCH	2	W0503	5.8

SOUTH CENTRAL	MAGNOLIA RANCH	1	W0504	9.4
SOUTH CENTRAL	MARLEY ROAD	1	K0120	5.2
SOUTH CENTRAL	MEADOW WOODS EAST	1	K1060	9.8
SOUTH CENTRAL	MEADOW WOODS EAST	1	K1061	9.9
SOUTH CENTRAL	MEADOW WOODS EAST	2	K1063	8.6
SOUTH CENTRAL	MEADOW WOODS SOUTH	2	K1775	8.8
SOUTH CENTRAL	MEADOW WOODS SOUTH	3	K1777	10.3
SOUTH CENTRAL	MEADOW WOODS SOUTH	2	K1778	8.1
SOUTH CENTRAL	MEADOW WOODS SOUTH	3	K1780	8.6
SOUTH CENTRAL	MEADOW WOODS SOUTH	2	K1781	9.0
SOUTH CENTRAL	MEADOW WOODS SOUTH	1	K1783	6.6
SOUTH CENTRAL	MEADOW WOODS SOUTH	1	K1789	2.5
SOUTH CENTRAL	MIDWAY	1	K1472	7.7
SOUTH CENTRAL	MIDWAY	1	K1473	9.6
SOUTH CENTRAL	MIDWAY	1	K1475	9.4
SOUTH CENTRAL	MINNEOLA	1	K946	6.3
SOUTH CENTRAL	MINNEOLA	2	K948	7.4
SOUTH CENTRAL	MINNEOLA	1	K949	7.9
SOUTH CENTRAL	MONTVERDE	1	K4831	9.4
SOUTH CENTRAL	MONTVERDE	2	K4833	6.1
SOUTH CENTRAL	MONTVERDE	1	K4834	7.2
SOUTH CENTRAL	MONTVERDE	2	K4836	7.9
SOUTH CENTRAL	MONTVERDE	1	K4837	8.3
SOUTH CENTRAL	MONTVERDE	2	K4840	10.4
SOUTH CENTRAL	MONTVERDE	1	K4841	11.0
SOUTH CENTRAL	MONTVERDE	2	K4845	7.1
SOUTH CENTRAL	NARCOOSSEE	1	W0212	9.4
SOUTH CENTRAL	NARCOOSSEE	1	W0213	8.1
SOUTH CENTRAL	NARCOOSSEE	1	W0214	7.4
SOUTH CENTRAL	NARCOOSSEE	2	W0215	6.6
SOUTH CENTRAL	NARCOOSSEE	2	W0216	8.6
SOUTH CENTRAL	NARCOOSSEE	2	W0217	9.0
SOUTH CENTRAL	NARCOOSSEE	3	W0219	7.6
SOUTH CENTRAL	NARCOOSSEE	3	W0220	8.5
SOUTH CENTRAL	NORTHRIDGE	1	K1822	9.1
SOUTH CENTRAL	NORTHRIDGE	1	K1825	6.5
SOUTH CENTRAL	OCOEE	3	M1086	4.9
SOUTH CENTRAL	OCOEE	3	M1087	6.6
SOUTH CENTRAL	OCOEE	3	M1088	3.8
SOUTH CENTRAL	OCOEE	1	M1090	8.1
SOUTH CENTRAL	OCOEE	1	M1091	5.4
SOUTH CENTRAL	OCOEE	1	M1092	7.2
SOUTH CENTRAL	OCOEE	2	M1094	6.8
SOUTH CENTRAL	OCOEE	2	M1095	4.6
SOUTH CENTRAL	OCOEE	2	M1096	8.0
SOUTH CENTRAL	OKAHUMPKA	1	K284	8.6
SOUTH CENTRAL	OKAHUMPKA	2	K285	6.3
SOUTH CENTRAL	OKAHUMPKA	2	K286	1.8

SOUTH CENTRAL	ORANGEWOOD	1	K217	3.5
SOUTH CENTRAL	ORANGEWOOD	2	K218	2.8
SOUTH CENTRAL	ORANGEWOOD	1	K220	1.8
SOUTH CENTRAL	ORANGEWOOD	1	K221	6.6
SOUTH CENTRAL	ORANGEWOOD	1	K222	7.5
SOUTH CENTRAL	ORANGEWOOD	1	K223	2.7
SOUTH CENTRAL	ORANGEWOOD	1	K224	3.2
SOUTH CENTRAL	ORANGEWOOD	2	K225	3.9
SOUTH CENTRAL	ORANGEWOOD	2	K226	6.9
SOUTH CENTRAL	ORANGEWOOD	2	K227	1.9
SOUTH CENTRAL	ORANGEWOOD	2	K228	7.0
SOUTH CENTRAL	ORANGEWOOD	2	K229	1.8
SOUTH CENTRAL	PARKWAY	1	K408	7.7
SOUTH CENTRAL	PARKWAY	1	K409	3.6
SOUTH CENTRAL	PINECASTLE	2	K0396	8.7
SOUTH CENTRAL	PINECASTLE	1	W0391	6.9
SOUTH CENTRAL	PINECASTLE	1	W0392	11.2
SOUTH CENTRAL	PINECASTLE	2	W0395	11.8
SOUTH CENTRAL	POINCIANA	1	K1236	10.6
SOUTH CENTRAL	POINCIANA	1	K1237	6.6
SOUTH CENTRAL	POINCIANA	2	K1508	4.9
SOUTH CENTRAL	POINCIANA	2	K1509	6.5
SOUTH CENTRAL	POINCIANA	2	K1556	10.4
SOUTH CENTRAL	POINCIANA	1	K1558	10.1
SOUTH CENTRAL	POINCIANA	2	K1561	8.5
SOUTH CENTRAL	POINCIANA	1	K1562	9.4
SOUTH CENTRAL	POINCIANA NORTH	3	K629	6.8
SOUTH CENTRAL	POINCIANA NORTH	3	K631	10.5
SOUTH CENTRAL	REEDY LAKE	2	K1102	8.5
SOUTH CENTRAL	REEDY LAKE	1	K1104	9.8
SOUTH CENTRAL	REEDY LAKE	2	K1108	10.0
SOUTH CENTRAL	REEDY LAKE	1	K1110	10.0
SOUTH CENTRAL	REEDY LAKE	1	K1111	11.4
SOUTH CENTRAL	RIO PINAR	1	W0968	9.9
SOUTH CENTRAL	RIO PINAR	1	W0969	5.8
SOUTH CENTRAL	RIO PINAR	1	W0970	12.4
SOUTH CENTRAL	RIO PINAR	4	W0971	4.6
SOUTH CENTRAL	RIO PINAR	4	W0972	11.2
SOUTH CENTRAL	RIO PINAR	4	W0973	9.9
SOUTH CENTRAL	RIO PINAR	4	W0974	11.1
SOUTH CENTRAL	RIO PINAR	1	W0975	8.8
SOUTH CENTRAL	SAND LAKE	1	K920	4.2
SOUTH CENTRAL	SAND LAKE	2	K922	6.8
SOUTH CENTRAL	SAND LAKE	2	K923	2.3
SOUTH CENTRAL	SAND LAKE	1	K925	3.8
SOUTH CENTRAL	SAND LAKE	1	K926	3.6
SOUTH CENTRAL	SAND LAKE	2	K928	5.8
SOUTH CENTRAL	SAND LAKE	2	K929	4.7

SOUTH CENTRAL	SAND LAKE	1	K931	5.2
SOUTH CENTRAL	SAND LAKE	1	K932	3.6
SOUTH CENTRAL	SAND LAKE	2	K934	8.3
SOUTH CENTRAL	SAND MOUNTAIN	1	K3201	0.3
SOUTH CENTRAL	SEBRING EAST	1	K0541	2.5
SOUTH CENTRAL	SEBRING EAST	1	K0542	5.4
SOUTH CENTRAL	SHINGLE CREEK	2	K855	6.9
SOUTH CENTRAL	SHINGLE CREEK	1	K857	9.4
SOUTH CENTRAL	SHINGLE CREEK	2	K858	7.0
SOUTH CENTRAL	SHINGLE CREEK	1	K860	5.5
SOUTH CENTRAL	SHINGLE CREEK	1	K861	7.4
SOUTH CENTRAL	SHINGLE CREEK	2	K863	9.0
SOUTH CENTRAL	SHINGLE CREEK	2	K868	4.0
SOUTH CENTRAL	SKY LAKE	1	W0362	7.7
SOUTH CENTRAL	SKY LAKE	1	W0363	11.2
SOUTH CENTRAL	SKY LAKE	1	W0364	6.9
SOUTH CENTRAL	SKY LAKE	2	W0365	8.9
SOUTH CENTRAL	SKY LAKE	2	W0366	5.7
SOUTH CENTRAL	SKY LAKE	3	W0367	8.1
SOUTH CENTRAL	SKY LAKE	3	W0368	6.7
SOUTH CENTRAL	SKY LAKE	3	W0369	9.2
SOUTH CENTRAL	SOUTH BARTOW	1	K0154	4.0
SOUTH CENTRAL	SUN'N LAKES	2	K1135	6.3
SOUTH CENTRAL	SUN'N LAKES	2	K1136	6.3
SOUTH CENTRAL	SUN'N LAKES	2	K1137	2.8
SOUTH CENTRAL	SUN'N LAKES	1	K1296	7.8
SOUTH CENTRAL	SUN'N LAKES	1	K1297	5.6
SOUTH CENTRAL	SUN'N LAKES	1	K1300	5.6
SOUTH CENTRAL	TAFT	2	K1023	7.0
SOUTH CENTRAL	TAFT	2	K1024	8.5
SOUTH CENTRAL	TAFT	2	K1025	7.3
SOUTH CENTRAL	TAFT	1	K1026	7.9
SOUTH CENTRAL	TAFT	1	K1027	5.1
SOUTH CENTRAL	TAFT	1	K1028	7.3
SOUTH CENTRAL	TAUNTON ROAD	1	K1081	5.2
SOUTH CENTRAL	TAUNTON ROAD	1	K1083	3.2
SOUTH CENTRAL	VINELAND	1	K901	6.3
SOUTH CENTRAL	VINELAND	2	K903	10.3
SOUTH CENTRAL	VINELAND	2	K904	8.6
SOUTH CENTRAL	VINELAND	3	K906	9.8
SOUTH CENTRAL	VINELAND	1	K907	4.4
SOUTH CENTRAL	VINELAND	2	K909	5.2
SOUTH CENTRAL	VINELAND	2	K910	7.9
SOUTH CENTRAL	VINELAND	3	K912	3.9
SOUTH CENTRAL	VINELAND	1	K913	7.5
SOUTH CENTRAL	VINELAND	3	K915	5.8
SOUTH CENTRAL	VINELAND	1	K917	8.1
SOUTH CENTRAL	WAUCHULA	1	K0245	3.1

SOUTH CENTRAL	WAUCHULA	2	K0246	3.2
SOUTH CENTRAL	WEST DAVENPORT	2	K1521	8.6
SOUTH CENTRAL	WEST DAVENPORT	1	K1523	7.5
SOUTH CENTRAL	WEST DAVENPORT	1	K1524	5.3
SOUTH CENTRAL	WEST DAVENPORT	2	K1526	6.8
SOUTH CENTRAL	WEST DAVENPORT	1	K1529	8.0
SOUTH CENTRAL	WEST LAKE WALES	2	K0866	5.1
SOUTH CENTRAL	WESTRIDGE	1	K0420	8.2
SOUTH CENTRAL	WESTRIDGE	2	K0421	8.6
SOUTH CENTRAL	WESTRIDGE	1	K0425	9.7
SOUTH CENTRAL	WESTRIDGE	2	K0426	12.9
SOUTH CENTRAL	WESTRIDGE	2	K0428	4.6
SOUTH CENTRAL	WEWAHOOTEE	1	W1198	0.3
SOUTH CENTRAL	WINDERMERE	3	K302	6.9
SOUTH CENTRAL	WINDERMERE	1	K303	8.6
SOUTH CENTRAL	WINDERMERE	1	K304	5.9
SOUTH CENTRAL	WINTER GARDEN	2	K201	11.4
SOUTH CENTRAL	WINTER GARDEN	2	K202	8.4
SOUTH CENTRAL	WINTER GARDEN	2	K203	6.0
SOUTH CENTRAL	WINTER GARDEN	1	K204	10.8
SOUTH CENTRAL	WINTER GARDEN	1	K205	11.5
SOUTH CENTRAL	WINTER GARDEN	1	K206	9.6
SOUTH CENTRAL	WINTER GARDEN	1	K207	10.2
SOUTH CENTRAL	WOODSMERE	3	M0252	8.5
SOUTH CENTRAL	WOODSMERE	3	M0253	2.5
SOUTH CENTRAL	WOODSMERE	3	M0254	6.0
SOUTH CENTRAL	WOODSMERE	4	M0255	6.4
SOUTH CENTRAL	WOODSMERE	4	M0256	8.3
SOUTH CENTRAL	WORLD GATEWAY	1	K187	8.0
SOUTH CENTRAL	WORLD GATEWAY	1	K189	5.6
SOUTH CENTRAL	LOUGHMAN	1	K5086	7.4
SOUTH CENTRAL	WEST LAKE WALES	2	K871	2.2
NORTH COASTAL	ADAMS	1	A0199	5.0
NORTH COASTAL	ADAMS	1	A0200	3.2
NORTH COASTAL	ALACHUA	1	A0143	1.0
NORTH COASTAL	ALACHUA	1	A0144	0.3
NORTH COASTAL	APALACHICOLA	1	N58	5.2
NORTH COASTAL	APALACHICOLA	1	N59	6.0
NORTH COASTAL	ARCHER	1	A0195	2.2
NORTH COASTAL	ARCHER	2	A0196	3.0
NORTH COASTAL	BEACON HILL	2	N515	1.5
NORTH COASTAL	BEACON HILL	1	N516	3.3
NORTH COASTAL	BEACON HILL	2	N527	4.7
NORTH COASTAL	BELLEVIEW	1	A0001	5.5
NORTH COASTAL	BELLEVIEW	2	A0002	7.5
NORTH COASTAL	BELLEVIEW	1	A0003	1.9
NORTH COASTAL	BELLEVIEW	2	A0004	7.1
NORTH COASTAL	BELLEVIEW	2	A0006	10.2

NORTH COASTAL	BELLEVIEW	1	A0012	3.4
NORTH COASTAL	BELLEVIEW	2	A0014	10.9
NORTH COASTAL	BEVERLY HILLS	2	A0072	6.3
NORTH COASTAL	BEVERLY HILLS	2	A0073	4.7
NORTH COASTAL	BEVERLY HILLS	1	A0074	7.1
NORTH COASTAL	BEVERLY HILLS	1	A0075	7.2
NORTH COASTAL	BEVILLES CORNER	1	A0561	2.0
NORTH COASTAL	BEVILLES CORNER	1	A0562	3.6
NORTH COASTAL	BROOKSVILLE	3	A0095	6.9
NORTH COASTAL	BROOKSVILLE	3	A0096	8.6
NORTH COASTAL	BROOKSVILLE	2	A0097	5.4
NORTH COASTAL	BROOKSVILLE	2	A0098	5.8
NORTH COASTAL	BUSHNELL EAST	1	A170	10.3
NORTH COASTAL	BUSHNELL EAST	1	A171	3.7
NORTH COASTAL	CARRABELLE	1	N42	2.2
NORTH COASTAL	CARRABELLE	1	N43	6.9
NORTH COASTAL	CARRABELLE BEACH	1	N48	2.6
NORTH COASTAL	CIRCLE SQUARE	2	A0250	6.3
NORTH COASTAL	CIRCLE SQUARE	1	A0251	7.7
NORTH COASTAL	CIRCLE SQUARE	1	A0253	5.2
NORTH COASTAL	CITRUS HILLS	2	A0282	6.7
NORTH COASTAL	CITRUS HILLS	3	A0283	5.6
NORTH COASTAL	CITRUS HILLS	2	A0284	8.2
NORTH COASTAL	CITRUS HILLS	3	A0285	4.2
NORTH COASTAL	CITRUS HILLS	2	A0286	6.2
NORTH COASTAL	COLEMAN	1	A0105	4.0
NORTH COASTAL	COLEMAN	2	A0107	3.3
NORTH COASTAL	COLEMAN	2	A0108	5.5
NORTH COASTAL	CRAWFORDVILLE	3	N35	6.5
NORTH COASTAL	CRAWFORDVILLE	2	N36	5.1
NORTH COASTAL	CROSS CITY	2	A0115	2.8
NORTH COASTAL	CROSS CITY	2	A0118	3.4
NORTH COASTAL	CROSS CITY	1	A0119	8.0
NORTH COASTAL	CROSS CITY INDUSTRIAL	1	A0046	5.0
NORTH COASTAL	CRYSTAL RIVER NORTH	1	A0161	7.4
NORTH COASTAL	CRYSTAL RIVER NORTH	1	A0162	6.4
NORTH COASTAL	CRYSTAL RIVER SOUTH	1	A0159	5.2
NORTH COASTAL	DUNNELLON TOWN	2	A0068	7.8
NORTH COASTAL	DUNNELLON TOWN	2	A0069	5.6
NORTH COASTAL	DUNNELLON TOWN	1	A0070	6.1
NORTH COASTAL	DUNNELLON TOWN	1	A0071	5.7
NORTH COASTAL	EAGLES NEST	2	A0224	6.2
NORTH COASTAL	EAGLES NEST	1	A0228	6.3
NORTH COASTAL	EAST POINT	1	N230	2.8
NORTH COASTAL	EAST POINT	1	N231	4.9
NORTH COASTAL	FLORAL CITY	1	A0087	4.1
NORTH COASTAL	FLORAL CITY	1	A0088	2.0
NORTH COASTAL	FORT WHITE	2	A0020	4.2

NORTH COASTAL	G.E. ALACHUA	1	A0185	0.6
NORTH COASTAL	G.E. ALACHUA	1	A0186	3.5
NORTH COASTAL	GEORGIA PACIFIC	1	A0045	6.5
NORTH COASTAL	HERNANDO AIRPORT	1	A0430	8.7
NORTH COASTAL	HERNANDO AIRPORT	1	A0431	10.5
NORTH COASTAL	HIGH SPRINGS	1	A0015	8.1
NORTH COASTAL	HIGH SPRINGS	2	A0016	5.9
NORTH COASTAL	HOLDER	1	A0047	6.3
NORTH COASTAL	HOLDER	2	A0048	6.4
NORTH COASTAL	HOLDER	1	A0049	4.8
NORTH COASTAL	HOMOSASSA	3	A0271	7.6
NORTH COASTAL	HOMOSASSA	3	A0272	7.7
NORTH COASTAL	INDIAN PASS	1	N556	11.5
NORTH COASTAL	INGLIS	2	A0078	5.0
NORTH COASTAL	INVERNESS	1	A0081	6.3
NORTH COASTAL	INVERNESS	1	A0082	7.5
NORTH COASTAL	INVERNESS	1	A0083	8.0
NORTH COASTAL	INVERNESS	2	A0084	8.4
NORTH COASTAL	INVERNESS	2	A0085	10.0
NORTH COASTAL	JASPER SOUTH	2	N191	5.0
NORTH COASTAL	JASPER SOUTH	2	N192	5.0
NORTH COASTAL	JENNINGS	1	N195	2.4
NORTH COASTAL	LADY LAKE	1	A0243	8.2
NORTH COASTAL	LADY LAKE	2	A0244	6.3
NORTH COASTAL	LADY LAKE	2	A0245	7.1
NORTH COASTAL	LADY LAKE	1	A0246	9.0
NORTH COASTAL	LAKE WEIR	1	A0061	5.5
NORTH COASTAL	LAKE WEIR	2	A0064	7.5
NORTH COASTAL	LEBANON	1	A0132	5.3
NORTH COASTAL	LURAVILLE	1	A0192	4.5
NORTH COASTAL	MADISON	2	N1	4.5
NORTH COASTAL	MADISON	2	N2	5.8
NORTH COASTAL	MADISON	1	N3	7.4
NORTH COASTAL	MADISON	1	N4	3.5
NORTH COASTAL	MARICAMP	1	A0333	10.9
NORTH COASTAL	MARICAMP	2	A0334	8.4
NORTH COASTAL	MARICAMP	1	A0335	7.8
NORTH COASTAL	MARICAMP	2	A0336	8.2
NORTH COASTAL	MARTIN	1	A0038	6.5
NORTH COASTAL	MARTIN	1	A0039	7.2
NORTH COASTAL	MCINTOSH	1	A0050	3.5
NORTH COASTAL	MCINTOSH	2	A0051	5.1
NORTH COASTAL	MONTICELLO	1	N66	3.6
NORTH COASTAL	MONTICELLO	1	N67	6.4
NORTH COASTAL	MONTICELLO	2	N68	2.4
NORTH COASTAL	MONTICELLO	2	N69	6.0
NORTH COASTAL	NEWBERRY	1	A0094	10.9
NORTH COASTAL	OBRIEN	1	A0379	4.6

NORTH COASTAL	OCHLOCKONEE	2	N37	4.8
NORTH COASTAL	OCHLOCKONEE	1	N38	4.6
NORTH COASTAL	ORANGE BLOSSOM	2	A0309	5.4
NORTH COASTAL	ORANGE BLOSSOM	1	A0310	8.0
NORTH COASTAL	ORANGE BLOSSOM	2	A0388	7.4
NORTH COASTAL	ORANGE BLOSSOM	1	A0389	7.0
NORTH COASTAL	ORANGE BLOSSOM	1	A0392	7.7
NORTH COASTAL	ORANGE BLOSSOM	2	A0394	9.1
NORTH COASTAL	PERRY	2	N10	7.0
NORTH COASTAL	PERRY	1	N7	5.6
NORTH COASTAL	PERRY	1	N8	2.3
NORTH COASTAL	PERRY	2	N9	6.2
NORTH COASTAL	PERRY NORTH	1	N14	7.4
NORTH COASTAL	PERRY NORTH	1	N15	8.6
NORTH COASTAL	PINE RIDGE	1	A0422	7.5
NORTH COASTAL	PINE RIDGE	1	A0423	7.7
NORTH COASTAL	PINE RIDGE	1	A0425	5.8
NORTH COASTAL	PORT ST. JOE	2	N52	3.8
NORTH COASTAL	PORT ST. JOE	2	N53	5.3
NORTH COASTAL	PORT ST. JOE	2	N54	4.7
NORTH COASTAL	PORT ST. JOE	2	N55	0.2
NORTH COASTAL	PORT ST. JOE INDUSTRIAL	1	N202	4.0
NORTH COASTAL	PORT ST. JOE INDUSTRIAL	1	N203	1.0
NORTH COASTAL	RAINBOW SPRINGS	1	A0368	5.6
NORTH COASTAL	RAINBOW SPRINGS	2	A0369	4.2
NORTH COASTAL	REDDICK	2	A0034	7.2
NORTH COASTAL	REDDICK	2	A0035	5.4
NORTH COASTAL	REDDICK	1	A0036	5.3
NORTH COASTAL	ROSS PRAIRIE	3	A0112	5.2
NORTH COASTAL	SANTOS	1	A0230	6.2
NORTH COASTAL	SANTOS	2	A0231	8.3
NORTH COASTAL	SANTOS	1	A0233	4.7
NORTH COASTAL	SILVER SPRINGS	3	A0153	10.5
NORTH COASTAL	SILVER SPRINGS	3	A0154	6.4
NORTH COASTAL	SILVER SPRINGS SHORES	2	A0128	5.5
NORTH COASTAL	SILVER SPRINGS SHORES	1	A0129	13.1
NORTH COASTAL	SILVER SPRINGS SHORES	1	A0130	6.7
NORTH COASTAL	SILVER SPRINGS SHORES	2	A0131	10.8
NORTH COASTAL	SOPCHOPPY	1	N327	5.3
	ST MARKS WEST	2	N331	4.6
	ST MARKS WEST	1	N332	7.0
NORTH COASTAL	ST MARKS WEST	2	N336	3.3
NORTH COASTAL	ST. GEORGE ISLAND	1	N233	9.4
NORTH COASTAL	ST. GEORGE ISLAND	1	N234	4.3
NORTH COASTAL	SUWANNEE DISTRIBUTION	1	N0324	4.0
NORTH COASTAL	SUWANNEE DISTRIBUTION	4	N323	2.0
NORTH COASTAL	SUWANNEE DISTRIBUTION	5	N325	5.5
NORTH COASTAL	TANGERINE	3	A0262	10.7

NORTH COASTAL	TANGERINE	3	A0263	4.9
NORTH COASTAL	TANGERINE	3	A0264	4.4
NORTH COASTAL	TRENTON	1	A0090	6.3
NORTH COASTAL	TRENTON	1	A0091	2.0
NORTH COASTAL	TROPIC TERRACE	2	A0207	7.4
NORTH COASTAL	TROPIC TERRACE	2	A0208	3.0
NORTH COASTAL	TROPIC TERRACE	1	A0212	6.8
NORTH COASTAL	TWIN COUNTY RANCH	1	A0216	5.2
NORTH COASTAL	TWIN COUNTY RANCH	2	A0218	5.9
NORTH COASTAL	TWIN COUNTY RANCH	2	A0219	4.3
NORTH COASTAL	TWIN COUNTY RANCH	1	A0221	5.3
NORTH COASTAL	WAUKEENAH	1	N64	2.4
NORTH COASTAL	WAUKEENAH	1	N65	6.8
NORTH COASTAL	WEIRSDALE	1	A0321	7.6
NORTH COASTAL	WEIRSDALE	2	A0322	6.0
NORTH COASTAL	WHITE SPRINGS	2	N375	2.7
NORTH COASTAL	WILDWOOD CITY	1	A0395	8.5
NORTH COASTAL	WILDWOOD CITY	2	A0396	6.6
NORTH COASTAL	WILDWOOD CITY	2	A0397	3.8
NORTH COASTAL	WILDWOOD CITY	1	A0398	4.5
NORTH COASTAL	WILLISTON	1	A0124	6.1
NORTH COASTAL	WILLISTON	2	A0125	9.1
NORTH COASTAL	ZUBER	1	A0202	8.8
NORTH COASTAL	ZUBER	1	A0203	5.8
NORTH COASTAL	ZUBER	2	A0204	7.4
NORTH COASTAL	ZUBER	2	A0205	5.5
NORTH CENTRAL	ALAFAYA	2	W0289	9.7
NORTH CENTRAL	ALAFAYA	2	W0290	8.9
NORTH CENTRAL	ALAFAYA	3	W0297	10.0
NORTH CENTRAL	ALAFAYA	3	W0298	9.6
NORTH CENTRAL	ALTAMONTE	1	M0571	4.7
NORTH CENTRAL	ALTAMONTE	1	M0572	9.2
NORTH CENTRAL	ALTAMONTE	1	M0573	4.0
NORTH CENTRAL	ALTAMONTE	1	M0574	5.1
NORTH CENTRAL	ALTAMONTE	2	M0575	6.1
NORTH CENTRAL	ALTAMONTE	2	M0576	8.3
NORTH CENTRAL	ALTAMONTE	2	M0578	8.9
NORTH CENTRAL	ALTAMONTE	2	M0579	8.6
NORTH CENTRAL	APOPKA SOUTH	3	M0720	8.5
NORTH CENTRAL	APOPKA SOUTH	3	M0721	7.2
NORTH CENTRAL	APOPKA SOUTH	1	M0722	5.7
NORTH CENTRAL	APOPKA SOUTH	1	M0723	8.7
NORTH CENTRAL	APOPKA SOUTH	1	M0724	4.4
NORTH CENTRAL	APOPKA SOUTH	2	M0725	8.2
NORTH CENTRAL	APOPKA SOUTH	2	M0726	7.7
NORTH CENTRAL	APOPKA SOUTH	2	M0727	5.2
NORTH CENTRAL	BARBERVILLE	1	W0902	6.8
NORTH CENTRAL	BARBERVILLE	2	W0903	1.8

NORTH CENTRAL	BARBERVILLE	2	W0904	4.1
NORTH CENTRAL	BAY RIDGE	2	M0445	3.5
NORTH CENTRAL	BAY RIDGE	1	M0447	5.3
NORTH CENTRAL	BAY RIDGE	2	M0451	10.7
NORTH CENTRAL	BAY RIDGE	1	M0453	6.8
NORTH CENTRAL	BITHLO	1	W0951	10.0
NORTH CENTRAL	BITHLO	1	W0952	9.7
NORTH CENTRAL	BITHLO	1	W0953	9.7
NORTH CENTRAL	BITHLO	2	W0954	9.4
NORTH CENTRAL	BITHLO	2	W0955	12.8
NORTH CENTRAL	BITHLO	2	W0956	9.5
NORTH CENTRAL	CASSADAGA	3	W0515	7.1
NORTH CENTRAL	CASSADAGA	3	W0516	7.1
NORTH CENTRAL	CASSADAGA	3	W0517	5.0
NORTH CENTRAL	CASSADAGA	2	W0523	4.1
NORTH CENTRAL	CASSADAGA	2	W0524	8.0
NORTH CENTRAL	CASSELBERRY	1	W0017	6.6
NORTH CENTRAL	CASSELBERRY	1	W0018	4.5
NORTH CENTRAL	CASSELBERRY	1	W0019	8.4
NORTH CENTRAL	CASSELBERRY	1	W0020	8.4
NORTH CENTRAL	CASSELBERRY	2	W0021	4.9
NORTH CENTRAL	CASSELBERRY	2	W0022	9.5
NORTH CENTRAL	CASSELBERRY	2	W0025	5.6
NORTH CENTRAL	CASSELBERRY	2	W0026	9.8
NORTH CENTRAL	CASSELBERRY	3	W0027	11.9
NORTH CENTRAL	CASSELBERRY	3	W0028	5.2
NORTH CENTRAL	CASSELBERRY	3	W0029	5.2
NORTH CENTRAL	DELAND	1	W0803	7.9
NORTH CENTRAL	DELAND	1	W0804	6.0
NORTH CENTRAL	DELAND	1	W0805	6.4
NORTH CENTRAL	DELAND	2	W0806	7.2
NORTH CENTRAL	DELAND	2	W0807	7.1
NORTH CENTRAL	DELAND	2	W0808	7.1
NORTH CENTRAL	DELAND	2	W0809	9.5
NORTH CENTRAL	DELAND EAST	3	W1102	4.7
NORTH CENTRAL	DELAND EAST	3	W1103	7.4
NORTH CENTRAL	DELAND EAST	3	W1104	6.6
NORTH CENTRAL	DELAND EAST	2	W1105	5.7
NORTH CENTRAL	DELAND EAST	2	W1106	6.1
NORTH CENTRAL	DELAND EAST	2	W1107	7.1
NORTH CENTRAL	DELAND EAST	1	W1108	8.9
NORTH CENTRAL	DELAND EAST	1	W1109	4.8
NORTH CENTRAL	DELAND EAST	1	W1110	8.2
NORTH CENTRAL	DELEON SPRINGS	1	W0032	7.8
NORTH CENTRAL	DELEON SPRINGS	1	W0034	5.3
NORTH CENTRAL	DELTONA	3	W4550	5.9
NORTH CENTRAL	DELTONA	3	W4553	5.0
NORTH CENTRAL	DELTONA	1	W4555	7.1

NORTH CENTRAL	DELTONA	3	W4556	8.6
NORTH CENTRAL	DELTONA	2	W4558	7.8
NORTH CENTRAL	DELTONA	1	W4561	4.7
NORTH CENTRAL	DELTONA	3	W4562	8.8
NORTH CENTRAL	DELTONA	2	W4564	3.8
NORTH CENTRAL	DELTONA	2	W4565	6.3
NORTH CENTRAL	DELTONA	1	W4567	6.5
NORTH CENTRAL	DELTONA EAST	3	W0121	7.7
NORTH CENTRAL	DELTONA EAST	2	W0123	9.4
NORTH CENTRAL	DELTONA EAST	3	W0124	8.5
NORTH CENTRAL	DELTONA EAST	2	W0126	5.3
NORTH CENTRAL	DELTONA EAST	3	W0130	8.8
NORTH CENTRAL	DELTONA EAST	2	W0132	8.1
NORTH CENTRAL	DOUGLAS AVENUE	1	M1704	4.3
NORTH CENTRAL	DOUGLAS AVENUE	2	M1706	6.4
NORTH CENTRAL	DOUGLAS AVENUE	1	M1707	4.9
NORTH CENTRAL	DOUGLAS AVENUE	2	M1709	5.3
NORTH CENTRAL	DOUGLAS AVENUE	2	M1712	4.3
NORTH CENTRAL	EAST ORANGE	2	W0250	10.9
NORTH CENTRAL	EAST ORANGE	3	W0252	8.6
NORTH CENTRAL	EAST ORANGE	2	W0253	8.7
NORTH CENTRAL	EAST ORANGE	3	W0255	6.3
NORTH CENTRAL	EAST ORANGE	2	W0265	7.2
NORTH CENTRAL	EAST ORANGE	2	W0271	8.9
NORTH CENTRAL	EAST ORANGE	1	W0273	3.1
NORTH CENTRAL	EAST ORANGE	3	W0274	11.5
NORTH CENTRAL	EAST ORANGE	1	W0276	3.8
NORTH CENTRAL	EAST ORANGE	3	W0281	10.6
NORTH CENTRAL	EATONVILLE	1	M1131	4.8
NORTH CENTRAL	EATONVILLE	1	M1132	8.4
NORTH CENTRAL	EATONVILLE	1	M1133	4.9
NORTH CENTRAL	EATONVILLE	2	M1135	10.6
NORTH CENTRAL	EATONVILLE	2	M1136	7.5
NORTH CENTRAL	EATONVILLE	2	M1137	7.7
NORTH CENTRAL	EATONVILLE	3	M1138	6.3
NORTH CENTRAL	EATONVILLE	3	M1139	8.4
NORTH CENTRAL	ECON	2	W0318	5.4
NORTH CENTRAL	ECON	1	W0320	8.8
NORTH CENTRAL	ECON	2	W0321	7.7
NORTH CENTRAL	ECON	2	W0324	8.1
NORTH CENTRAL	ECON	1	W0326	10.8
NORTH CENTRAL	ECON	2	W0327	10.8
NORTH CENTRAL	ECON	1	W0329	4.7
NORTH CENTRAL	EUSTIS	2	M0499	5.4
NORTH CENTRAL	EUSTIS	2	M0500	4.7
NORTH CENTRAL	EUSTIS	2	M0501	4.4
NORTH CENTRAL	EUSTIS	1	M0503	6.0
NORTH CENTRAL	EUSTIS	1	M0504	11.7

NORTH CENTRAL	EUSTIS SOUTH	2	M1054	4.8
NORTH CENTRAL	EUSTIS SOUTH	2	M1055	8.6
NORTH CENTRAL	EUSTIS SOUTH	2	M1056	6.5
NORTH CENTRAL	EUSTIS SOUTH	1	M1057	7.2
NORTH CENTRAL	EUSTIS SOUTH	1	M1058	7.4
NORTH CENTRAL	EUSTIS SOUTH	1	M1059	6.2
NORTH CENTRAL	FERN PARK	1	M0907	6.3
NORTH CENTRAL	FERN PARK	1	M0908	4.7
NORTH CENTRAL	FERN PARK	1	M0909	4.8
NORTH CENTRAL	HIGHBANKS	1	W0751	6.6
NORTH CENTRAL	HIGHBANKS	1	W0752	6.2
NORTH CENTRAL	KELLER ROAD	1	M0001	8.6
NORTH CENTRAL	KELLER ROAD	2	M0002	3.6
NORTH CENTRAL	KELLER ROAD	1	M0003	7.0
NORTH CENTRAL	KELLER ROAD	2	M0004	6.4
NORTH CENTRAL	KELLY PARK	2	M0821	5.6
NORTH CENTRAL	KELLY PARK	2	M0822	3.9
NORTH CENTRAL	LAKE ALOMA	1	W0151	5.5
NORTH CENTRAL	LAKE ALOMA	1	W0153	10.8
NORTH CENTRAL	LAKE ALOMA	2	W0158	3.5
NORTH CENTRAL	LAKE ALOMA	2	W0161	8.7
NORTH CENTRAL	LAKE EMMA	2	M0421	5.7
NORTH CENTRAL	LAKE EMMA	2	M0422	5.7
NORTH CENTRAL	LAKE EMMA	2	M0423	4.7
NORTH CENTRAL	LAKE EMMA	2	M0424	5.9
NORTH CENTRAL	LAKE EMMA	1	M0425	3.7
NORTH CENTRAL	LAKE EMMA	1	M0426	6.6
NORTH CENTRAL	LAKE EMMA	1	M0427	4.0
NORTH CENTRAL	LAKE EMMA	1	M0428	8.09
NORTH CENTRAL	LAKE HELEN	1	W1700	9.35
NORTH CENTRAL	LAKE HELEN	2	W1701	6.28
NORTH CENTRAL	LAKE HELEN	1	W1703	9.19
NORTH CENTRAL	LAKE HELEN	2	W1704	9.16
NORTH CENTRAL	LISBON	2	M1517	10.49
NORTH CENTRAL	LISBON	1	M1518	6.59
NORTH CENTRAL	LISBON	2	M1519	6.85
NORTH CENTRAL	LISBON	1	M1520	6.00
NORTH CENTRAL	LOCKHART	1	M0400	9.46
NORTH CENTRAL	LOCKHART	2	M0402	8.07
NORTH CENTRAL	LOCKHART	1	M0406	8.51
NORTH CENTRAL	LOCKHART	2	M0408	4.20
NORTH CENTRAL	LOCKHART	1	M0412	9.15
NORTH CENTRAL	LOCKHART	2	M0414	5.71
NORTH CENTRAL	LOCKHART	1	M0415	4.65
NORTH CENTRAL	LOCKHART	2	M0417	5.65
NORTH CENTRAL	LOCKWOOD	1	W0480	9.21
NORTH CENTRAL	LOCKWOOD	1	W0481	5.84
NORTH CENTRAL	LOCKWOOD	1	W0482	7.84
NORTH CENTRAL	LOCKWOOD	2	W0483	5.99
NORTH CENTRAL	LONGWOOD	1	M0142	12.71
NORTH CENTRAL	LONGWOOD	1	M0143	6.88
NORTH CENTRAL	LONGWOOD	2	M0144	8.92
NORTH CENTRAL	LONGWOOD	2	M0145	6.54
NORTH CENTRAL	MAITLAND	3	M0080	8.23
NORTH CENTRAL	MAITLAND	1	M0081	7.09

NORTH CENTRAL	MAITLAND	1	M0082	7.64
NORTH CENTRAL	MAITLAND	1	M0084	3.32
NORTH CENTRAL	MAITLAND	2	M0085	6.03
NORTH CENTRAL	MAITLAND	3	W0079	8.18
NORTH CENTRAL	MAITLAND	2	W0086	4.67
NORTH CENTRAL	MAITLAND	2	W0087	10.47
NORTH CENTRAL	MONASTERY	1	W0201	7.21
NORTH CENTRAL	MONASTERY	1	W0202	6.03
NORTH CENTRAL	MONASTERY	1	W0210	8.90
NORTH CENTRAL	MYRTLE LAKE	2	M0648	8.40
NORTH CENTRAL	MYRTLE LAKE	2	M0649	9.23
NORTH CENTRAL	MYRTLE LAKE	2	M0650	5.66
NORTH CENTRAL	MYRTLE LAKE	2	M0651	7.42
NORTH CENTRAL	MYRTLE LAKE	3	M0657	8.67
NORTH CENTRAL	MYRTLE LAKE	3	M0658	9.40
NORTH CENTRAL	MYRTLE LAKE	3	M0659	7.92
NORTH CENTRAL	NORTH LONGWOOD	6	M1749	8.96
NORTH CENTRAL	NORTH LONGWOOD	7	M1751	10.24
NORTH CENTRAL	NORTH LONGWOOD	6	M1755	6.66
NORTH CENTRAL	NORTH LONGWOOD	7	M1757	5.91
NORTH CENTRAL	NORTH LONGWOOD	6	M1758	8.79
NORTH CENTRAL	NORTH LONGWOOD	7	M1760	6.40
NORTH CENTRAL	NORTH LONGWOOD	6	M1761	8.79
NORTH CENTRAL	NORTH LONGWOOD	7	M1763	8.87
NORTH CENTRAL	ORANGE CITY	3	W0370	6.97
NORTH CENTRAL	ORANGE CITY	2	W0372	8.10
NORTH CENTRAL	ORANGE CITY	3	W0376	8.12
NORTH CENTRAL	ORANGE CITY	2	W0378	3.87
NORTH CENTRAL	ORANGE CITY	3	W0382	6.41
NORTH CENTRAL	OVIEDO	1	W0171	8.32
NORTH CENTRAL	OVIEDO	1	W0172	6.92
NORTH CENTRAL	OVIEDO	2	W0174	9.26
NORTH CENTRAL	OVIEDO	2	W0175	6.43
NORTH CENTRAL	OVIEDO	3	W0176	8.08
NORTH CENTRAL	OVIEDO	3	W0181	5.22
NORTH CENTRAL	PIEDMONT	2	M0471	8.01
NORTH CENTRAL	PIEDMONT	2	M0472	7.03
NORTH CENTRAL	PIEDMONT	2	M0473	9.73
NORTH CENTRAL	PIEDMONT	2	M0474	9.43
NORTH CENTRAL	PIEDMONT	1	M0475	8.35
NORTH CENTRAL	PIEDMONT	1	M0476	4.86
NORTH CENTRAL	PIEDMONT	1	M0477	8.05
NORTH CENTRAL	PIEDMONT	1	M0478	8.90
NORTH CENTRAL	PLYMOUTH SOUTH	1	M0702	4.53
NORTH CENTRAL	PLYMOUTH SOUTH	2	M0704	3.38
NORTH CENTRAL	PLYMOUTH SOUTH	2	M0706	7.27
NORTH CENTRAL	PLYMOUTH SOUTH	1	M0707	9.16
NORTH CENTRAL	SPRING LAKE	2	M0662	6.18
NORTH CENTRAL	SPRING LAKE	2	M0663	6.74
NORTH CENTRAL	SPRING LAKE	2	M0664	7.35
NORTH CENTRAL	SPRING LAKE	1	M0666	4.78
NORTH CENTRAL	SPRING LAKE	1	M0667	9.77
NORTH CENTRAL	SPRING LAKE	1	M0668	10.05
NORTH CENTRAL	SPRING LAKE	3	M0669	7.12
NORTH CENTRAL	SPRING LAKE	3	M0670	7.67

NORTH CENTRAL	SUNFLOWER	1	W0469	4.89
NORTH CENTRAL	SUNFLOWER	1	W0470	10.60
NORTH CENTRAL	SUNFLOWER	1	W0471	7.74
NORTH CENTRAL	SUNFLOWER	2	W0472	5.99
NORTH CENTRAL	SUNFLOWER	2	W0473	8.88
NORTH CENTRAL	SUNFLOWER	2	W0474	12.53
NORTH CENTRAL	SUNFLOWER	1	W0475	6.71
NORTH CENTRAL	TAVARES EAST	1	M0580	5.48
NORTH CENTRAL	TAVARES EAST	1	M0581	4.91
NORTH CENTRAL	TURNER PLANT	8	W0761	8.20
NORTH CENTRAL	TURNER PLANT	8	W0762	6.34
NORTH CENTRAL	TURNER PLANT	10	W0763	6.74
NORTH CENTRAL	TURNER PLANT	10	W0764	5.85
NORTH CENTRAL	UCF	1	W1012	9.45
NORTH CENTRAL	UCF	1	W1013	8.17
NORTH CENTRAL	UCF	1	W1014	4.05
NORTH CENTRAL	UCF	2	W1015	7.03
NORTH CENTRAL	UCF	2	W1016	11.41
NORTH CENTRAL	UCF	2	W1017	6.48
NORTH CENTRAL	UCF	2	W1018	5.38
NORTH CENTRAL	UCF NORTH	3	W0940	1.76
NORTH CENTRAL	UCF NORTH	1	W0942	1.71
NORTH CENTRAL	UCF NORTH	1	W0980	10.17
NORTH CENTRAL	UCF NORTH	2	W0981	7.00
NORTH CENTRAL	UCF NORTH	2	W0982	8.94
NORTH CENTRAL	UCF NORTH	1	W0983	4.51
NORTH CENTRAL	UCF NORTH	3	W0988	2.65
NORTH CENTRAL	UCF NORTH	1	W0989	4.67
NORTH CENTRAL	UCF NORTH	2	W0992	11.04
NORTH CENTRAL	UCF NORTH	3	W0994	10.00
NORTH CENTRAL	UMATILLA	2	M4405	6.47
NORTH CENTRAL	UMATILLA	1	M4407	7.39
NORTH CENTRAL	UMATILLA	1	M4408	5.01
NORTH CENTRAL	WEKIVA	1	M0101	5.13
NORTH CENTRAL	WEKIVA	2	M0103	4.82
NORTH CENTRAL	WEKIVA	2	M0104	5.01
NORTH CENTRAL	WEKIVA	1	M0106	6.12
NORTH CENTRAL	WEKIVA	1	M0107	6.79
NORTH CENTRAL	WEKIVA	2	M0109	5.01
NORTH CENTRAL	WEKIVA	2	M0110	8.00
NORTH CENTRAL	WEKIVA	1	M0112	5.62
NORTH CENTRAL	WEKIVA	2	M0113	5.97
NORTH CENTRAL	WEKIVA	1	M0115	4.60
NORTH CENTRAL	WELCH ROAD	1	M0542	8.49
NORTH CENTRAL	WELCH ROAD	1	M0543	5.73
NORTH CENTRAL	WELCH ROAD	3	M0545	6.99
NORTH CENTRAL	WELCH ROAD	3	M0548	7.15
NORTH CENTRAL	WELCH ROAD	1	M0550	9.68
NORTH CENTRAL	WELCH ROAD	1	M0552	6.01
NORTH CENTRAL	WELCH ROAD	3	M0554	7.00
NORTH CENTRAL	WEST CHAPMAN	3	W0700	9.02
NORTH CENTRAL	WEST CHAPMAN	2	W0702	5.22
NORTH CENTRAL	WEST CHAPMAN	3	W0703	7.76
NORTH CENTRAL	WEST CHAPMAN	2	W0705	3.66
NORTH CENTRAL	WEST CHAPMAN	3	W0708	10.78

NORTH CENTRAL	WINTER PARK	4	W0014	2.00
NORTH CENTRAL	WINTER PARK	4	W0015	7.34
NORTH CENTRAL	WINTER PARK	4	W0016	5.62
NORTH CENTRAL	WINTER PARK EAST	1	W0924	10.61
NORTH CENTRAL	WINTER PARK EAST	1	W0925	10.78
NORTH CENTRAL	WINTER PARK EAST	1	W0926	9.23
NORTH CENTRAL	WINTER PARK EAST	1	W0927	8.04
NORTH CENTRAL	WINTER PARK EAST	3	W0928	8.94
NORTH CENTRAL	WINTER PARK EAST	3	W0929	10.88
NORTH CENTRAL	WINTER PARK EAST	3	W0930	5.68
NORTH CENTRAL	WINTER PARK EAST	3	W0931	10.29
NORTH CENTRAL	WINTER SPRINGS	3	W0187	9.79
NORTH CENTRAL	WINTER SPRINGS	3	W0188	8.98
NORTH CENTRAL	WINTER SPRINGS	3	W0189	7.97
NORTH CENTRAL	WINTER SPRINGS	1	W0192	8.32
NORTH CENTRAL	WINTER SPRINGS	1	W0193	4.90
NORTH CENTRAL	WINTER SPRINGS	1	W0194	7.39
NORTH CENTRAL	WINTER SPRINGS	2	W0195	8.19
NORTH CENTRAL	WINTER SPRINGS	2	W0196	8.85
NORTH CENTRAL	WOLF LAKE	1	M0563	5.11
NORTH CENTRAL	WOLF LAKE	1	M0564	6.12
NORTH CENTRAL	ZELLWOOD	1	M0031	5.70
NORTH CENTRAL	ZELLWOOD	1	M0032	0.94
NORTH CENTRAL	ZELLWOOD	2	M0033	8.79
NORTH CENTRAL	ZELLWOOD	2	M0034	8.36

Attachment H

Received Jan 1 to Dec 31, 2020

88 Complaints

DEF logged as Power Quality & Reliability

Date Received	PSC Complaint #	DEF Category	PSC Ruling	PSC Closure Code
1/8/2020	1330471E	Outage	Non-Infraction	GI-15 Outages
1/22/2020	1331291E	Outage	Non-Infraction	GI-11 Repair Service
1/24/2020	1331458E	Equipment/Facilities Issues	Non-Infraction	GI-17 Safety Issues
1/28/2020	1331680E	Voltage Problems	Non-Infraction	GI-11 Repair Service
1/31/2020	1331913E	Outage	Non-Infraction	GI-15 Outages
2/3/2020	1331957E	Equipment/Facilities Issues	Non-Infraction	GI-11 Repair Service
2/7/2020	1332239E	Outage	Non-Infraction	GI-15 Outages
2/7/2020	1332291E	Voltage Problems	Non-Infraction	GI-15 Outages
2/14/2020	1332667E	Vegetation Management Distribution	Non-Infraction	GI-11 Repair Service
2/17/2020	1332722E	Outage	Non-Infraction	GI-15 Outages
2/20/2020	1332979E	Outage	Non-Infraction	GI-15 Outages
2/21/2020	1333044E	Outage	Non-Infraction	GI-15 Outages
3/5/2020	1334020E	Outage	Non-Infraction	GI-15 Outages
3/10/2020	1333733E	Equipment/Facilities Issues	Non-Infraction	GI-17 Safety Issues
3/30/2020	1335208E	Vegetation Management Distribution	Non-Infraction	GI-18 Tree Trimming
3/30/2020	1335213E	Vegetation Management Distribution	Non-Infraction	GI-72 3-Day Resolution
4/17/2020	1336061E	Outage	Non-Infraction	GI-18 Tree Trimming
4/21/2020	1336212E	Lighting	Non-Infraction	GI-25 Improper Billing
4/24/2020	1336375E	Outage	Non-Infraction	GI-15 Outages
4/28/2020	1336594E	Lighting	Non-Infraction	GI-11 Repair Service
5/11/2020	1337207E	Vegetation Management Distribution	Non-Infraction	GI-17 Safety Issues
5/14/2020	1337393E	Outage	Non-Infraction	GI-15 Outages
5/15/2020	1337450E	Outage	Non-Infraction	GI-15 Outages
5/18/2020	1337476E	Outage	Non-Infraction	GI-15 Outages
5/18/2020	1337528E	Outage	Non-Infraction	GI-15 Outages
5/28/2020	1337941E	Outage	Non-Infraction	GI-15 Outages
5/28/2020	1337948E	Outage	Non-Infraction	GI-15 Outages
5/28/2020	1337977E	Outage	Non-Infraction	GI-15 Outages
5/29/2020	1338015E	Outage	Non-Infraction	GI-15 Outages
5/29/2020	1338014E	Vegetation Management Distribution	Non-Infraction	GI-15 Outages
6/1/2020	1338066E	Outage	Non-Infraction	GI-15 Outages
6/1/2020	1338068E	Outage	Non-Infraction	GI-15 Outages
6/1/2020	338075E	Outage	Non-Infraction	GI-15 Outages
6/1/2020	1338080E	Outage	Non-Infraction	GI-15 Outages
6/2/2020	1338146E	Outage	Non-Infraction	GI-15 Outages
6/2/2020	1338168E	Outage	Non-Infraction	GI-15 Outages
6/2/2020	1338176E	Outage	Non-Infraction	GI-15 Outages
6/4/2020	1338291E	Outage	Non-Infraction	GI-15 Outages
6/4/2020	1338291E	Outage	Non-Infraction	GI-15 Outages
6/15/2020	1338840E	Voltage Problems	Non-Infraction	GI-15 Outages
6/24/2020	1339255E	Outage	Non-Infraction	GI-15 Outages
7/10/2020	1340036E	Outage	Non-Infraction	GI-15 Outages
7/14/2020	1340172E	Voltage Problems	Non-Infraction	GI-11 Repair Service
7/21/2020	1340499E	Outage	Non-Infraction	GI-15 Outages
7/23/2020	1340586E	Equipment/Facilities Issues	Non-Infraction	GI-11 Repair Service
7/23/2020	1340618E	Outage	Non-Infraction	GI-15 Outages

Received Jan 1 to Dec 31, 2020

80 Complaints

PSC Service Reliability Only Closure Codes

Date Received	PSC Complaint #	DEF Category	PSC Closure Code
1/8/2020	1330471E	Outage	GI-15 Outages
1/22/2020	1331291E	Outage	GI-11 Repair Service
1/24/2020	1331458E	Equipment/Facilities Issues	GI-17 Safety Issues
1/28/2020	1331680E	Voltage Problems	GI-11 Repair Service
1/31/2020	1331913E	Outage	GI-15 Outages
2/3/2020	1332017E	High Bills	GI-11 Repair Service
2/3/2020	1331957E	Equipment/Facilities Issues	GI-11 Repair Service
2/7/2020	1332239E	Outage	GI-15 Outages
2/7/2020	1332291E	Voltage Problems	GI-15 Outages
2/14/2020	1332667E	Vegetation Management Distribution	GI-11 Repair Service
2/17/2020	1332722E	Outage	GI-15 Outages
2/20/2020	1332979E	Outage	GI-15 Outages
2/21/2020	1333044E	Outage	GI-15 Outages
3/5/2020	1334020E	Outage	GI-15 Outages
3/10/2020	1333733E	Equipment/Facilities Issues	GI-17 Safety Issues
3/30/2020	1335208E	Vegetation Management Distribution	GI-18 Tree Trimming
4/17/2020	1336061E	Outage	GI-18 Tree Trimming
4/20/2020	1336154E	Claims	GI-11 Repair Service
4/24/2020	1336371E	Disconnect Non-Pay	GI-11 Repair Service
4/24/2020	1336375E	Outage	GI-15 Outages
4/27/2020	1336492E	Claims	GI-15 Outages
4/28/2020	1336594E	Lighting	GI-11 Repair Service
5/11/2020	1337207E	Vegetation Management Distribution	GI-17 Safety Issues
5/14/2020	1337393E	Outage	GI-15 Outages
5/15/2020	1337450E	Outage	GI-15 Outages
5/18/2020	1337476E	Outage	GI-15 Outages
5/18/2020	1337528E	Outage	GI-15 Outages
5/28/2020	1337941E	Outage	GI-15 Outages
5/28/2020	1337948E	Outage	GI-15 Outages
5/28/2020	1337977E	Outage	GI-15 Outages
5/29/2020	1338015E	Outage	GI-15 Outages
5/29/2020	1338014E	Vegetation Management Distribution	GI-15 Outages
6/1/2020	1338066E	Outage	GI-15 Outages
6/1/2020	1338068E	Outage	GI-15 Outages
6/1/2020	338075E	Outage	GI-15 Outages
6/1/2020	1338080E	Outage	GI-15 Outages
6/2/2020	1338146E	Outage	GI-15 Outages
6/2/2020	1338168E	Outage	GI-15 Outages
6/2/2020	1338176E	Outage	GI-15 Outages
6/4/2020	1338291E	Outage	GI-15 Outages
6/4/2020	1338291E	Outage	GI-15 Outages
6/15/2020	1338840E	Voltage Problems	GI-15 Outages
6/24/2020	1339255E	Outage	GI-15 Outages
7/10/2020	1340036E	Outage	GI-15 Outages
7/14/2020	1340172E	Voltage Problems	GI-11 Repair Service
7/21/2020	1340499E	Outage	GI-15 Outages

7/27/2020	1340770E	Voltage Problems	Non-Infraction	GI-17 Safety Issues
7/28/2020	1340816E	Outage	Non-Infraction	GI-15 Outages
7/29/2020	1340881E	Outage	Non-Infraction	GI-15 Outages
7/29/2020	1349014E	Outage	Non-Infraction	GI-15 Outages
8/3/2020	1341128E	Voltage Problems	Non-Infraction	GI-15 Outages
8/4/2020	1341209E	Voltage Problems	Non-Infraction	GI-15 Outages
8/4/2020	1341213E	Outage	Non-Infraction	GI-15 Outages
8/5/2020	1341261E	Outage	Non-Infraction	GI-15 Outages
8/5/2020	1341309E	Outage	Non-Infraction	GI-30 Quality of Service
8/7/2020	1341420E	Outage	Non-Infraction	GI-15 Outages
8/10/2020	1341501E	Outage	Non-Infraction	GI-15 Outages
8/12/2020	1341705E	Equipment/Facilities Issues		
8/13/2020	1341938E	Outage	Non-Infraction	GI-15 Outages
8/14/2020	1341988E	Equipment/Facilities Issues	Non-Infraction	GI-15 Outages
8/18/2020	1342113E	Outage	Non-Infraction	GI-15 Outages
8/21/2020	1342538E	Voltage Problems	Non-Infraction	GI-11 Repair Service
8/21/2020	1342560E	Outage	Non-Infraction	GI-15 Outages
8/21/2020	1342575E	Outage	Non-Infraction	GI-15 Outages
8/21/2020	1342532E	Equipment/Facilities Issues	Non-Infraction	GI-11 Repair Service
8/28/2020	1343124E	Outage	Non-Infraction	GI-15 Outages
9/4/2020	1344243E	Vegetation Management Distribution	Non-Infraction	GI-17 Safety Issues
9/15/2020	1345697E	Outage	Non-Infraction	GI-15 Outages
9/15/2020	1345920E	Outage		
9/15/2020	1345798E	Outage	Non-Infraction	GI-15 Outages
9/21/2020	1347544E	Outage	Non-Infraction	GI-17 Safety Issues
9/28/2020	1349387E	Outage	Non-Infraction	GI-15 Outages
9/29/2020	1349821E	Voltage Problems	Non-Infraction	GI-15 Outages
10/12/2020	1351983E	Equipment/Facilities Issues	Non-Infraction	GI-17 Safety Issues
10/14/2020	1352292E	Outage	Non-Infraction	GI-15 Outages
10/15/2020	1352311E	Equipment/Facilities Issues	Non-Infraction	GI-11 Repair Service
10/29/2020	1353451E	Vegetation Management Distribution	Non-Infraction	GI-17 Safety Issues
11/4/2020	1353942E	Voltage Problems	Non-Infraction	GI-08 Rules & Tariffs
11/9/2020	1354205E	Outage	Non-Infraction	GI-15 Outages
11/12/2020	1354439E	Outage	Non-Infraction	GI-15 Outages
11/17/2020	1354922E	Outage		
11/17/2020	1355064E	Equipment/Facilities Issues	Non-Infraction	GI-11 Repair Service
11/20/2020	1355341E	Equipment/Facilities Issues	Non-Infraction	GI-17 Safety Issues
11/23/2020	1355391E	Outage		
12/1/2020	1356011E	Outage		
12/3/2020	1356185E	Equipment/Facilities Issues		
12/28/2020	1358034E	Outage		
12/28/2020	1358112E	Outage		

7/23/2020	1340586E	Equipment/Facilities Issues	GI-11 Repair Service
7/23/2020	1340618E	Outage	GI-15 Outages
7/27/2020	1340770E	Voltage Problems	GI-17 Safety Issues
7/28/2020	1340816E	Outage	GI-15 Outages
7/29/2020	1340881E	Outage	GI-15 Outages
7/29/2020	1349014E	Outage	GI-15 Outages
8/3/2020	1341128E	Voltage Problems	GI-15 Outages
8/4/2020	1341209E	Voltage Problems	GI-15 Outages
8/4/2020	1341213E	Outage	GI-15 Outages
8/5/2020	1341261E	Outage	GI-15 Outages
8/7/2020	1341420E	Outage	GI-15 Outages
8/10/2020	1341501E	Outage	GI-15 Outages
8/13/2020	1341938E	Outage	GI-15 Outages
8/14/2020	1341988E	Equipment/Facilities Issues	GI-15 Outages
8/18/2020	1342113E	Outage	GI-15 Outages
8/21/2020	1342538E	Voltage Problems	GI-11 Repair Service
8/21/2020	1342560E	Outage	GI-15 Outages
8/21/2020	1342575E	Outage	GI-15 Outages
8/21/2020	1342532E	Equipment/Facilities Issues	GI-11 Repair Service
8/28/2020	1343124E	Outage	GI-15 Outages
9/4/2020	1344243E	Vegetation Management Distribution	GI-17 Safety Issues
9/15/2020	1345697E	Outage	GI-15 Outages
9/15/2020	1345798E	Outage	GI-15 Outages
9/21/2020	1347544E	Outage	GI-17 Safety Issues
9/28/2020	1349387E	Outage	GI-15 Outages
9/29/2020	1349821E	Voltage Problems	GI-15 Outages
10/12/2020	1351983E	Equipment/Facilities Issues	GI-17 Safety Issues
10/14/2020	1352292E	Outage	GI-15 Outages
10/15/2020	1352311E	Equipment/Facilities Issues	GI-11 Repair Service
10/29/2020	1353451E	Vegetation Management Distribution	GI-17 Safety Issues
11/9/2020	1354205E	Outage	GI-15 Outages
11/12/2020	1354439E	Outage	GI-15 Outages
11/17/2020	1355064E	Equipment/Facilities Issues	GI-11 Repair Service
11/20/2020	1355341E	Equipment/Facilities Issues	GI-17 Safety Issues

Attachment I

Storm Hardening Projects 2019-2021

Zone	Op Center	County	Project	Sub Category	Project Status or Year to Complete
South Central	Winter Garden	Orange	Oakland Ave Feeder Tie	Feeder Tie	Completed 2019
South Coastal	St Petersburg	Pinellas	16th St. X43/X46 4/0 copper to 795 AAC reconductor	Feeder Tie	Planned for 2020 Completion
South Central	Highlands	Highlands	US 27 & Hammock Rd	Feeder Tie	Planned for 2020 Completion
South Central	Highlands	Highlands	US 27 & Lakeview Rd Phase II	Feeder Tie	Completed 2019
South Central	Highlands	Highlands	State HWY 66 Phase I	Feeder Tie	Completed 2019
South Central	Highlands	Highlands	State HWY 66 Phase II	Feeder Tie	Planned for 2021 Completion
South Central	Highlands	Highlands	Lakewood Ave	Feeder Tie	Planned for 2020 Completion
North Coastal	Ocala	Marion	Ocala - SE 64th Ave Rd	Feeder Tie	Completed 2019
North Coastal	Monticello	Taylor	Perry North N15 - Reconductor	Feeder Tie	Completed 2019
South Coastal	Seven Springs	Pasco	Denham C151_Denham C152 Feeder Tie	Feeder Tie	Planned for 2021 Completion
North Coastal	Monticello	Alachua	High Springs A16	Deteriorated Conductor	Completed 2019
North Coastal	Monticello	Columbia	Ft White A20, West US 27 Reconductor	Feeder Tie/Deteriorated Conductor	Planned for 2020 Completion
South Central	Buena Vista	Orange	Hunters CK_Town Ctr Feeder Tie	Feeder Tie	Planned for 2021 Completion
South Central	Lake Wales	Polk	K9 & K5078 Feeder Tie	Feeder Tie	Completed 2019
North Coastal	Inverness	Citrus	Storm Hardening UG Xfmrs at Sportsman Riverside Townhouses, Homosass	Submersible UG	Completed 2019
North Coastal	Inverness	Citrus	Storm Hardening Gasparilla Cay Subdivision	Submersible UG	Completed 2019
North Coastal	Inverness	Citrus	Storm Hardening along Riverhaven Dr., Homosassa	Submersible UG	Completed 2019
North Coastal	Inverness	Citrus	Storm Hardening Dixie Shores Subdivision, Crystal River.	Submersible UG	Planned for 2020 Completion
North Coastal	Inverness	Citrus	Storm Hardening Blue River Cove Subdivision, Homosassa	Submersible UG	Completed 2019
South Coastal	Seven Springs	Pasco	Anclote Substation Bank 7 and Bank 8 Feeder Ties	Feeder Tie	Planned for 2020 Completion
South Central	SE Orlando	Orange	GreenTree & Cypress Glenn Grid Strenghtening - Phase 1	OH to UG Conversion	Completed 2019
South Central	SE Orlando	Orange	GreenTree & Cypress Glenn Grid Strenghtening - Phase 2	OH to UG Conversion	Planned for 2020 Completion
North Coastal	Inverness	Hernando	Storm Hardening Imperial Estates Underground	Submersible UG	Completed 2019
South Central	Highlands	Highlands	Lake Byrd Reconductor	Deteriorated Conductor	Planned for 2021 Completion
North Coastal	Monticello	Alachua	GE Alachua A186, UF Dairy Reconductor	Deteriorated Conductor	Planned for 2021 Completion
South Coastal	Zephyrhills	Pasco	Branchline reconductor at Otis Allen and 16th St.	Deteriorated Conductor	Planned for 2021 Completion
South Central	Lake Wales	Polk	Alturas Loop Rd	Deteriorated Conductor	Planned for 2021 Completion
South Central	Highlands	Highlands	K542 Sebring Airport Terminal	Deteriorated Conductor	Planned for 2021 Completion
North Central	Deland	Volusia	W902 Shaw Lake Reconductor	Deteriorated Conductor	Completed 2019
South Central	SE Orlando	Orange	Dawn Drive 5081648-2	Deteriorated Conductor	Completed 2019
North Coastal	Inverness	Citrus	Citrus Springs - Construct 3 phs 1/0 along Academy Dr & 69kv R/W and eliminate backlot line feeds.	Backlot to Frontlot Conversion	Planned for 2021 Completion
North Central	Longwood	Seminole	Fern Park M908 Grid Strenghtening	OH to UG Conversion	Planned for 2021 Completion
South Coastal	Clearwater	Pinellas	Clearwater C15 Country Club Subdivision	Deteriorated Conductor	Planned for 2021 Completion
South Coastal	Seven Springs	Pinellas	Curlew C4988 Spanish Acres Subdivision	Deteriorated Conductor	Project Cancelled. Now under TUG
South Central	Winter Garden	Orange	Main Street Feeder Tie	Feeder Tie	Planned for 2021 Completion
South Central	Buena Vista	Orange	Summerlake Park Feeder Tie K1111 to K1110	Feeder Tie	Planned for 2020 Completion
North Central	Apopka	Seminole	M109 Smoke Rise Blvd Reliability	OH to UG Conversion/ Backlot Conversion	Planned for 2021 Completion
North Central	Apopka	Orange	M34 Dudley Ave Underground Conversion	OH to UG Conversion	Planned for 2021 Completion
South Coastal	Seven Springs	Pinellas	Tarpon Springs C305 Magnolia Heights Reconductor	Feeder Tie	Planned for 2021 Completion
South Coastal	St Petersburg	Pinellas	52nd St Reconductor	Feeder Tie	Planned for 2021 Completion
South Central	Winter Garden	Orange	SR408 Crossing West of Good Homes	Overhead Line Crossing/Backlot	Planned for 2021 Completion
South Central	Clermont	Lake	Hancock Road Feeder Tie K4833_K4841	Feeder Tie	Planned for 2021 Completion
South Central	SE Orlando	Orange	Meadow Woods S Feeder Tie K1789_K1775	Feeder Tie	Planned for 2021 Completion
North Coastal	Monticello	Gulf	Feeder N55 tie to rest of Port St Joe Feeders	Feeder Tie	Planned for 2021 Completion
South Central	Buena Vista	Orange	TUG 442313600 Winwood Way	TUG	Planned for 2020 Completion
North Central	Jamestown	Orange	TUG 444365498 Lake Pickett	TUG	Completed 2019
South Coastal	Clearwater	Pinellas	TUG 444175916 KENT PL	TUG	Completed 2019
South Coastal	Seven Springs	Pasco	TUG 445908443 US HWY 19	TUG	Completed 2019
South Coastal	Walsingham	Pinellas	TUG 444000345 WALSINGHAM ROAD	TUG	Completed 2019
South Central	Lake Wales	Polk	TUG 443456879 MASTERPIECE ROAD	TUG	Completed 2019
South Coastal	Clearwater	Pinellas	TUG 444175903 LAKE AVENUE	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991482 DILLS RD	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991979 CLARK RD	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992222 DILLS RD	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991596 E CAPPS HWY	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992262 WAUKEENAH HWY	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992343 E WASHINGTON ST	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991942 E WASHINGTON ST	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992071 E WASHINGTON ST	TUG	Completed 2019
South Central	Lake Wales	Polk	TUG 443588618 W CENTRAL AVENUE	TUG	Completed 2019
South Central	Lake Wales	Polk	TUG 443590662 WAVERLY ROAD	TUG	Completed 2019
South Coastal	Walsingham	Pinellas	TUG 444000839 PARK BLVD	TUG	Completed 2019
South Central	Lake Wales	Polk	TUG 443456476 S 4TH STREET	TUG	Completed 2019
South Coastal	St Petersburg	Pinellas	TUG 443021560 13TH AVENUE SOUTH	TUG	Completed 2019
North Coastal	Monticello	Hamilton	TUG 437462847 SW 41 HWY	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991852 WAUKEENAH HWY	TUG	Completed 2019
North Coastal	Monticello	Madison	TUG 446863601 S STATE ROAD 53	TUG	Completed 2019
North Coastal	Monticello	Taylor	TUG 437643458 Johnson Stripling Rd	TUG	Completed 2019
North Central	Deland	Volusia	TUG 443101071 S WOODLAND BLVD	TUG	Completed 2019
North Coastal	Monticello	Levy	TUG 437808024 SE 4 ST	TUG	Completed 2019
North Coastal	Monticello	Taylor	TUG 437643315 MORGAN WHIDDON RD	TUG	Completed 2019
North Coastal	Monticello	Levy	TUG 437808132 OLD FANNIN RD	TUG	Completed 2019
North Central	Deland	Volusia	TUG 443101171 E TAYLOR ROAD	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551406 CORTEZ BLVD	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551579 OAKDALE AVENUE	TUG	Planned for 2020 Completion
North Central	Deland	Volusia	TUG 443098247 MERCERS FERNERY ROAD	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446947221 N CAROLWOOD PT	TUG	Completed 2019
South Central	Clermont	Lake	TUG 439153957 OLD HWY 50	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446948589 N.FOREST LAKE DR	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551410 SINGER LANE	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551438 KOLLAR STREET	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551561 CEDAR LANE	TUG	Completed 2019
North Central	Deland	Volusia	TUG 443098221 W WASHINGTON AVE	TUG	Completed 2019
South Coastal	Walsingham	Pinellas	TUG 444121088 US HWY 19 N	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551401 BROAD STREET	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551571 PONCE DE LEON BLVD	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 410077868 NE 9TH AVENUE	TUG	Completed 2019
North Central	Deland	Volusia	TUG 443098818 CHURCH STREET	TUG	Completed 2019
North Coastal	Inverness	Marion	TUG 446792563 SW HWY 484	TUG	Completed 2019
North Coastal	Inverness	Marion	TUG 446792833 S US HWY 41	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446550669 GARDEN STREET	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 440373184 W FORT ISLAND TRAIL	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446947915 NORVELL BRYANT HWY	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446550461 BELL AVENUE	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446946957 S RUSSELL ROAD	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446946764 S JUNEAU POINT	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551358 SPRING HILL DR	TUG	Completed 2019
North Coastal	Monticello	Taylor	TUG 437643271 Johnson Stripling Rd	TUG	Completed 2019
North Coastal	Monticello	Madison	TUG 446928406 NE County Road 255	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446946878 S. SCARBORO AVENUE	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446551368 AYERS ROAD	TUG	Completed 2019
North Coastal	Ocala	Marion	TUG 446640224 NE 21ST CT	TUG	Completed 2019
North Coastal	Ocala	Marion	TUG 446639397 E HIGHWAY 329	TUG	Completed 2019
North Coastal	Monticello	Madison	TUG 446928171 NE State Road 6	TUG	Completed 2019
South Coastal	Clearwater	Pinellas	TUG 444040631 McMullen Booth Rd	TUG	Completed 2019
North Central	Deland	Volusia	TUG 443101562 REYNOLDS ROAD	TUG	Completed 2019

North Central	Longwood	Orange	TUG 442901716 DR LOVE DR	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991535 Jefferson Heights Rd	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991614 BONNET POND RD	TUG	Completed 2019
North Central	Longwood	Seminole	TUG 442900787 KOKOMO LOOP	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446550619 W JEFFERSON STREET	TUG	Completed 2019
South Coastal	Zephyrhills	Pasco	TUG 444106863 3RD AVENUE	TUG	Completed 2019
North Central	Deland	Volusia	TUG 443098179 S HAYDEN RD	TUG	Completed 2019
North Coastal	Monticello	Lafayette	TUG 445194353 NE CRAWFORD ST	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991878 N. Jefferson St	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992412 N. Jefferson St	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992444 WILLIAM FLOYD RD	TUG	Completed 2019
North Central	Longwood	Orange	TUG 442726346 INDIANA AVENUE	TUG	Planned for 2020 Completion
North Coastal	Inverness	Citrus	TUG 446793174 E BRADFORD LANE	TUG	Completed 2019
North Coastal	Monticello	Lafayette	TUG 445194165 E MAIN ST	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 440372700 W. HALLS RIVER ROAD	TUG	Completed 2019
North Central	Deland	Volusia	TUG 442972314 MILLS COURT	TUG	Completed 2019
South Coastal	Seven Springs	Pasco	TUG 445971300 BAZSULY CT	TUG	Completed 2019
North Coastal	Monticello	Madison	TUG 446928362 E. US Highway 90	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446550648 ROOSEVELT AVENUE	TUG	Completed 2020
North Coastal	Monticello	Madison	TUG 446928127 NE COLIN KELLY HWY	TUG	Completed 2019
North Coastal	Monticello	Madison	TUG 446928477 E. US Highway 90	TUG	Completed 2019
North Central	Deland	Volusia	TUG 442972575 RAINTREE CIRCLE	TUG	Completed 2019
North Coastal	Monticello	Levy	TUG 442992069 Nash Rd	TUG	Completed 2019
North Coastal	Monticello	Taylor	TUG 437643658 S. Warner Ave	TUG	Completed 2019
North Coastal	Monticello	Wakulla	TUG 446034297 Sopchoppy Hwy	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 440372992 N CARLEEN TERRACE	TUG	Completed 2019
North Central	Deland	Volusia	TUG 442972886 MARSH ROAD	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442991542 Indian Hills Rd	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992157 Indian Hills Rd	TUG	Completed 2019
North Coastal	Monticello	Wakulla	TUG 446133723 PORT LEON DR	TUG	Completed 2019
North Coastal	Ocala	Sumter	TUG 442170847 CR 567	TUG	Completed 2019
North Coastal	Monticello	Taylor	TUG 437643566 JOHNSON STRIPLING RD	TUG	Completed 2019
North Coastal	Ocala	Sumter	TUG 442171308 N US HWY 301	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992140 E. Capps Hwy	TUG	Completed 2019
North Coastal	Monticello	Jefferson	TUG 442992370 BOSTON HWY	TUG	Completed 2019
North Coastal	Ocala	Marion	TUG 446639202 NW 75TH AVE	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446948748 E. OLIVE LANE	TUG	Completed 2019
North Coastal	Inverness	Citrus	TUG 446948512 N TRUCKS AVENUE	TUG	Completed 2019
South Coastal	Seven Springs	Pinellas	TUG 445909816 ORANGE ST	TUG	Completed 2019
North Coastal	Monticello	Wakulla	TUG 446034704 Rock Rd	TUG	Completed 2019
South Coastal	Walsingham	Pinellas	TUG 444000493 80TH AVENUE NORTH	TUG	Completed 2019
South Coastal	Clearwater	Pinellas	TUG 444176622 MARIVA AVENUE	TUG	Planned for 2020 Completion
North Coastal	Ocala	Marion	TUG 443823907 SE 117TH PLACE	TUG	Completed 2019
South Coastal	Walsingham	Pinellas	TUG 444121839 S BELCHER RD	TUG	Completed 2019
North Central	Deland	Volusia	TUG 443101583 HAMILTON AVENUE	TUG	Completed 2019
North Coastal	Ocala	Marion	TUG 446637870 NE 180TH ST	TUG	Completed 2019
North Coastal	Monticello	Hamilton	TUG 437462945 11TH ST SE	TUG	Completed 2019
North Coastal	Monticello	Taylor	TUG 446034419 Bay Dr	TUG	Planned for 2020 Completion
South Central	Buena Vista	Orange	TUG 442314118 PARK AVE	TUG	Completed 2019
North Coastal	Monticello	Wakulla	TUG 446034948 Woodville Hwy	TUG	Completed 2019
North Coastal	Monticello	Taylor	TUG 437643670 N. Helen St	TUG	Completed 2019
South Coastal	Walsingham	Pinellas	TUG 444120484 67TH AVENUE	TUG	Completed 2019
South Central	Apopka	Orange	TUG 445664480 ROUND LAKE RD	TUG	Planned for 2020 Completion
South Central	Lake Wales	Polk	TUG 443590177 Edward Ave	TUG	Completed 2020
North Coastal	Monticello	Taylor	TUG 437643278 N. Allen St	TUG	Completed 2019
North Coastal	Inverness	Hernando	TUG 446550431 RAILROAD PLACE	TUG	Completed 2019
North Central	JAMESTOWN	ORANGE	TUG 444231047 Chuluota Rd	TUG	Completed 2019
South Coastal	Zephyrhills	Pasco	TUG 444253097 RYALS RD	TUG	Completed 2019
North Central	Jamestown	Seminole/Orange	Self- Optimizing Grid Team 401	SOG	Completed 2019
North Central	Jamestown	Seminole/Orange	Self- Optimizing Grid Team 411	SOG	Completed 2019
North Central	Deland	Volusia	Self- Optimizing Grid Team 424	SOG	Completed 2019
South Coastal	Clearwater	Pinellas	Self- Optimizing Grid Team 514	SOG	Completed 2019
South Central	Winter Garden	Orange	Self- Optimizing Grid Team 426	SOG	Completed 2019
South Central	Lake Wales	Polk	Self- Optimizing Grid Team 402	SOG	Planned for 2020 Completion
North Central	Deland	Volusia	Self- Optimizing Grid Team 403	SOG	Completed 2019
North Coastal	Monticello	Frankin/Wakulla	Self- Optimizng Grid Team 505	SOG	Planned for 2020 Completion
North Central	Apopka	Orange	Self- Optimizing Grid Team 412	SOG	Completed 2019
North Central	Longwood	Seminole	Self- Optimizing Grid Team 406	SOG	Completed 2019
South Central	Lake Wales	Polk	Self- Optimizing Grid Team 413	SOG	Completed 2019
South Central	Highlands	Highlands	Self- Optimizing Grid Team 408	SOG	Completed 2019
South Coastal	St Petersburg	Pinellas	Self- Optimizing Grid Team 521	SOG	Planned for 2020 Completion
North Central	Jamestown	Orange	Self- Optimizing Grid Team 407	SOG	Planned for 2020 Completion
North Central	Jamestown	Orange	Self- Optimizing Grid Team 434	SOG	Planned for 2020 Completion
North Coastal	Ocala	Marion	Self- Optimizing Grid Team 527	SOG	Planned for 2020 Completion
South Central	Buena Vista	Polk/Osceola	Self- Optimizing Grid Team 427	SOG	Planned for 2020 Completion
North Central	Deland	Volusia	W902- Pierson-Seville Grid Strengthening Project	Deteriorated Conductor	Planned for 2020 Completion
North Coastal	Ocala	Marion	A202- Zuber- Country Rd 326 Grid Strengthening Project	Deteriorated Conductor	Completed 2019
South Coastal	Clearwater	Pinellas	C104- Dunedin High and Highlander park Grid Strengtening Project	Deteriorated Conductor	Planned for 2020 Completion
South Central	SE Orlando	Orange	W392- Seminole Drive & Nela Ave Grid Strengtening Project	Deteriorated Conductor	Planned for 2020 Completion
South Central	Winter Garden	Orange	M342 Meadowbrook Ave	Deteriorated Conductor	Planned for 2020 Completion
North Central	Deland	Volusia	W4564 El Dorado Dr	Deteriorated Conductor	Completed 2019
North Central	Apopka	Lake	M1517 S Fish Camp Rd	Deteriorated Conductor	Planned for 2020 Completion
North Central	Apopka	Orange	M707 W Highland Ave	Deteriorated Conductor	Completed 2019
South Central	Buena Vista	Osceola	K881 North Goodman Rd	Deteriorated Conductor	Completed 2019
South Central	Lake Wales	Polk	K8 Horseshoe Creek Rd	Deteriorated Conductor	Completed 2019
North Central	Apopka	Orange	M0554 Ustler Rd	Deteriorated Conductor	Completed 2019
South Central	Lake Wales	Polk	K3245 Water Tank Rd	Deteriorated Conductor	Planned for 2020 Completion
North Central	Deland	Volusia	W1703 S Blue Lake Ave	Deteriorated Conductor	Completed 2019
North Central	Jamestown	Orange	W0250 Murdock Blvd	Deteriorated Conductor	Completed 2020
North Central	Deland	Volusia	W0382 S Stone St	Deteriorated Conductor	Planned for 2020 Completion
North Central	Apopka	Orange	M417 Pine St	Deteriorated Conductor	Completed 2019
North Coastal	Ocala	Marion	A51 134th Ave Micanopy	Deteriorated Conductor	Planned for 2020 Completion
North Central	Deland	Volusia	W4561 S Leavitt Ave	Deteriorated Conductor	Completed 2019
North Central	Deland	Volusia	W4556 Dogwood Ave	Deteriorated Conductor	Completed 2019
North Central	Apopka	Orange	M723 E Cleveland St	Deteriorated Conductor	Planned for 2020 Completion
North Central	Deland	Volusia	W1109 N Amelia Ave	Deteriorated Conductor	Completed 2019
North Central	Deland	Volusia	W1110 S Virginia Ave	Deteriorated Conductor	Planned for 2020 Completion
North Central	Apopka	Orange	M402 Grace St	Deteriorated Conductor	Planned for 2020 Completion
North Central	Apopka	Orange	M33 Zellwood M33 Duda Rd	Deteriorated Conductor	Planned for 2020 Completion
South Coastal	Seven Springs	Pinellas	C303 N Spring Blvd & Pampas Ave	Deteriorated Conductor	Planned for 2020 Completion
North Central	Apopka	Lake	M1518 Harbor Shores	Deteriorated Conductor	Planned for 2020 Completion
North Central	Apopka	Orange	M400- West Lockhart Transformer Strengtening Project	Transformer Retrofit	Completed 2019
South Central	Buena Vista	Orange	K925- Sand Lake I-Drive Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Central	Highlands	Polk	K3205- North Fort Meade Transformer Strengtening Project	Transformer Retrofit	Completed 2019
North Central	Apopka	Lake	M580 - Tavares East Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Apopka	Seminole	M1709 - Douglas Ave Transformer Strengthening Project	Transformer Retrofit	Completed 2019
North Central	Apopka	Lake	M1054 - Eustis South Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Apopka	Orange	M33 - Zellwood Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Apopka	Seminole	M476 - Piedmont Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion

South Central	Buena Vista	Polk	K425 - Westridge Transformer Strengthening Project	Transformer Retrofit	Completed 2020
South Central	SE Orlando	Orange	W0494 - Central Park Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Central	SE Orlando	Osceola	W0629 - Holopaw Transformer Stregthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	SE Orlando	Osceola	W0630 - Holopaw Transformer Strengthening Project	Transformer Retrofit	Completed 2020
South Central	SE Orlando	Orange	W0500 - Central Park Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	SE Orlando	Orange	K1024 - Taft Transformer Strenthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	SE Orlando	Orange	K1025 - Taft Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	SE Orlando	Osceola	W0105 - Canoe Creek Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Longwood	Orange	M81 - Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	Highlands	Highlands	K1684 - Dinner Lake Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	Highlands	Polk	K171 - Fort Meade Transformer Strengthening Project	Transformer Retrofit	Completed 2019
North Coastal	Inverness	Citrus	A271 - Homosassa Transformer Strengtheing Project	Transformer Retrofit	Completed 2019
North Coastal	Inverness	Marion	A112 - Ross Prairie Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Central	Buena Vista	Orange	K1411 - Four Corners Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	Lake Wales	Osceola	K1614 - Cabbage Island Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Central	Lake Wales	Polk	K1196 - Babson Park Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Central	Lake Wales	Polk	K1195 - Babson Park Transformer Strenghtening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	Lake Wales	Polk	K19 - Haines City Transfomer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Deland	Volusia	W1107 - Deland East Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Longwood	Seminole	M662 - Spring Lake Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Longwood	Seminole	M145 - Longwood Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Central	Longwood	Seminole	M659 - Myrtle Lake Transformer Strengthening Project	Transformer Retrofit	Completed 2019
North Central	Longwood	Orange	M1137 - Eatonville Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Gulf	N201 - Port St.Joe Ind. Transformer Strengthening Project	Transformer Retrofit	Completed 2019
North Coastal	Monticello	Gulf	N55 - Port St. Joe Transformer Strengthening Project	Transformer Retrofit	Completed 2019
North Coastal	Monticello	Alachua	A144 - Alachua Transformer Strengthening Project	Transformer Retrofit	Completed 2019
North Coastal	Monticello	Taylor	N7 - Perry Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Taylor	N14- Perry Northwest Transformer Strengthening Project	Transformer Retrofit	Completed 2019
North Coastal	Monticello	Taylor	N8 - Perry Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Suwannee	A192 - Luraville Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Columbia	A20 - Fort White Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Jefferson	N67 - Monticello Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Jefferson	N66 - Monticello Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Alachua	A186 - GE Alachua Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Monticello	Jefferson	N69 - Monticello Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
North Coastal	Ocala	Marion	A128 - Silver Springs Shores Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Coastal	St Petersburg	Pinellas	X265 - Central Plaza Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Coastal	St. Petersburg	Pinellas	X282 - Northeast Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Coastal	Walsingham	Pinellas	J114 - Starkey Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Coastal	Walsingham	Pinellas	X123 - Gateway Transformer Strengthening Project	Transformer Retrofit	Completed 2019
South Central	Winter Garden	Orange	M339 - Clarcona Transformer Strengthening Project	Transformer Retrofit	Planned for 2020 Completion
South Central	Buena Vista	Orange	Live front to Deadfron+C60:C84t Switchgear Replacement- 6418272	Switchgear Replacement	Completed 2019
South Central	Buena Vista	Orange	Live front to Deadfront Switchgear Replacement- 8003405	Switchgear Replacement	Planned for 2021 completion
South Central	Buena Vista	Orange	Live front to Deadfront Switchgear Replacement- 8003486 (K4051/K4050)	Switchgear Replacement	Completed 2019
South Central	Buena Vista	Osceola	Live front to Deadfront Switchgear Replacement 8012875	Switchgear Replacement	Completed 2019
South Central	Buena Vista	Osceola	Live front to Deadfront Switchgear Replacement 8012876	Switchgear Replacement	Completed 2019
South Central	Buena Vista	Orange	Live front to Deadfront Switchgear Replacement 8012911	Switchgear Replacement	Completed 2019
South Central	Buena Vista	Orange	Live front to Deadfront Switchgear Replacement 7837709	Switchgear Replacement	Completed 2019
South Central	Buena Vista	Orange	Live front to Deadfront Switchgear Replacement 7989918	Switchgear Replacement	Completed 2019
South Central	Buena Vista	Orange	Live front to Deadfront Switchgear Replacement 7837708	Switchgear Replacement	Completed 2019
South Central	SEO	Orange	Live front to Deadfront Switchgear Replacement W95249	Switchgear Replacement	Completed 2019
South Coastal	Clearwater	Pinellas	Live front to Deadfront Switchgear Replacement 6346731	Switchgear Replacement	Completed 2019
South Coastal	Clearwater	Pinellas	Live front to Deadfront Switchgear Replacement 7823366	Switchgear Replacement	Completed 2020
South Coastal	Seven Springs	Pasco	Live front to Deadfront Switchgear Replacement 6524810	Switchgear Replacement	Completed 2019
North Coastal	Inverness	Citrus	Live front to Deadfront Switchgear Replacement 8006311	Switchgear Replacement	Planned for 2020 Completion
North Coastal	Inverness	Marion	Live front to Deadfront Switchgear Replacement 8012466	Switchgear Replacement	Planned for 2020 Completion
North Coastal	Inverness	Citrus	Live front to Deadfront Switchgear Replacement 6524812	Switchgear Replacement	Planned for 2020 Completion
North Coastal	Inverness	Citrus	Live front to Deadfront Switchgear Replacement 6164434	Switchgear Replacement	Planned for 2020 Completion
North Coastal	Inverness	Citrus	Live front to Deadfront Switchgear Replacement 8006321	Switchgear Replacement	Planned for 2020 Completion
North Coastal	Ocala	Sumter	Live front to Deadfront Switchgear Replacement 8012605	Switchgear Replacement	Planned for 2020 Completion
North Central	Apopka	Orange	Live front to Deadfront Switchgear Replacement 6709265	Switchgear Replacement	Completed 2019
North Central	Apopka	Orange	Live front to Deadfront Switchgear Replacement 6487590	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 8012155	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 8012147	Switchgear Replacement	Planned for 2020 Completion
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 8012153	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 6858455	Switchgear Replacement	Planned for 2020 Completion
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 6096748	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 6096738	Switchgear Replacement	Planned for 2020 completion
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 8012164	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 6096737	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 6173451	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 8011899	Switchgear Replacement	Completed 2019
South Central	Winter Garden	Orange	Live front to Deadfront Switchgear Replacement 8012720	Switchgear Replacement	Completed 2019
South Central	Winter Garden	Orange	Live front to Deadfront Switchgear Replacement 8012721	Switchgear Replacement	Completed 2019
South Central	Winter Garden	Orange	Live front to Deadfront Switchgear Replacement 8012753	Switchgear Replacement	Completed 2019
North Coastal	Ocala	Lake	Live front to Deadfront Switchgear Replacement 8012609	Switchgear Replacement	Completed 2019
North Central	Jamestown	Orange	Live front to Deadfront Switchgear Replacement 6221394	Switchgear Replacement	Completed 2019
South Central	Winter Garden	Orange	Live front to Deadfront Switchgear Replacement 8012920	Switchgear Replacement	Planned for 2020 Completion

Attachment J

I. Introduction:

Rule 25-6.0342, Florida Administrative Code, requires investor-owned electric utilities in Florida to file a Storm Hardening Plan with the Florida Public Service Commission ("FPSC") no later than 90 days after the effective date of the rule, and every 3 years as a matter of course. Rule 25-6.0342 specifies what must be included in utility storm hardening plans, and Duke Energy Florida ("DEF") has tracked those rule provisions in its Storm Hardening Plan below:

25-6.0342(3): *Each utility storm hardening plan shall contain a detailed description of the construction standards, policies, and procedures employed to enhance the reliability of overhead and underground electrical transmission and distribution facilities.*

DEF's construction standards, policies, practices, and procedures related to storm hardening issues are listed below and are attached hereto as **Attachment A**:

Distribution Standards Manual

i. General Overhead section
    1. *Details Florida's extreme wind contour lines.*
    2. *Discusses the use of the Pole Foreman program.*
    3. *Details Florida's extreme wind contour lines.*
    4. *Discusses the use of the Pole Foreman program.*
ii. Addresses NESC adherence standards
iii. Poles, Guys and Anchors Section
    1. *Discusses DEF's standard pole strengths, sizes, and limitations*
iv. Primary Construction section
    1. *Discusses corporate practices for primary line construction.*
v. Coastal and Contaminated area section
    1. *Discusses corporate practices for primary line construction in coastal areas.*
vi. Underground General Section

1. *Discusses location of UG facilities in accessible locations.*

vii. OH-UG Transition section

1. *Discusses corporate practices for primary framing on dip poles.*

viii. Trenching and Conduit section

1. *Discusses corporate practices for trenching and use of conduit on primary UG circuits.*

ix. Flooding and Storm Surge Requirements

1. *Discusses corporate procedures for the installation of UG equipment in areas targeted for storm surge hardening.*

Joint Use – Pole Attachment Guidelines and Clearances

x. Pole Attachment Guidelines

1. *Addresses Pole Attachment and Overlash Procedures.*
2. *Addresses Joint Use Construction.*
3. *Addresses Guys and Anchors.*

xi. Joint Use Clearances

1. *Addresses Line Clearances.*
2. *Addresses Joint Use Clearances.*

Distribution Engineering Manual

xii. Overhead Design guide section

1. *Addresses line location in accessible location.*
2. *Addresses NESC compliance.*
3. *Discusses Pole Foreman program.*

xiii. Underground Design guide section

1. *Addresses line location in accessible location.*
2. *Addresses NESC compliance.*

Transmission - Extreme Wind Loading Design Criteria Guideline for Overhead Transmission Line Structures

xiv. Standards Position Statement

1. *Addresses NESC compliance.*

2. *Addresses American Society of Civil Engineer's Manual 74 (ACSE 74).*
3. *Discusses transmission line importance for reliability.*
4. *Details Florida's extreme wind contour lines.*

Transmission - Line Engineering Design Philosophy

xv. Overhead Line Design philosophy

1. *Addresses NESC compliance.*
2. *Addresses insulator loading criteria.*
3. *Addresses guy / anchor capacity ratings.*
4. *Addresses design load cases.*
5. *Addresses extreme wind guidelines.*
6. *Addresses structural guidelines.*

In addition to the standards, practices, policies, and procedures identified above, DEF's Wood Pole Inspection Plan, Vegetation Management Plan, and Storm Hardening Plan, all contain standards, practices, policies, and procedures that address system reliability and issues related to extreme weather events. These plans are included herewith as **Attachment B**. In the recent years DEF has enhanced the standards to allow for better reliability, shorten restoration time and lower cost of construction. Some of these enhancements include increase the Basic Insulation Level (BIL) of new construction by increasing spacing between conductors, and increasing the insulators from 15kV to 25kV. Increasing the BIL lowers the opportunity of flashovers and outages due to vegetation crossing phases. DEF has also changed from using wood cross arms to fiberglass cross arms which allow for longevity and less chances of failure during storm due to the stronger material and not rotting due to weather. Duke Energy has also rolled these standards changes enterprise wide to lower cost and allow faster restoration when line techs from other Duke Energy jurisdictions respond to storm restoration in another area as they are familiar with the construction. DEF continuously monitors changes to NESC standards and meets and exceeds those standards as they are adopted in FL.

25-6.0342(3)(a): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan complies, at a minimum, with the National Electric Safety Code that is applicable pursuant to subsection 25-6.0345(2), F.A.C.*

All standards, practices, policies, and procedures in the manuals and plans listed above are based on accepted industry practices designed to meet or exceed the requirements of the National Electric Safety Code (NESC). These standards, practices, policies, and procedures are followed on all new construction and all rebuilding and relocations of existing facilities.

25-6.0342(3)(b): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan adopts the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC for new construction, major planned work, and critical infrastructure.*

New Construction:

With respect to new construction for transmission poles, DEF's transmission department is building all new construction with either steel or concrete pole material. Virtually all new transmission structures exceed a height of sixty feet above ground and therefore will be constructed using the NESC Extreme Wind Loading criteria.

DEF's design standards can be summarized as: 1) quality construction in adherence with current NESC requirements 2) well defined and consistently executed maintenance plans, and 3) prudent end-of-life equipment replacement programs. When these elements are coupled with a sound and practiced emergency response plan, construction grades as defined by the NESC provide the best balance between cost and performance.

DEF has extensive experience with the performance of Grade C and Grade B construction standards as defined by the NESC. That experience, which includes several hurricane seasons and other severe weather events, indicates that properly constructed and maintained distribution lines meeting all provisions of the NESC perform satisfactorily and provide a prudent and responsible balance between cost and performance.

DEF has not adopted extreme wind standards for all new distribution construction because of the following reasons:

1. Section 250C of the 2007 version of the NESC does not call for the extreme wind design standard for distribution poles which are less than sixty feet in height. Because DEF's distribution poles are less than sixty feet, the extreme wind standard outlined in figure 250-2(d) does not apply.
2. All credible research, which includes extensive studies by the NESC rules committee, demonstrates that applying extreme winds standards would not benefit distribution poles. See Exhibit 4 filed in Docket No. 060172-EU, August 31, 2006 Workshop.
3. Utility experience from around the country further indicates that electrical distribution structures less than sixty feet in height are damaged in extreme wind events by trees, tree limbs, and other flying debris. Thus, applying the extreme wind standard to distribution poles would result in large increases in cost and design complexity without a commensurate benefit.
4. DEF's experience was consistent with that of the other utilities around the nation who found that vegetation and flying debris were the main causes of distribution pole damage, a condition that the extreme wind standard will not address. During Hurricane Irma at least 72% of DEF's pole failures had vegetation involved.

Major planned work:

Consistent with NESC Rule 250C, DEF will use the extreme wind standard for all major planned transmission work, including expansions, rebuilds, and relocations of existing facilities. For the reasons discussed in the new construction section above, DEF has not adopted the extreme wind standard for major planned distribution work, including expansions, rebuilds, or relocations of existing facilities.

Critical infrastructure:

With respect to transmission, virtually all new transmission structures exceed a height of sixty feet above ground and therefore are constructed using the NESC extreme wind loading criteria. Accordingly, Duke will use the extreme wind standard for all major planned transmission work, including expansions, rebuilds, and relocations of existing facilities, irrespective of whether they can be classified as "critical" or "major."

DEF, for the reasons discussed in the new construction section above, has not adopted the extreme wind standard for any of its distribution level critical infrastructure. Placing distribution poles constructed to extreme wind standards around facilities such as hospitals and police stations in DEF's service territory would unnecessarily increase costs and restoration time if those poles are knocked down by falling trees or flying debris such as roofs or signs. DEF's current level of construction, around critical facilities and around all other facilities, has performed well during weather events. DEF Transmission storm hardening initiatives proved effective in that there were no storm hardened structure failures during the 2017 and 2018 Hurricanes that hit Florida.

While no current data or research supports the application of the extreme wind standard to distribution pole construction, DEF is analyzing the extreme wind standard by using its prioritization model for implementation purposes in selected locations throughout its service territory. In conjunction with wind measuring devices, DEF will study the performance of the extreme wind standard at these various sites when a weather event allows for such analysis. From this process, DEF expects to continue to learn and adjust its extreme weather strategy based on information that it will collect and gather from other utilities in Florida and throughout the nation as new standards and applications are applied and tested. After Hurricane Michael, ten Storm Hardened projects – including an Extreme Wind pilot project - were forensically assessed. No broken poles were identified on the Cape San Blas Extreme Wind project; similar results were observed on the other nine projects with only four total broken poles. Several poles along the coastline were leaning badly as a result of the beach shoring and road infrastructure being washed out. Overall, the portions of the system that were Storm Hardened performed well during Hurricane Michael and there was no evidence that Extreme Wind was significantly better than the other project types.

25-6.0342(3)(c): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan is designed to mitigate damage to underground and supporting overhead transmission and distribution facilities due to flooding and storm surges.*

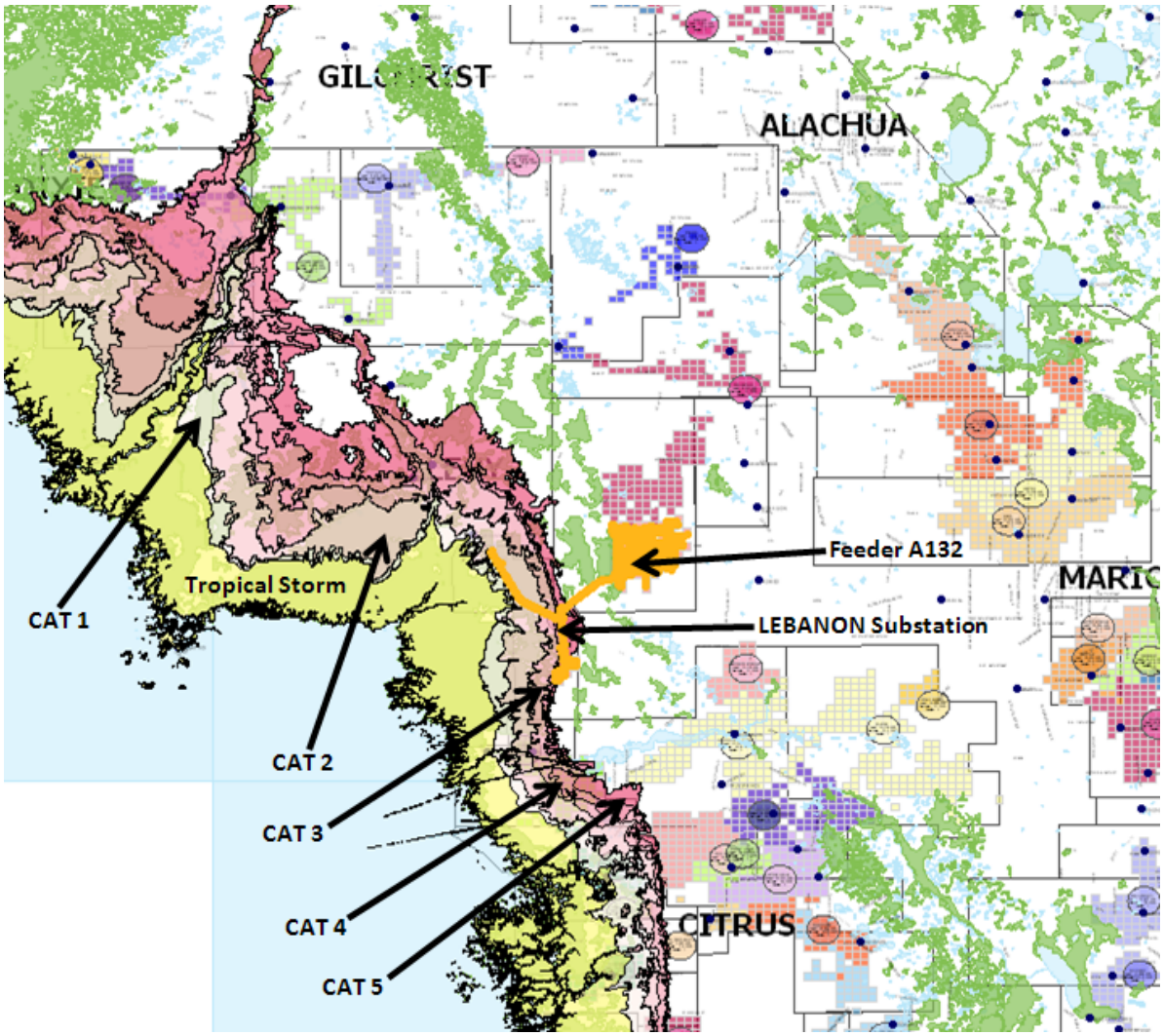
In areas where underground equipment may be exposed to minor storm surge and/or

shorter-term water intrusion, DEF has used its prioritization model (discussed in detail below) to identify areas where certain mitigation projects will be put into place to test whether flood mitigation techniques and devices can be used to protect equipment such as switchgears, pad mounted transformers and pedestals. In these selected project sites, DEF will test:

- Stainless steel equipment;
- Submersible connectors;
- Raised mounting boxes;
- Cold shrink sealing tubes; and
- Submersible secondary blocks.

Throughout the year after a significant weather event, DEF will monitor these installations to collect and analyze data to determine how this equipment performs relative to DEF's current design with respect to outage prevention, reduced maintenance, and reduced restoration times. From this process, DEF will continue to learn and will adapt its flood and storm surge strategies based on information that it will collect and based on the information gathered by other utilities in Florida and throughout the nation as new standards and applications are applied and tested.

DEF now utilizes ESRI's ArcGIS software to determine the optimum location for submersible underground facilities. The flood zones were provided by the state and overlaid onto DEF's land base computer system along with other facilities. This method allows DEF to visually determine which geographic areas would most benefit from submersible facilities. See example below.



In addition to the actions discussed above, during major storm events, substations that are in the forecast strike zone will be assessed, if the conditions exist, will have appropriate modes of protection strategically placed around substations/control houses. Those modes of protection include but are not limited to sand bagging, dam-systems, and other flood substation protection equipment. Mobile substations are utilized where applicable to assist restoration.

25-6.0342(3)(d): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan provides for the placement of new and replacement distribution facilities so as to facilitate safe and efficient access for installation and maintenance pursuant to Rule 25-6.0341, F.A.C.*

DEF will continue to use front lot construction for all new distribution facilities and all replacement distribution facilities unless a specific operational, safety, or other site-specific reason exists for not using such construction at a given location. See Distribution Engineering Manual, Page 3.

25-6.0342(4): *Each utility storm hardening plan shall explain the systematic approach the utility will follow to achieve the desired objectives of enhancing reliability and reducing restoration costs and outage times associated with extreme weather events.*

As part of its systematic approach to storm hardening for the 2007-2009 Storm Hardening plan, DEF engaged industry expert Davies Consulting ("DCI") in developing a comprehensive prioritization model that has helped Duke identify potential hardening projects, procedures, and strategies. DCI has worked with a number of utilities nationally to evaluate their power delivery system major storm preparedness. They have also evaluated options for infrastructure hardening to improve performance and reliability not only day-to-day, but also during major storms. Collaborating with DCI, DEF created an evaluation framework for various hardening options and prioritization of potential alternatives. Since 2007, the model has been improved and enhanced to better reflect the changes in DEF's overall storm hardening strategy. New software technology such as ESRI's ArcGIS will be incorporated into the model. As more data becomes available, DEF will continue to adjust its prioritization model as appropriate.

Using a similar evaluation framework for the 2019-2021 Storm Hardening plan, DEF prioritized its proposed projects based on various components that will be discussed in more detail below.

Under the foregoing components of the evaluation framework, the prioritization model is set up to analyze the following hardening alternatives for DEF:

DEF continues to invest in proactive system maintenance activities to improve the reliability and integrity of the system. DEF announced a $25B investment (at the enterprise level) in the grid over 10 years as part of the Grid Investment Plan (GIP). DEF has begun this project in 2018 with programs including the Self-Optimizing Grid, Deteriorated Conductor, Transformer Retrofit and Targeted Underground. These programs are discussed in detail below.

- Targeted Underground Program

  The primary purpose of this hardening activity is to attempt to eliminate tree and debris related outages in the area of exposure by converting heavily vegetated neighborhoods prone to power outages from overhead to underground construction to decrease outages, reduce momentary interruptions, improve major storm restoration time, improve customer satisfaction and reduce costs.

- Deteriorated Conductor Program
  - The primary purpose of this hardening activity is to replace over dutied overhead conductor on the system that is prone to outages due to its brittle composition, small load capacity and poor connection qualities. The GIP focuses on eliminating the small copper conductor with aluminum conductor to improve the overall reliability.

- Transformer Retrofit Program
  - The primary purpose of this hardening activity is to retrofit Completely-Self Protected (CSP) transformers to be locally fused. This work stream corrects common transformer reliability conditions by replacing aged or problematic fuse cutouts and adding fuses where they previously did not exist with more reliable equipment and bringing all associated transformer equipment up to current Duke Energy construction standards. CSP transformers that have not been retrofitted have been a frequent cause of upstream fuse outages. Once retrofitted these transformers would limit the number of customers impacted by transformer or service level issues. This outage mitigation will be accomplished by adding external fused cutouts, replacing bare copper wires with covered copper, and adding animal mitigation to these locations. The retrofitting of CSP transformers is being done in lieu of replacement as a cost-effective method of outage reduction for DEF customers in these locations.

- Self-Optimizing Grid Program

- The primary purpose of this hardening activity is to strategically utilize automated switching device (ASDs) and an automation program to isolate faults on the electric distribution system and automatically reconfigure the system to minimize the number of customers that experience sustained power outages. The Self-Optimizing Grid (SOG) program will transform the radial distribution system into an automated distribution network that provides:
  1) connectivity with automated switching,
  2) capacity on the circuits to allow most circuits to be restored from alternate sources,
  3) automated control with SCADA-enable ASDs to isolate faults and reconfigure the system and
  4) segmentation such that the distribution circuits have much smaller line segments, thus reducing the number of customers that are affected by outages.

- Live Front Switchgear Replacement Program
  - The primary purpose of this hardening activity is to replace aged Live Front Switchgear prior to failure. A switchgear is a pad mounted metal enclosure that contains switches and fuses used for switching underground circuits and underground fault isolation. This program will improve overall reliability, result in faster outage restoration and improve safety for those working in the switchgears.

Base programs include:

DEF continues to invest in proactive system maintenance activities to improve the reliability and integrity of the system. DEF is continuing its normal maintenance and reliability improvements through the following programs discussed in detail below:

- Backlot to Frontlot Conversion
  - Taking an existing overhead line located in the rear of a customer's property and relocating it to the front of the customers property. This involves the removal of the existing line in the rear of the property and construction of a new line in the front of the property along with re-

routing service drops to individual customer meters. The primary purpose of this hardening activity is to minimize the number of tree exposures to the line to prevent outages and to expedite the restoration process by allowing faster access in the event an outage occurs.

- Deteriorated Conductor
  - The primary purpose of this hardening activity is similar to the GIP program listed above but targets all over-dutied overhead conductor not just copper.
- Submersible UG
  - Taking an existing UG line and equipment and hardening it to withstand a storm surge via the use of the current DEF storm surge standards. This involves the use of specialized stainless-steel equipment and submersible connections. The primary purpose of this hardening activity is to attempt to minimize the damage caused by a storm surge to the equipment and thus expedite the restoration after the storm surge has receded.
- Feeder ties
  - Tying radial feeders together to provide switching capabilities to reduce outage duration. This hardening alternative will mitigate long outages that would have otherwise occurred as a result of the inability to transfer load/customers to an alternate source.

Although the concept of storm hardening is generally thought of as outage prevention, it is inevitable that outages will still occur during a severe storm as a result of, for example, vegetation and flying debris. Feeder ties will help mitigate the duration of such outages. Tying multiple feeders together will give DEF the ability to minimize duration by serving customers from an alternate source while repairs are being made on the affected segment. Based on DEF's experience in the 2004 -2005 hurricane seasons as well as the recent tropical storms and hurricanes, feeder ties are crucial for a distribution system as it provides the opportunity to maximize the number of customers restored in the shortest timeframe possible. Regardless of what caused the outage during a severe storm, a radial feeder will be out for as long as it takes to make the necessary repairs. On the other hand, a feeder tie would allow DEF to restore as many customers as possible, thereby minimizing the number of customers that are without power for the length of the repair.

The development of the prioritization model begins with compiling a list of desired projects submitted by engineers and field personnel most familiar with the specific region. Each project is then evaluated based on specific criteria listed below but mainly focuses on the historical reliability data from the outage management system (OMS) to determine the locations that would improve reliability on normal days, such as reducing customer interruption and outage duration. DEF then selects a list of projects to represent a sample of the programs listed above that best represents the overall system. These projects performance will be evaluated after storms to continuously improve the reliability and performance of the entire system. DEF also looks for opportunities to enhance the system that would reduce damages during a storm and allow power to be restored quicker. Other criteria considered is as follows:

- Major Storm Outage Reduction Impact
  - Determines the potential benefits that the project provides during a major storm based on reduced damages or the ability to restore power more rapidly.
- Community Storm Impact
  - Evaluates the potential benefits that the proposed project will have on a community's ability to cope with damage.
- Third Party Impact
  - Captures complexities of proposed projects in terms of coordination with third parties such as telecommunication, Cable TV, permitting, easements, costs, etc.
- Overall Reliability
  - Captures the overall potential reliability benefits that the project provides on a day to day basis in terms of reduced customer interruptions and outage duration.
- Financial Cost
  - Provides the financial value of the proposed project based on cost per customer and cost per foot of newly installed wire/cable.

The following hardening project questions are asked when developing projects:

- How many customers are served from the upstream protective device?

- What will be the impact of this project on the restoration time during a major storm?
- At what category of hurricane is the area served by this feeder expected to flood due to storm surges?
- What is the tree density in the area served by this feeder or section?
- What level of tree damage will this project mitigate during a major storm?
- How many critical infrastructure components (lift stations, shelters, hospitals, police, etc.) does this project address?
- How valuable will the project be perceived by the community?
- What are the major obstacles/risks for completing the project? i.e. easements, permits, etc.
- What type of investment is required by joint users (telecoms and cable) to complete this project?
- What is the 3-year average number of CEMI4 customers on this feeder?
- What is the 3-year average number of CMI on this feeder?
- What is the change in the annual SAIDI that this project could result in?
- What is the change in the annual SAIFI that this project could result in?
- What is the construction cost per customer?

25-6.0342(4)(a): *A description of the facilities affected, including technical design specifications, construction standards, and construction methodologies employed.*

All of DEF's facilities are affected to some degree by the standards, policies, procedures, practices, and applications discussed throughout this document. Specific facilities are also addressed herein in detail (i.e. upgrading all transmission poles to concrete and steel, using front lot construction for all new distribution lines where possible). Technical design specifications, construction standards, and construction methodologies are specifically discussed at pages 1 through 3 of this plan and are included in **Attachments A** and **B**.

25-6.0342(4)(b): *The communities and areas within the utility's service area where the electric infrastructure improvements are to be made.*

As discussed above, all of DEF's facilities are affected to varying degrees by the standards, policies, procedures, practices, and applications discussed throughout this document. As a result, all areas of DEF's service territory are impacted by DEF's storm hardening efforts. Based on DEF's recent storm experience and/or through the prioritization model a number of projects were identified, please see **Attachment D** for the Distribution Projects completed between 2007 and 2018.

Distribution:

The list below is a sampling of the proposed 2019 – 2021 Storm Hardening projects (please note, proposed hardening projects may or may not be completed during the timeframe, based on emergent work and other factors that cannot be foreseen in advance):

Op Center	County	Project	Sub Category
Apopka	Seminole	M109 Smoke Rise Blvd Reliability	OH to UG Conversion/ Backlot Conversion
Apopka	Orange	M34 Dudley Ave Underground Conversion	OH to UG Conversion
Seven Springs	Pinellas	Tarpon Springs C305 Magnolia Heights Reconductor	Feeder Tie
St Petersburg	Pinellas	52nd St Reconductor	Feeder Tie
Seven Springs	Pasco	Anclote Substation Bank 7 and Bank 8 Feeder Ties	Feeder Tie
Winter Garden	Orange	SR408 Crossing West of Good Homes	Overhead Line Crossing/Backlot
Clermont	Lake	Hancock Road Feeder Tie K4833_K4841	Feeder Tie
SE Orlando	Orange	Meadow Woods S Feeder Tie K1789_K1775	Feeder Tie
Inverness	Citrus	Storm Hardening Gasparilla Cay Subdivision	Submersible UG
Inverness	Citrus	Storm Hardening along Riverhaven Dr., Homosassa	Submersible UG
Monticello	Gulf	Feeder N55 tie to rest of Port St Joe Feeders	Feeder Tie
Deland	Volusia	W902- Pierson-Seville Grid Strengthening Project	Deteriorated Conductor

Ocala	Marion	A202- Zuber- County Rd 326 Grid Strengthening Project	Deteriorated Conductor
Clearwater	Pinellas	C104- Dunedin High and Highlander park Grid Strengthening Project	Deteriorated Conductor
SE Orlando	Orange	W392- Seminole Drive & Nela Ave Grid Strengthening Project	Deteriorated Conductor
Apopka	Orange	M400- West Lockhart Transformer Strengthening Project	Transformer Retrofit
Buena Vista	Orange	K925- Sand Lake I-Drive Transformer Strengthening Project	Transformer Retrofit
Highlands	Polk	K3205- North Fort Meade Transformer Strengthening Project	Transformer Retrofit
Monticello	Taylor	N14- Perry Northwest Transformer Strengthening Project	Transformer Retrofit
Buena Vista	Orange	Live front to Deadfront Switchgear Replacement- 6418272	Switchgear Replacement
Buena Vista	Orange	Live front to Deadfront Switchgear Replacement- 8003405	Switchgear Replacement
Buena Vista	Orange	Live front to Deadfront Switchgear Replacement- 8003486 (K4051/K4050)	Switchgear Replacement
Jamestown	Orange	Self- Optimizing Grid Team 407	SOG
Highlands	Highlands	Self- Optimizing Grid Team 408	SOG
Apopka	Orange	Self- Optimizing Grid Team 412	SOG
Monticello	Franklin/ Wakulla	Self- Optimizing Grid Team 505	SOG
Buena Vista	Orange	TUG 442313600 Winwood Way	TUG
Monticello	Jefferson	TUG 442991878 Jefferson St	TUG
Inverness	Citrus	TUG 446946764 Juneau Point	TUG
Jamestown	Orange	TUG 444365498 Lake Pickett	TUG

Regarding system hardening projects in general, DEF's approach is to consider the unique circumstances of each potential location considered for hardening by taking into account variables such as:

- operating history and environment;
- community impact and customer input;
- exposure to storm surge and flooding;

- equipment condition;
- historical and forecast storm experience; and
- potential impacts on third parties;

This surgical approach leads to the best solution for each discrete segment of the delivery system.

Transmission:

The Transmission Department is employing a system-based approach to changing out wood poles to either concrete or steel poles based upon the inspection cycle and condition of pole. These projects are identified during the transmission pole inspection cycles. Specific new, rebuilt or relocated projects that are planned over the next three years are listed below:

North Florida			
Project Name	**County**	**Type**	**Third Party**
Montverde to Winter Garden - 69 kV Line Rebuild	Lake	Rebuild	Yes
American Cement to Bushnell East -	Sumter	Rebuild/New	Yes
Eustis to Dona Vista 69 kV Line Rebuild	Lake	Rebuild	Yes
Oak Tap to Havana- New Rebuild 115KV Line	Gadsden	Rebuild	Yes
Idylwild - Wacahoota Tap (SI) - Rebuild 69 kV line (Two Phases)	Alachua	Rebuild	Yes
Williston - New 230/69 kV Substati	Levy	Rebuild/New	Yes
Eustis-Eustis South (EES) 69 kV Line Rebuild	Lake	Rebuild	Yes
New Powerline Sub Replacement with	Citrus	Rebuild/New	Yes
Deland West-Dona Vista - New 230 kV	Lake	Rebuild	Yes
Ginnie-Bell Tp (IS) Rebuild_Bell -	Gilchrist	Rebuild	Yes

Shady Hills - 230kV Line	Citrus	Rebuild	Yes
Coleman to Dixie Tap - 69 kV Line Rebuild	Sumter	Rebuild	Yes
Dallas to Orange Blossom - Rebuild 69 kV Line	Sumter	Rebuild	Yes
Central Florida to Federal - 69 kV Line Rebuild	Lake	Rebuild	Yes
Fort White-Luraville 69kV Line Rebuilds	Columbia	Rebuild	Yes
Alachua Tap to Hull Road 69kV Line	Alachua	Rebuild	Yes
Nobleton Tap-(SECO) Floral City Tap	Citrus	Rebuild	Yes
Central Florida - Picciola Tap 69kV Rebuild	Lake	Rebuild	Yes
Tallahassee to Oak City TAP Rebuild	Leon	Rebuild	Yes
Suwannee Springs 115kV Switching St	Suwannee	Rebuild/New	Yes
Lake Talquin-Brickyard 69kV Rebuild dbl-ckt-capable struc	Leon	Rebuild	Yes
Andersen to Wildwood City Tap - 69 kV Line Rebuild	Sumter	Rebuild	Yes
New 115kV Suwannee Transmission Sub	Suwannee	Rebuild/New	Yes
Florida OHG (Static) Replace	Hernando	Rebuild	Yes
Crawfordville - Carrabelle Rebuild as double circuit 115kV & 69kV	Wakulla	Rebuild	Yes

Ross Prairie to Marion Oaks Tap 69 kV Line Rebuild	Marion	Rebuild	Yes
Mondon Hill - New 230/115 kV Substa	Hernando	Rebuild/New	Yes
Dunnellon Town-Rainbow Spgs Tap	Marion	Rebuild	Yes
Rainbow Spgs Tp to Rainbow Lk - Reb	Marion	Rebuild	Yes
FLUOF	Alachua	Rebuild/New	Yes
Industrial Tap - New 15 Mvar Capaci	Lake	Customer Request	Possibly
FLGOV - 230T9 - DR-85 GOAB for FDOT	Marion	Governmental	Possibly
FLGOV - 1373T6 - MS-233 & MS-234 Ro	Marion	Governmental	Possibly
FLGOV - SR 44 BAILEY BRIDGE FOR THE	Sumter	Governmental	Possibly
FLGOV - SR 528 & Landstreet Boxout	Marion	Governmental	Possibly
FLGOV Citrus County Trail aka Withlacoochee Dunnel 437349-1	Citrus	Governmental	Possibly
Coleman to Federal - 69 kV Line Rebuild	Sumter	Governmental	Yes
FLGOV MS--67-6 to MS-67-7 SR 326 a	Marion	Governmental	Possibly
FLCUST Univ of FL AUF Relocation -	Alachua	Customer Request	Yes
US-27 Road Widening - CLC-48A Stub	Lake	Governmental	Possibly

FLGOV CLC-73 69kV Fosgate Road at US 27 Lake County contains D-Line Work	Lake	Governmental	Possibly
FLGOV MS--67-6 to MS-67-7 69kV SR 326 at CR 25A- FPID 435660-2	Marion	Governmental	Possibly
Old Town North Sub to Cross City Su	Dixie	Rebuild	Yes
Brooksville West - Loop in Brookrid	Hernando	Rebuild/New	Possibly
Fort White - Replace/Upgrade 115kV	Columbia	Rebuild	Yes
Suwannee Transmission Substation 23	Suwannee	Rebuild/New	Possibly
Tallahassee - new 115 kV Yard (New	Leon	Rebuild/New	Yes
Install 230/115kV Transformer at Fo	Columbia	Rebuild/New	Possibly
TRMP GP (Buckeye) Foley Substation	Taylor	Customer Request	Yes
Florida Portfolio of Governmental P	Lake	Customer Request	Possibly
Florida Portfolio of Governmental P	Sumter	Governmental	Possibly
Florida Portfolio of Governmental P	Sumter	Customer Request	Possibly
Florida Portfolio of Governmental P	Hernando	Governmental	Possibly
Florida Portfolio of Governmental P	Lake	Governmental	Possibly
Florida Portfolio of Governmental P	Hernando	Customer Request	Possibly

Florida Portfolio of Governmental P	Marion	Governmental	Possibly

South Florida			
Project Name	**County**	**Type**	**Third Party**
60KK8D 285T9 FAIRBANKS	Orange	Customer Request	Yes
Northridge to West Davenport - New	Polk	Rebuild	Yes
TRMP-2098D1-FGT East - Relay Upgrad	Orange	Rebuild	Yes
Bithlo to UCF 69kv Line rebuild	Orange	Rebuild	Yes
West Chapman to Winter Park East 69	Seminole	Rebuild	Yes
Oviedo to Winter Springs - 69 kV Line Rebuild	Seminole	Rebuild	Yes
Wire Road - New River 230kV Line & 69kV Line Rebuild (formerly Zephyrhills)	Pasco	Rebuild/New	Yes
Rio Pinar to Econ to Winter Park East - 230 kV Line Rebuild	Orange	Rebuild	Yes
Keystone - New 230-115 kV Substatio	Pinellas	Rebuild	Yes
Gateway to 32nd Street (HD-7) - 115	Pinellas	Rebuild	Yes
40th Street to 16th Street (BFE-2) - 115 kV Line Rebuild	Pinellas	Rebuild	Yes
Bayview to East Clearwater (HD-3) - 115 kV Line Rebuild	Pinellas	Rebuild	Yes

Bayboro Site Purchase	Pinellas	Rebuild/New	Yes
North Longwood-Sylvan 230kV (NLSX);	Seminole	Rebuild	Yes
Myrtle Lake - Wekiva 230kV Line Rebuild	Seminole	Rebuild	Yes
Piedmont - Wekiva 230kV Line Rebuild	Seminole	Rebuild	Yes
Vandolah to Whidden - 230 kV Line Rebuild	Hardee	Rebuild/New	Yes
West Lake Wales to Lake Wales 69 kV	Polk	Rebuild	Yes
Continental - Loop SECO Substation	Hardee	Customer Request	Yes
TRMP Ulmerton to Tri-City - 115 kV	Pinellas	Rebuild/New	Yes
TRMP 2078 DISSTON-STARKEY RD	Pinellas	Rebuild/New	Yes
Hemple to Ocoee 69 kV Line Rebuild	Orange	Rebuild	Yes
Deleon Springs to Barberville - 115	Volusia	Rebuild	Yes
Fort Meade to West Lake Wales Line Rebuild	Polk	Rebuild	Yes
TRMP-2568 ZUBER INC CAP	Pasco	Rebuild	Yes
Gateway to Ulmerton (HD-6) - 115 kV Line Rebuild	Pinellas	Rebuild	Yes
Dry Prairie - 230/69kV Substation	Hardee	Rebuild/New	Yes

Intercession City - Rebuild Interce	Osceola	Rebuild	Yes
Lake Aloma to Winter Park East - 69	Orange	Rebuild	Yes
Conway to Pinecastle - 69 kV Line Rebuild	Orange	Rebuild	Yes
Haines City East to Poinciana 69 kV	Polk	Rebuild	Yes
Davenport to Haines City 69 kV Rebu	Polk	Rebuild	Yes
Haines City to Haines City East 69	Polk	Rebuild	Yes
FLGOV 69kV DWB-169 to 181 and DWB-127-6 SR 15 (US 17) from Ponce De Leon Boulevard to East of SR 40, FPID: 410251-1-52-0	Volusia	Governmental	Possibly
FLGOV - 305T8 - AD-18-20,63,64 Sebr	Highlands	Governmental	Possibly
FLGOV - 341T2 - AFC-12 Sebring Pkwy	Highlands	Governmental	Possibly
FLGOV - 967T4 - WR & RW 69kV Reloca	Orange	Governmental	Possibly
FLGOV - POWERLINE ICLW & HP Road Co	Polk	Governmental	Possibly
FLGOV - DWB-127-6 Str Relocation fo	Volusia	Governmental	Possibly
FLCUST - AUCF-83 Relocate for Dolla	Seminole	Customer Request	Possibly
FLGOV-AL-5 to AL-7, US 27 (SR 25) a	Polk	Governmental	Possibly
FLCUST WLB-22 to WLB-31 UNIVERSAL OH to UG Conversion	Orange	Customer Request	Possibly

Oakhurst to Seminole 69kV Rebuild	Pinellas	Rebuild	Yes
Largo to Ulmerton West 69kV Rebuild	Pinellas	Rebuild	Yes
Sky Lake to Meadow Woods South - New 230 kV Line & 69 kV Line Rebuilds	Orange	Rebuild/New	Yes
Magnolia Ranch to Moss Park -69kV L	Orange	Rebuild	yes
Celebration to Lake Wilson - 69kV L	Osceola	Rebuild	Yes
Lake Bryan to Orangewood - 69kV Lin	Orange	Rebuild	Yes
410755-2 Bayway Structures Removals	Pinellas	Governmental	Possibly
FLGOV West French Ave Pedestrian Bridge ~	Volusia	Governmental	Possibly
FLCUST BFE 52 & BFE 53 115kV DevMar	Pinellas	Customer Request	Possibly
FLGOV WO 69kV I-4 Ultimate, Wymore	Orange	Governmental	Possibly
FLGOV DWL 230kV DWL & WLLW-SR 60 R/R Overpass @ West Lake Wales Sub	Polk	Governmental	Possibly
FLGOV AL-5 to AL-7 69kV US 27 (SR 25) at SR 60- FPID 419243-4-52-01	Polk	Governmental	Possibly
FLGOV SLE 69kV Relocation for Kennedy Blvd Widening (Orange Cnty)	Orange	Governmental	Possibly
605EBD-967T4 WR &RW RELOCATION	Orange	Customer Request	Possibly
60KK8-1967T2 SLM RELO @ KEN	Orange	Customer Request	Possibly

60KK8-1967T3 WO RELO @ KEN	Orange	Customer Request	Possibly
605EBD_287T4_WF-63-77-69KV	Seminole	Customer Request	Possibly
Largo to Taylor Ave (LTW-1) 69kV Li	Pinellas	Rebuild	Yes
Belleair to Largo (LECW-1) - 69 kV Line Rebuild	Pinellas	Rebuild	Yes
Lake Bryan to Vineland - 69 kV Line rebuild	Orange	Rebuild	Yes
Keller Road - Spring Lake 69kV Line Rebuild	Seminole	Rebuild	Yes
Rio Pinar to FGT East 69kv Line Rebuild	Orange	Rebuild	Yes
Rio Pinar to Curry Ford (RX) 230 kV Line Rebuild	Orange	Rebuild	Yes
Hudson-Golden Acres-New Port Richey	Pasco	Rebuild	Yes
Fort Meade - New 69kV Terminal, Ins	Polk	Customer Request	Possibly
32nd Street - Feeder Additions and	Pinellas	Rebuild	Possibly
Pilsbury 115kV Series Reactor	Pinellas	Rebuild/New	Possibly
Bonnet Creek to Intercession City	Osceola	Rebuild	Yes
Barnum City to Westridge - 69 kV Line Rebuild	Polk	Rebuild	Yes
TRMP Bayview to Tri-City - 115 kV L	Pinellas	Rebuild/New	Yes

TRMP Winter Springs to Sanford/Poin	Seminole	Rebuild	Yes
Horse Creek Upgrades to 2,000 amps	Hardee	Customer Request	Possibly
Myrtle Lake - NLSX Rebuild	Seminole	Rebuild	Yes
Florida Portfolio of Governmental P	Seminole	Customer Request	Possibly
Florida Portfolio of Governmental P	Orange	Governmental	Possibly
Florida Portfolio of Governmental P	Pinellas	Governmental	Possibly
Florida Portfolio of Governmental P	Seminole	Customer Request	Possibly
Florida Portfolio of Governmental P	Orange	Governmental	Possibly
Florida Portfolio of Governmental P	Seminole	Customer Request	Possibly
Florida Portfolio of Governmental P	Orange	Customer Request	Possibly
Florida Portfolio of Governmental P	Pinellas	Governmental	Possibly
Florida Portfolio of Governmental P	Orange	Governmental	Possibly
Florida Portfolio of Governmental P	Seminole	Customer Request	Possibly
Florida Portfolio of Governmental P	Pinellas	Customer Request	Possibly
Florida Portfolio of Governmental P	Polk	Governmental	Possibly

Florida Portfolio of Governmental P	Orange	Governmental	Possibly
Florida Portfolio of Governmental P	Pinellas	Governmental	Possibly
Daetwyler Drive Customer Relocation	Pinellas	Customer Request	Possibly

25-6.0342(4)(c): *The extent to which the electric infrastructure improvements involve joint use facilities on which third-party attachments exist.*

In the description of specific hardening projects above, DEF has provided information as to whether the projects involve joint use facilities on which third-party attachments exist. Since 2009, all joint use poles changed out in support of Rule 25-6.0342(6) are scheduled within the company work management system. Communication carriers are notified at the time of the pole change out that transfers are needed. This process is in line with the other company pole maintenance programs and the cost to the communication carriers is minimized. DEF completed the required inspection of every joint use pole on the system in the year end of 2013, and are currently in the 7th year of the second round of inspections and anticipate completing the cycle by year end of 2020.

25-6.0342(4)(d): *An estimate of the costs and benefits to the utility of making the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages.*

With respect to system-wide storm and extreme weather applications identified in **Attachment B**, DEF has provided any available cost/benefit information within the documents in **Attachment B**. Additionally, please see the following chart for money that DEF has spent in 2016, 2017 and 2018 on storm hardening and maintenance:

Duke Energy Florida Storm Hardening and Maintenance Costs

Description	2016 Actual	2017 Actual	2018 Actual
Vegetation Management (Distribution & Transmission)	$40,076,769	$38,691,356	$46,784,730
Joint Use Pole Inspection Audit	$438,525	$448,503	$442,367
Transmission Pole Inspections	$1,918,500	$1,242,836	$1,826,054
Other Transmission Inspections and Maintenance	$5,649,611	$5,649,691	$6,084,476
Transmission Hardening Projects	$110,436,718	$109,829,369	$185,614,179
Distribution Pole Inspections & Treatments	$3,998,798	$4,536,355	$3,992,201
Distribution Hardening Projects	$42,453,504	$41,291,401	$44,801,476
Total	**$204,972,425**	**$201,689,511**	**$244,744,007**

25-6.0342(4)(e): *An estimate of the costs and benefits, obtained pursuant to Rule 25-6.0342(6), provided to third-party attachers affected by the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages realized by the third-party attachers.*

With respect to system-wide storm and extreme weather applications identified in **Attachments A** and **B**, DEF believes that any entity jointly attached to DEF's equipment would enjoy any benefit that DEF would enjoy from that same application, and DEF has provided any available cost/benefit information within the documents in those attachments.

25-6.0342(5): *Each utility shall maintain written safety, reliability, pole loading capacity, and engineering standards and procedures for attachments by others.*

Please see **Attachment A** and **Attachment C**.

25-6.0342(5): *The attachment standards and procedures shall meet or exceed the NESC so as to assure that third-party facilities do not impair electric safety, adequacy, or*

pole reliability; do not exceed pole loading capacity; and are constructed, installed, maintained, and operated in accordance with generally accepted engineering practices for the utility's service territory.

All third-party joint use attachments on Duke Energy Florida's distribution and transmission poles are engineered and designed to meet or exceed current NESC clearance and wind loading standards. New attachment requests are field inspected before and after attachments to assure company construction standards are being met. All entities proposing to attach joint use attachments to Duke Energy Florida's distribution and transmission poles are given a copy of the company-prepared "Joint Use Attachment Guidelines." Attached hereto as **Attachment C**. These guidelines are a comprehensive collection of information spelling out the company's joint use process, construction standards, timelines, financial responsibilities, and key company contacts responsible for the completing permit requests. All newly proposed joint use attachments are field checked and designed using generally accepted engineering practices to assure the new attachments do not overload the pole or impact safety or reliability of the electric or other attachments. Additionally, annual and full-system audits are performed as detailed in DEF's annual March 1 comprehensive reliability report. For details on this activity, please see **Attachment B**.

25-6.0342(6): *Each utility shall seek input from and attempt in good faith to accommodate concerns raised by other entities with existing agreements to share the use of its electric facilities.*

Since 2009, DEF has continued to communicate with the telecommunications carriers regarding the pole loading project. DEF has diligently cut cost for carriers by suggesting make ready solutions for over loaded pole conditions that do not include pole change outs. Additional guying and attachment rearrangement solutions have saved the communications carriers thousands of dollars annually. DEF continues to answer any questions and address concerns expressed verbally by joint attachers. DEF has taken all input received into consideration in the development and finalization of this storm hardening plan.

2019 Storm Hardening Plan Attachment List

Attachment A:

1. Distribution Standards Manual
2. Distribution Engineering Manual
3. Transmission Extreme Winds Loading
4. Transmission Line Engineering Design Philosophy

Attachment B:

1. Pole Inspection Plan
2. 2018 PSC Reliability Report Excerpts, pages 39-42, 44-65

Attachment C:

1. Joint Use Pole Guidelines

Attachment D:

1. DEF Storm Harding 2007-2018 Projects

Attachment K

Document title:	Document number:
Transmission Wood Pole Inspection, Boring, Excavation, and Treatment Guidelines	TECP-MIM-TRM-00118
	Revision No.: 001
Keywords: TEEM-EE, line patrols, groundline inspection, maintenance instructional material	Applies to: Transmission – All Regions

1.0 Introduction

This maintenance procedure provides specific guidance for performing wood pole groundline inspections including any of the following; sound & boring tests, partial or full excavation of soils, preservative application, and pole wraps. A listing specific of lines and inspection requirements will be included in a work authorization.

The Contractor shall furnish and maintain all tools, equipment, and materials, and labor to properly inspect Duke Energy facilities as set forth in these specifications. This inspection covers both Duke Energy owned and Duke Energy leased poles.

This inspection guideline is to be utilized along with ***TECP-MIM-TRM-00026*****,** Transmission Line Material Condition Assessment Procedure; Ground Patrols.

2.0 Definitions of Units

2.1 Pole Position Identification: For multipole structures such as H-frames and suspension or deadend structures, poles are to be identified as A, B, C, etc., from left to right, when facing higher structure numbers. Single pole structures will always identified as pole A.

2.2 Crop Damage: To ensure the upmost respect for landowners and planted fields, Duke Energy will not pay crop damage caused by an inspection contractor. All received claims will be forwarded to the contractor.

2.3 Standard Access: This rate will be paid when the structure can be accessed by motor vehicle, by foot, or with the use of an ATV such as a four wheeler. The right-of-way may include obstructions including fences, small ditches or streams, and high vegetation that can be driven through.

2.4 Hard Access: This rate will be paid when the structure can only be accessed with the aid of vehicles such as tracked a four wheeler or Marsh-Masters. The right-of-way has obstacles such as high water, deep water crossings, deep mud, or extreme rocky terrain that would make traversing by normal means impossible or unsafe. This access rate will be paid in lieu of the standard access rate.

2.5 Hourly Rate: An hourly rate will be paid to access a structure when the right-of-way is impassible due to extreme vegetation density or diameter and cannot be driven or walked when utilizing the vehicles listed in Sections 2.3 or 2.4.

2.6 Sound & Bore Patrol Requirements: In Florida, a portion of the lines to be patrolled will require three specific inspection tasks including the following; sounding, soil excavation, and boring. They are described in Sections 5.1, 5.2, and 5.3. Only the wood poles encountered on a line for this type of inspection will be compensated for. The contractor will be expected to walk/drive by and skip individual and sections of steel and concrete poles on these lines without payment.

2.7 Public Utility Commission of Ohio (PUCO): This specification is applicable to all regions, however, inspection work in Ohio requires the usage of a separate specification titled “Ground-line Inspection and Treatment of Wood Poles”, dated 12/18/07.

2.8 Removal of Vines: At times significant amounts of vegetation around the pole should be expected. Removal of such vegetation to access the pole will not be compensated unless they extend 10 foot in height. This unit will also include application of a herbicide around the base of the pole or guy anchor.

2.9 Installation of Structure Numbers: A unit price will be paid for the installation of a structure number on a pole as indicated in the work authorization.

2.10 Repair of Broken or Stolen Pole Grounds: A unit price will be paid for the repair of broken pole grounds. Duke Energy will provide the squeezeons, staples, wire. The contractor shall wear appropriate PPE and rubber gloves, and provide needed tools.

3.0 Safety Considerations

3.1 Contractor performance regarding safety is critical to the success of this contract. The Contractor will be expected to perform in accordance with the range of acceptable performance to meet or exceed goals.

3.2 All lines will normally be energized during the course of this work. The contractor shall utilize appropriate protective equipment needed to protect the general public and contractor's employees and to guard against interference with the normal operations of these lines.

3.3 Any hazardous conditions encountered that may endanger life, property, or cause an outage shall be reported to the Duke Energy immediately by phone.

3.4 When digging around the pole care must be taken not to break the pole ground wire or cause it to disconnect from the ground rod. Pole grounds pulled away from the pole because of work interference shall be re-stapled to the pole after work is completed.

3.5 If a pole ground is found to be broken or stolen, the contractor will be compensated to make the repair using approved tools and connectors provided by Duke Energy. Rubber gloves must be worn when performing this task.

4.0 Logistics and Employee Qualifications

4.1 Duke Energy will provide locations of all poles to be inspected via electronic shape files.

4.2 If the contractor has not previously worked for Duke Energy, proof must be provided that they have at least 5 years of experience in both ground line inspection work and preservative application.

4.3 The Contractor shall supply Duke Energy with both a written verification of inspection experience in years and a listing of training opportunities for each employee.

4.3.1 Each pole inspector shall be a permanent, full-time employee of the having at least one year of experience in ground line inspection and treatment work.

4.3.2 Each Foreman/Crew Leader shall be a permanent, full-time employee having at least two years of experience in ground line inspection and treatment work.

4.3.3 Each Supervisor (oversees multiple crew members) shall be a permanent, full-time employee having at least four years of experience in supervising ground line inspection and treatment work.

4.3.4 If Contractor employs non-English speaking persons, Contractor shall ensure that a bilingual person fluent in speaking, reading, and writing both in English and the other language is available at the jobsite where the non-English speaking person(s) are working for purposes of safety and hazard related communications, communicating technical information, emergency response, and similar issues.

4.4 All Contractor employees working for Duke Energy shall possess a cellular telephone equipped with voicemail, texting, and with the ability of sending photographs electronically. This is necessary in case of emergency, customer complaint, or other reason. The contractor shall also provide Duke Energy with names and phone numbers prior to the start of work and when personnel changes are made.

4.5 The Contractor shall develop a detailed work schedule. This schedule should include the prioritization of lines to be patrolled, anticipated start/finish dates, and names and number of inspectors/supervisors that will be working, etc. This schedule shall be reviewed with Duke Energy prior to the start of work and undated copies shall be sent monthly.

4.6 For productivity reasons it is mandatory that the Contractor provides an agreed upon number of pole inspectors to an area.

4.7 The Contractor shall report work location(s) via email by no later than 8:00 am to the Duke Energy daily or advise Duke Energy if no work is to be performed on that day.

4.8 The successful contractor shall attend a planned face to face “kick-off” meeting prior to the start of work. The agenda for this meeting is to review work plans, schedule, expectations, and safety. The contractor is expected to bring the following to the meeting, if not already completed, the following data.

4.8.1 Names and cellular phone numbers of all hands-on and support employees that will working on the on the Duke Energy system.

4.8.2 Verification of each employees required qualifications and experience. It is expected that the individuals completing the work will attend this meeting.

4.8.3 Safety Data Sheets (SDS) and copies of the chemical labels and preservative materials that will be used, if required.

4.8.4 The Contractor shall supply the Duke Energy names of employee holding responsibility/accountability for the Pesticide Applicator License as issued by the State in which the work will be performed, if applicable.

4.9 The Contractor shall obtain, at his expense, any necessary permits from any owner, municipality, or other authority on whose premises the work is to be done prior to the start of work.

5.0 Wood Pole Inspection Requirements

5.1 Overall site inspection and pole sounding;

5.1.1 This section is required for ALL wood poles, regardless of regional location.

5.1.2 The site is to be first assessed to ensure there is no danger from any abnormal situations such as unattached conductors, broken crossarms, severely decayed poles, or broken guy wires.

5.1.3 Any requested data collection items for both the pole and structure should be collected, including pole birthmark information, structure configuration, insulator type, etc.

5.1.4 Each pole shall be sounded with a waffle head type hammer thoroughly in all quadrants from groundline to 7 feet high to determine integrity and possible decay. Sounding should leave marks that are recognizable in the event of an audit. (All wood poles are to be sounded regardless of age, species, or treatment).

5.1.5 If any sign of decay, soft wood, hollowness, or abnormal coloration is found, the pole is also to be probed or drilled with a suitable tool to ascertain the extend of the found deterioration.

5.1.6 If the decay is found below grade soil shall be removed as necessary to aid with the testing.

5.1.7 Poles are to be rejected if the decay or shell thickness meets the criteria as defined in Section 6.0.

5.2 Soil excavation requirements;

5.2.1 When soil excavation is required in the work authorization, excavation shall be completed as follows;

5.2.2 Excavation should only be initiated after it is determined that the sounding test or visual inspection up the pole does not already deem that the pole needs to be replaced.

5.2.3 Soil is to be removed around the entire pole to a depth of 12 inches. The hole shall extend at least 4 inches from the pole at the 12 inch depth and 10 inches from the pole at groundline.

5.2.4 When poles are located on lawns, the turf shall be removed with care, placed on a ground cover such as a tarp, and carefully replaced when work is completed.

5.2.5 If any sign of decay, soft wood, hollowness, or abnormal coloration is found, the pole is also to be probed or drilled with a suitable tool to ascertain the extend of the deterioration.

5.2.6 CCA poles 15 years old or less are not to be excavated unless decay is found during sounding and probing.

5.3 Boring requirements;

5.3.1 When borings are required in the work authorization, they shall be completed as follows;

5.3.2 A 3/8” diameter boring shall be drilled adjacent to where the most suspected decay is found during the sounding test. If no decay is suspected, the boring shall be taken near the deepest check. If there are no checks the boring shall be taken on either side of the pole in the same direction as the line is facing. The boring shall begin pole entry at groundline, be taken at a 45 degree angle, and proceed past the center of the pole.

5.3.3 If decay pockets are detected, a minimum of two additional borings shall be taken to determine the extent of decay. Any pole with a hollow center shall have the thickness determined with a shell depth indicator.

5.3.4 All inspection holes shall be plugged with tightly fitting CCA-treated wood dowels.

5.3.5 Poles are to be rejected if decay or shell thickness meets the criteria as defined in Section 6.0 Pole treatment requirements;

5.4 Pole Treatment requirements;

5.4.1 When internal treatment is required in the work authorization, treatment application shall be applied as follows;

5.4.2 Poles with no indication of decay are NOT to be treated.

5.4.3 Poles meeting the criteria to be replaced due to the sounding test, drilling, or visual inspection up the pole are NOT to be treated.

5.4.4 When poles are found to have decay or to be hollow, treatment shall be applied only from below grade to 18 inches above groundline. Treatment is not to be applied above 18 inches.

5.4.5 A standard treatment rod and vendor has been included in the bid units. Duke Energy will accept proposals for equivalent treatment products.

5.4.6 Treatment shall utilize a ½" hole is to drilled to ensure the applied product is as close to the decayed pole regions as possible.

5.4.7 The treatment hole shall be drilled at a 30 degree downward angle to a maximum depth of 12 inches, or to the center of the pole.

5.4.8 If preservative rods are used, two shall be applied to each drilled hole.

5.4.9 All preservative holes shall be sealed with a removable threaded plastic plug.

5.4.10 Section 5.5 must be considered before proceeding with treatment.

5.5 Re-treatment requirements;

5.5.1 If previously treated poles meet the strength requirements to remain in service and it is determined additional preservative is required, before drilling any new holes the following is to be performed;

5.5.1.1 Existing holes in the vicinity of the new needed treatment are to be opened and the existing rods evaluated for decay.

5.5.1.2 If the rods are decayed two new ones are to be inserted.

5.5.1.3 If the existing rods are not decayed adding new ones will not be effective. When this is observed, NO new rods are to be added.

5.5.1.4 If the existing treatment plug is wood, it is to be replaced with a removal plastic plug. If necessary use a larger size as removal of the wood plug may have damaged the hole.

6.0 Pole Reject Criteria

6.1 Priority 0 Pole Replacements: These poles shall be reported to Duke Energy via a phone call immediately when found. Replacement efforts will begin immediately.

6.1.1 Pole is broken.

6.1.2 Pole is in imminent danger of failing or has initial signs of failing.

6.2 Priority 1 Pole Replacements: These poles have a moderate probability of causing an outage and will be replaced within 12 weeks of identification.

6.2.1 Hammer test or probing at groundline reveals internal rot, decay, or hollowness with a shell thickness of 2 inches or less is found in any location.

6.2.2 Hammer test or probing at groundline reveals rot or decay that extends more than 2 inches into the pole along more than 1/4 of the pole circumference.

6.2.3 Contractor "effective diameter" calculations determine the pole has lost more than 50 percent of the original pole strength.

6.2.4 Woodpecker holes extend through the pole and daylight is visible.

6.2.5 Longitudinal pole deflection exceeds 5 feet.

6.2.6 Extensive longitudinal cracking exists through critical attachments.

6.2.7 Earth washout at the pole base compromises the pole integrity.

6.3 Priority 2 Pole Replacement: These poles have a low probability of causing an outage and will be replaced during normal work schedules.

6.3.1 Hammer test or probing at groundline reveals internal rot, decay, or hollowness with a shell thickness of 2 - 4 inches is found at any location.

6.3.2 Hammer test or probing at groundline reveals rot or decay extends 3 or more inches into the pole along more than ¼ of the pole circumference.

6.3.3 Contractor "effective diameter" calculations determine the pole has lost more than 33 percent of the original pole strength.

6.3.4 Hammer test reveals significant shell cracking or soft wood, indicated by sound or caving of the wood.

6.3.5 Woodpecker holes contain extensive nesting cavities in critical locations.

6.3.6 Woodpecker holes are extensive and generally at least "softball" sized.

6.3.7 Pole checks up the pole reveal significant evidence of decay, insect damage, or shell separation, as indicated by caving the pole, sawdust, or sound.

6.3.8 Longitudinal pole deflection is between 3 – 5 feet.

6.3.9 Transverse pole deflection is more than 20 degrees.

6.3.10 Earth washout the pole base requires the pole to be replaced.

6.3.11 Pole must meet NESC "at replacement" strength requirements, which occurs when at least 2/3 of the original required pole strength remains. This is specified in the NESC Code, Table 26101A, Footnote 2.

6.4 Priority 9 Pole Repairs: These poles defects have no probability of causing an outage. The identified work will only be tracked and monitored unless the defect eventually qualifies the pole for a Priority 2 status.

6.4.1 Woodpecker holes not meeting the criteria for pole replacements.

6.4.2 Other minor deficiencies as described in document TECP-MIM-TRM-00026.

7.0 Pole Tagging

7.1 All inspected poles shall be marked with an aluminum tag identifying the work performed, contractor name, and inspection date that is clearly legible.

7.2 Inspection tags shall be placed five (5) feet above groundline on the side of the pole most easily seen from roads or nearby access locations. If none are present, place the tag on the birth mark side of the pole.

7.3 A Priority 0 reject pole does not need to be marked. Duke Energy response will be immediate.

7.4 A Priority 1 reject pole is to be marked by **two** 1-1/2" by 1-1/2" white aluminum tags placed immediately below the inspection tag.

7.5 A Priority 2 reject pole is to be marked by **one** 1-1/2" by 1-1/2" white aluminum tags placed immediately below the inspection tag.

8.0 Photograph Requirements

8.1 A digital photograph is required to be taken of all defects that result in a Priority 1 or 2 rejected pole and E-mailed to Duke Energy. The E-mail shall include the Line name, structure number, date, and a brief description of the defect.

8.2 The photograph should be at least 1 megapixel in size resolution and be taken at a distance that clearly shows the defect but also includes as much as possible the pole and surroundings.

9.0 Quality Assurance and Quality Control

9.1 All work shall be entirely satisfactory to Duke Energy and shall be subject to inspection. The Contractor shall audit no less than 1% of all poles inspected. Poles are to be selected totally at random and be checked for accuracy and quality of work. This audit is to be completed at the Contractor's own expense.

9.2 A quality control inspection shall be performed for each time period of not less than one (1) week's work but not to exceed two (2) weeks' previous work. The quality control will be conducted with the Contractor's supervisor and a Duke Energy representative when available.

9.3 The quality control inspection shall consist of the partial to complete re-inspection of those poles selected. The re-inspection shall include re-excavation and re-boring if those tasks were performed.

9.4 Serious errors found by Duke Energy will be brought to the attention of the Contractor. Corrective actions satisfactory to Duke Energy must be remedied before the next quality control check. The corrective action may include re-working all poles back to the previous quality control check point at no cost to Duke Energy.

9.5 Results of Contractor audits shall be communicated electronically to Duke and include the pole inspector names.

9.6 Duke Energy shall be issued a copy of the contractor quality control field report.

10.0 Data Collection and Inspection Detail Reports

10.1 Data provided to the Contractor will be by electronic files in an Excel or Shape-file type spreadsheet format. All data collected by the contractor shall be added to the spreadsheet and returned without eliminating any fields received from the original Duke Energy provided files. This enables downloading the spreadsheet directly into Duke Energy databases.

10.2 Data deliverables and report requirements includes but is not limited to the following;

10.2.1 Maintenance region

10.2.2 Line name, line code, and or line number

10.2.3 Structure number, including poles A, B, C, etc.

10.2.4 Structure GPS coordinates

10.2.5 Date pole inspected

10.2.6 Pole length and class

10.2.7 Pole manufacturer and birthmark date

10.2.8 Pole species

10.2.9 Type of external/internal treatments applied

10.2.10 Original/effective ground line circumference

10.2.11 Observed deficiencies and associated repair/replace priorities

10.3 Reporting Requirements

10.3.1 A summary of all poles inspected & work performed on an individual line or substation basis, including number of poles inspected, and failure rate.

10.3.2 Copies of all internal audit reports.

10.3.3 Reports are to be provided only after ALL work on a line is completed in its' entirety.

10.3.4 A weekly inspection progress schedule must be submitted to the Project Manager at the start of each week for the previous weeks work.

10.3.5 Duke Energy must be notified by email as line circuit inspections are completed to monitor timeline for end of circuit files and invoicing.

10.3.6 Invoicing and inspection reports are to be provided only after ALL work on a circuit is completed in its' entirety.

10.3.7 Invoices and end of circuit files must be sent to Duke Energy 30 days or less from time of notification of circuit inspection completion.

10.3.8 All invoicing for current year inspection program must be presented to Duke Energy for final payment no later than December 15th.

Transmission Document Approval Form

issued 5/15/18

Section A: Document identification and type of action

Document no.: TECP-MIM-TRM-00118

Revision no.: 001

Document title: Transmission Wood Pole Inspection, Boring, Excavation, and Treatment Guidelines.

Type of action:

- ☐ New
- ☐ Cancellation
- ☐ Suspension
- ☑ Revision
- ☐ Ownership Change
- ☐ Renumber
- ☐ Periodic review completed, as required

For Document Management staff use only:

- ☐ Editorial Change
- ☐ Migration
- ☐ Control element revision _____ (does not require approval authority signature)

Applies to: (Select all that apply)

- ☑ Duke Energy
- ☐ Duke Energy Carolinas, LLC
- ☐ Duke Energy Progress, LLC
- ☐ Duke Energy Florida, LLC
- ☐ Duke Energy Indiana, Inc.
- ☐ Duke Energy Kentucky, Inc.
- ☐ Duke Energy Ohio, Inc.
- ☐ Group _____
- ☑ Department Transmission - All Regions
- ☐ Other _____

Security Restrictions Required: ☐ Yes ☑ No

If yes, explain (see instructions on page 2) _____

Compliance Applicability: (required field)

- ☑ None
- ☐ State Codes/Standards
- ☐ HIPAA
- ☐ Sarbanes-Oxley
- ☐ OSHA _____
- ☐ NERC
- ☐ FERC Standards of Conduct
- ☐ Patriot Act
- ☐ Other _____

Complete if submitting a form: (see instructions on page 2)

Does the form have a parent, governing or instructional procedure? ☐ No ☐ Yes (Procedure No: _____)

How is the form to be completed or used? ☐ Hard Copy (completed by hand) ☐ Online Data Entry (fillable PDF)

- ☑ Communication plan established
- ☑ Impact Reviews completed

Description of document action or summary of changes:

The incorrect document version was included in the initial release. This revision corrects that mistake.

Section B: Approval

Who should sign? see instructions on page 2

Preparer(s)/Author(s)/Writer(s) (*signature not required*):

Dan Chapoton

Approval recommended (*print name*): Dan Chapoton	Dan Chapoton Digitally signed by Dan Chapoton Date: 2018.05.07 12:33:17 -04'00' (*signature*)	Date: 5/17/18
Approval recommended (*print name*):	(*signature*)	Date:
Approval recommended (*print name*):	(*signature*)	Date:
Final Approval (*print name*): Dan Maley	Daniel J. Maley Digitally signed by Daniel J. Maley Date: 2018.05.07 15:44:03 -04'00' (*signature*)	Date: 5/7/18

RETURN SIGNED FORM AS SCANNED PDF VIA E-MAIL OR FAX TO (919) 235-3165

Purpose and Intent of the Plan:

To implement and update a wood pole inspection program that complies with FPSC Order No. PSC-06-0144-PAA-EI issued February 27, 2006 (the "Plan"). The Plan concerns inspection of wooden transmission and distribution poles, as well as pole inspections for strength requirements related to pole attachments. The Plan is based on the requirements of the National Electric Safety Code ("NESC") and an average eight-year inspection cycle. The Plan provides a detailed program for gathering pole-specific data, pole inspection enforcement, co-located pole inspection, and estimated program funding. This Plan also sets forth pole inspection standards utilized by Duke Energy Florida ("DEF") that meet or exceed the requirements of the NESC.

The Plan includes the following specific sub-plans:

- Transmission Wood Pole Inspection Plan ("Transmission Plan").
- Distribution Wood Pole Inspection Plan ("Distribution Plan").
- Joint Use Wood Pole Inspection Plan ("Joint Use Plan").

These three inspection sub-plans are outlined and described below. All of these sub-plans will be evaluated on an ongoing basis to address trends, external factors beyond the Company's control (such as storms and other weather events), and cost effectiveness.

1) Transmission Wood Pole Inspection Plan

A. Introduction

Ground-line inspection and treatment programs detect and treat decay and mechanical damage of in-service wood poles. DEF's Transmission Department accomplishes this by identifying poles that are 8 years of age or older and treating these poles as necessary in order to extend their useful life. As required, DEF also assesses poles and structures for incremental attachments that may create additional loads. Poles that can no longer maintain the safety margins required by the NESC (ANSI C2-2002) will be remediated. These inspections result in one of four or a combination of the following actions: (1) No action required; (2) Application of treatment; (3) Repaired; (4) Replaced. (DEF's Transmission Department follows TECP-MIM-TRM-00118, Transmission Wood Pole Inspection, Boring, Excavation, and Treatment Guideline along with TECP-MIM-TRM-00026, Transmission Line Material Condition Assessment Procedure as assurance of the implementation of the plan.

B. General Plan Provisions

(i). Pole Inspection Selection Criteria

Transmission performs ground patrols to inspect transmission system line assets to allow for the planning, scheduling, and prioritization of corrective and preventative maintenance work. These patrols assess the overall condition of the assets including insulators, connections, grounding, and signs, as well as an assessment of pole integrity. These patrols are done on a four-year cycle. The ground patrol inspections categorize wood poles into four conditions, Priority 0, 1, 2, or 9.

In performing inspection and patrols, the following Transmission Line Wood Poles Inspection State Categories shall apply:

Priority 9 is described as meeting ANY of the conditions listed below and should have a repair work order written:

- Woodpecker holes not meeting the criteria for pole replacements; for example:
  - Woodpecker holes are present but can be patched and repaired
  - Woodpecker holes are not located in critical pole locations
  - Woodpecker holes are limited to "baseball" size in diameter, they do not extend into the pole more than 4 inches, and will not hold water
- Other minor deficiencies as described in document TECP-MIM-TRM-00026 or TECP-MIM-TRM-00118

Priority 2 is described as meeting ANY of the conditions listed below and should have a replacement work order written. These poles have a low probability of causing an outage and will be replaced during normal work schedules.

- Hammer test or probing at ground-line reveals internal rot, decay, or hollowness with a shell thickness of 2 - 4 inches is found at any location.
- Hammer test or probing at ground-line reveals rot or decay extends 3 or more inches into the pole along more than one-quarter of the pole circumference.
- Contractor "effective diameter" calculations determine the pole has lost more than 33 percent of the original pole strength.
- Hammer test reveals significant shell cracking or soft wood, indicated by sound or caving of the wood.
- Woodpecker holes contain extensive nesting cavities in critical locations, including vicinity of cross-arm, plank-arm, cross-brace, guy, or insulator connections
- Woodpecker holes are extensive and generally at least "softball" sized.
- Pole checks up the pole reveal significant evidence of decay, insect damage, or shell separation, as indicated by caving the pole, sawdust, or sound.
- Longitudinal pole deflection is between 3 – 5 feet.
- Transverse pole deflection is more than 20 degrees.
- Earth washout at the pole base is so substantial that it requires replacement.
- Pole must meet NESC "at replacement" strength requirements, which occurs when at least two-thirds of the original required pole strength remains. This is specified in the NESC Code, Table 26101A, Footnote 2.

Priority 1 is described as meeting ANY of the conditions listed below. This pole should have a replacement work order written and will be replaced within 12 weeks of identification.

- Hammer test or probing at ground-line reveals internal rot, decay, or hollowness with a shell thickness of 2 inches or less is found in any location.
- Hammer test or probing at ground-line reveals rot or decay that extends more than 2 inches into the pole along more than one-quarter of the pole circumference.
- Contractor "effective diameter" calculations determine the pole has lost more than 50 percent of the original pole strength.
- Woodpecker holes extend through the pole and daylight is visible.
- Longitudinal pole deflection exceeds 5 feet.
- Extensive longitudinal cracking exists through critical attachments of the pole
- Earth washout at the pole base compromises the pole integrity.

Priority 0 are immediate Pole Replacements; these poles shall be reported, and replacement efforts will begin immediately if the Pole is broken or Pole is in imminent danger of failing or has initial signs of failing.

(ii). Ground-Line Inspections

Ground-line inspections of wood transmission poles are conducted on an average 8-year cycle. This results in, on average, approximately 12.5% of the remaining population of wood poles receiving this type of inspection on an annual basis. (Reference: TECP-MIM-TRM-00118 for inspection requirements.)

Soil excavation requirements

Excavation should only be initiated after it is determined that the sounding test or visual inspection up the pole does not already deem that the pole needs to be replaced. Soil is to be removed around the entire pole to a depth of 12 inches. The hole shall extend at least 4 inches from the pole at the 12-inch depth and 10 inches from the pole at ground-line.

If any sign of decay, soft wood, hollowness, or abnormal coloration is found, the pole is also to be probed or drilled with a suitable tool to ascertain the extend of the deterioration. CCA poles 15 years old or less are not to be excavated unless decay is found during sounding and probing.

Boring requirements

When borings are required a 3/8" diameter boring shall be drilled adjacent to where the most suspected decay is found during the sounding test. If no decay is suspected, the boring shall be taken near the deepest check. If there are no checks the boring shall be taken on either side of the pole in the same direction as the line is facing. The boring shall begin pole entry at ground-line, be taken at a 45-degree angle, and proceed past the center of the pole. If decay pockets are detected, a minimum of two additional borings shall be taken to determine the extent of decay. Any pole with a hollow center shall have the thickness determined

with a shell depth indicator. All inspection holes shall be plugged with tightly fitting CCA-treated wood dowels.

Pole Treatment requirements

When poles are found to have decay or to be hollow, treatment shall be applied only from below grade to 18-inches above ground-line. Treatment is not to be applied above 18 inches. Treatment shall utilize a ½" hole is drilled to ensure the applied product is as close to the decayed pole regions as possible. The treatment hole shall be drilled at a 30-degree downward angle to a maximum depth of 12 inches, or to the center of the pole. If preservative rods are used, two shall be applied to each drilled hole. All preservative holes shall be sealed with a removable threaded plastic plug.

If previously treated poles meet the strength requirements to remain in service and it is determined additional preservative is required, before drilling any new holes the following is to be performed;

- Existing holes in the vicinity of the new needed treatment are to be opened and the existing rods evaluated for decay.
- If the rods are decayed two new ones are to be inserted.
- If the existing rods are not decayed adding new ones will not be effective. When this is observed, NO new rods are to be added.
- If the existing treatment plug is wood, it is to be replaced with a removal plastic plug. If necessary, use a larger size as removal of the wood plug may have damaged the hole.

Poles with no indication of decay are not to be treated. Poles meeting the criteria to be replaced due to the sounding test, drilling, or visual inspection up the pole are not to be treated.

(iii) Structural Integrity Evaluation

- See 3) Joint Use Pole Inspection Plan, section B, paragraph (ii).

(iv). Records and Reporting

A pole inspection report will be filed with the Florida Public Service Commission by March 1st of each year. The report shall contain the following information:

1) A description of the methods used for structural analysis and pole inspection.

2) A description of the selection criteria that was used to determine which poles would be inspected.

3) A summary report of the inspection data including the following:

   a. Total number of wood poles in Company inventory. *
   b. Number of pole inspections planned.

c. Number of poles inspected.
d. Number of poles failing inspection.
e. Pole failure rate (%) of poles inspected.
f. Number of poles designated for replacement.
g. Total number of poles replaced.
h. Number of poles requiring minor follow-up. *
i. Number of poles overloaded. *
j. Methods of inspection used.
k. Number of pole inspections planned for next annual inspection cycle.
l. Total number of poles inspected (cumulative) in the 8-year cycle to date.
m. Percentage of poles inspected (cumulative) in the 8-year cycle to date.

4) A pole inspection report that contains the following detailed information:

a. Transmission circuit name.
b. Pole identification number.
c. Inspection results.
d. Remediation recommendation.
e. Status of remediation.

*Estimates based on averages and previous years completions.

C. Program Cost and Funding

- DEF continues to meet the obligations set forth in Order No. PCS-06-0144-PAA-EI. The number of poles inspected per year will start at approximately 3,000 poles but may vary from year to year depending on previous years' accomplishments.

DEF is currently on track to meet the 8-year cycle requirements. The number of poles inspected may vary year to year depending on the previous year's accomplishments with the intent to complete inspections in the required timeframe. The estimated figures in the chart below are "best estimates," given information and facts known at this time and are subject to change or modification.

Wood Pole Program Cost Estimates

Annual Unit & Cost Estimate		
Cycle		
Years per cycle	8	
Poles inspected per year	3,000	On average; may vary year to year
Assumed poles replaced (1)	5%	Current future projections
O&M Cost		

GL Inspection & Treatment	$100,000	On average; may vary year to year
Capital Cost (2)		
Hurricane Hardening	$20,000,000	On average; may vary year to year

Note 1: Assumption is made that approximately 5% of the poles inspected will be identified for replacement.
Note 2: Capital Improvements can include various replacements beyond wood pole replacements, such as insulator, conductor and /or static replacements.

2) Distribution Wood Pole Inspection Plan

A. Introduction

In accordance with FPSC Order No. PSC-06-0144-PAA-EI, DEF's Distribution Department inspects Company-owned wood poles on an average 8-year cycle. These inspections determine the extent of pole decay and any associated loss of strength. The information gathered from these inspections is used to determine pole replacements and to effectuate the extension of pole life through treatment and reinforcement. Additionally, information collected from the wood pole inspections is used to populate regulatory reporting requirements, provide data for loading analyses, identify other equipment maintenance issues, and used to track the results of the inspection program over time.

B. General Plan Provisions

(i). Ground-line Inspection Purpose

- The ground-line inspection process is the industry standard for determining the existing condition of wood pole assets. This inspection helps to determine extent of decay and the remaining strength of a pole. Ground-line inspections also provide insight into the remaining life of a wood pole.

- The ground-line inspection is performed at the base of the pole because the base is the location of the largest "bending moment," as well as the area subject to the most fungal decay and insect attack. Assessing the condition of the pole at the base is the most efficient way to effectively treat and restore a wood pole.

(ii). Pole Inspection Process

When a wood distribution pole, other than a CCA pole, is inspected, the tasks listed below will be performed. For a CCA type wood distribution pole less than 16 years of age, the inspection will consist of

a visual above ground inspection and sounding with hammer, both procedures are described below. For CCA poles 16 years of age and greater, all inspection methods described below are used. Boring at Ground Line is also performed on type CCA poles when decay is present.

- Above Ground Observations - Visual inspection of the exterior condition of the pole and visual inspection of components hanging from the pole.
- Partial Excavation – The soil is removed around the base of the pole and the pole is inspected for signs of decay.
- Sound with Hammer – The exterior of the pole is tested with a hammer and the inspector listens for "hollowness" of the pole.
- Bore at Ground Line – The pole is bored at a 45-degree angle below the ground line. This inspection method helps to determine internal decay at the base as well as measure the amount of "good wood" left on the interior of the pole.
- Excavate to 18 Inches (Full Ground Line Inspection) – If significant decay is found during the full excavation, the soil is removed 18 inches below ground line. Decay pockets are identified and bored to determine the extent of decay.
- Removal of Surface Decay – Identified areas of decay are removed down to "good wood" using a sharp pick.
- Prioritization of rejected poles – rejected poles shall be assessed on their overall condition and then prioritized accordingly. Generally, these poles will then be replaced in order of priority, from highest to lowest.
- For poles where obstructions, such as concrete encasement, make full excavation impractical DEF will utilize the best economical inspection process in accordance with Order No. PSC-08-0644-PAA-EI issued October 6, 2008.

(iii) Data Collection

All data collected through the inspection process will be submitted to DEF's Distribution Department in electronic format by inspection personnel. This data will be used to determine effective circumference and remaining strength of the pole. In evaluating pole conditions, deductions shall be made from the original ground line circumference of a pole to account for hollow heart, internal decay pockets, and removal of external decay. The measured effective critical circumference shall be at the point of greatest decay removal in the vicinity of the ground line taking into account the above applicable deductions. A pole circumference calculator shall be used to determine the measured effective critical circumference. To remain in service "as-is," the pole shall meet minimum NESC strength requirements. The measured effective critical circumference will be compared to the applicable minimum acceptable circumference listed in the most current versions of ANSI 05.1-1992, American National Standard for Wood Poles, and NESC-C2-1990(1). Poles below the minimum acceptable circumference shall be rejected and will be marked in the field for replacement.

(iv). Structural Integrity Evaluation

- See Joint Use Pole Inspection Plan, section B, paragraph (i).

(v). Records and Reporting

A pole inspection report will be filed with the Florida Public Service Commission by March 1st of each year. The report shall contain the following information:

1) A description of the methods used for structural analysis and pole inspection.

2) A description of the selection criteria that was used to determine which poles would be inspected.

3) A summary report of the inspection data including the following:

a. Total number of wood poles in Company inventory.
b. Number of pole inspections planned.
c. Number of poles inspected.
d. Number of poles failing inspection.
e. Pole failure rate (%) of poles inspected.
f. Number of poles designated for replacement.
g. Total number of poles replaced.
h. Number of poles requiring minor follow-up.
i. Number of poles overloaded.
j. Methods of inspection used.
k. Number of pole inspections planned for next annual inspection cycle.
l. Total number of poles inspected (cumulative) in the 8-year cycle to date.
m. Percentage of poles inspected (cumulative) in the 8-year cycle to date.

4) A pole inspection report that contains the following detailed information:

a. Distribution circuit name.
b. Pole identification number.
c. Inspection results.
d. Remediation recommendation.
e. Status of remediation.

C. Program Cost and Funding

(i). Poles Program Cost Estimates

DEF continues to successfully meet the obligations set forth in Order No. PSC-06-0144-PAA-EI and continues to inspect poles based on the 8-year cycle as mandated by the FPSC. The number of poles inspected per year is expected to be approximately 100,000 poles but may vary from year to year depending on previous years' accomplishments with the intent to complete inspections in the required timeframe. Funding requirements to meet all aspects of this program will be adjusted from year to year, as well. DEF is currently on track to meet the 8-year cycle requirements.

The estimated figures in the charts below are "best estimates," given information and facts known at this time and are subject to change or modification.

Annual Unit Estimate

Years per Cycle	# of Wood Poles to be inspected per year	Replacements	Bracing	Treatments
8	100,000	5,984	700	70,000

Annual Cost Estimate

Yrs per Cycle	O&M Costs		Capital		O&M Total	Capital Total	Program Total Cost
	Inspections (S&B + Excavation)	Treatments (add'l to inspection)	Replacements	Braces			
8	$ 1,400,000	$ 2,600,000	$ 36,317,000	$ 600,000	$ 4,021,000	$ 36,917,000	$ 40,938,000

* Inspection and Treatment costs are not currently split in financials. Best estimates were given knowing cost and estimated numbers for treatments.

3) Joint Use Pole Inspection Plan

A. Introduction

DEF currently has approximately 774,000 joint use attachments on distribution poles and approximately 7,400 joint use attachments on transmission poles. On average, DEF receives approximately 3,000 new attachment requests per year. All new attachment requests are reviewed in the field to assure the new attachments meet NESC and company clearance and structural guidelines. The information provided below outlines DEF's attachment permitting process and how DEF intends to gather structural information on certain existing joint use poles over an average 8-year inspection cycle to meet the obligations set forth in Order No. PCS-06-0144-PAA-EI.

B. General Plan Provisions

(i). Structural Analysis for a Distribution Pole New Joint Use Attachment

When the Joint Use Department receives a request to attach a new communication line to a distribution pole, the following is done to ensure that NESC clearance and loading requirements are met before permitting the new attachment:

- Each pole is field inspected, and the attachment heights of all electric and communication cables and equipment are collected. The pole number, pole size and class (type) are noted as well as span lengths of cables and wires on all sides of the pole.
- For each group of poles in a tangent line, the pole that has the most visible loading, line angle and longest or uneven span length is selected to be modeled for wind loading analysis.
- The selected pole's information is loaded into a software program called "SPIDA CALC" from IJUS. The pole information is analyzed and modeled under the NESC Light District settings of 9psf, no ice, 30° F, at 60 MPH winds to determine current loading percentages.
- If that one pole fails, the next worst-case pole in that group of tangent poles is analyzed as well.
- Each pole is analyzed to determine existing pole loading and the proposed loading with the new attachment.
- If the existing analysis determines the pole is overloaded, a work order is issued to correct the overload. The remedy may include replacing the pole with a larger class pole. If the pole fails only when the new attachment is considered, a work order estimate is made and presented to the communication company wishing to attach.

(ii). Structural Analysis for a Transmission Pole New Joint Use Attachment

When the Joint Use Department receives a request to attach a new communication line to a transmission structure with distribution underbuilt, the following will be done to ensure that NESC clearance and loading requirements are met before permitting the new attachment:

- The attachment heights of all electric and communication cables and equipment are collected. The pole number, pole size and class (type) are noted as well as span lengths of cables and wires on all sides of the pole.
- All structure information is modeled by transmission line engineering in PLS-CADD software for structural analysis.
- Line Engineering uses a most conservative approach by grouping the structures per request by "worst-case." The structure rating, material type, line angle, and span lengths are used to determine the most conservative approach.
- The selected structure information is loaded into the PLS-CADD software. NESC criteria is used and determined based on the pole location, rating of the line, and year of installation.
- Each structure is analyzed using a pass/fail approach with the existing pole loading and the proposed loading with the new attachment. If a structure fails in a specific grouping, the attachment request is denied for those grouped structures. If the most conservative structure passes, the next "worst-case" structure is then analyzed per grouping.

- If the existing analysis determines the structure is overloaded, this information is shared with maintenance and the wood pole replacement team to determine if the structure may need to be replaced or is in a replacement plan.
- If the structure is replaced, the GIS database is updated and an engineering change request (ECR) is created to reflect the date the new structure was installed.

(iii). Analysis of Existing Joint Use Attachments on Distribution Poles

There are approximately 774,000 joint use attachments on approximately 450,000 distribution poles in the DEF system. All distribution poles with joint use attachments will be inspected on an average 8-year audit cycle to determine existing structural analysis for wind loading. These audits will start at the sub-station where the feeder originates. For each group of poles in a tangent line, the pole that has the most visible loading, line angle, and longest or uneven span length will be selected to be modeled for wind loading analysis. Each pole modeled will be field inspected. The attachment heights of all electric and communication cables and equipment will be collected. The pole age, pole type, pole number, pole size / class, span lengths of cables and wires, and the size of all cables and wires on all sides of the pole will be collected.

The selected pole's information will then be loaded into a software program called "SPIDA CALC" from IJUS. The pole information will be analyzed and modeled under the NESC Light District settings of 9psf, no ice, 30° F, at 60 MPH winds to determine current loading percentages. If that one pole fails, the next worst-case pole in that group of tangent poles will be analyzed as well. Each pole analyzed will determine the existing pole loading of all electric and communication attachments on that pole. If the existing analysis determines the pole is overloaded, a work order will be issued to correct the overload. The remedy may include replacing the pole with a larger class pole. Should the original pole analyzed meet the NESC loading requirements, all similar poles in that tangent line of poles will be noted as structurally sound and entered into the database as "PASSED" structural analysis. Poles rated at 100% or lower will be designated as "PASSED." Poles that are analyzed and determined to be more than 100% loaded will be designated as "FAILED," and corrected. If the pole is changed out, the GIS database will be updated to reflect the date the new pole was installed.

(iv). Analysis of Existing Joint Use Attachments on Transmission Poles

The following analysis will be completed to ensure that NESC clearance and loading requirements are met in the event existing attachments are found that were not included in the Section B. (ii) Structural Analysis for New Joint Use Attachments:

- The attachment heights of all electric and communication cables and equipment are collected. The pole number, pole size and class (type) are noted as well as span lengths of cables and wires on all sides of the pole.

- All structure information is modeled by transmission line engineering in PLS-CADD software for structural analysis.
- Line Engineering uses a most conservative approach by grouping the structures of a given circuit by "worst-case." The structure rating, material type, line angle, and span lengths are used to determine the most conservative approach.
- The selected structure information is loaded into the PLS-CADD software. NESC criteria is used and determined based on the pole location, rating of the line, and year of installation.
- Each structure is analyzed using a pass/fail approach with the existing pole loading. If a structure fails in a specific grouping, the wood pole replacement team and maintenance group are notified to determine if the structure may need to be replaced or is in the replacement plan. If the most conservative structure passes, the next "worst-case" structure is then analyzed per grouping.
- If the structure is replaced, the GIS database is updated and an engineering change request (ECR) is created to reflect the date the new structure was installed.

(v). Records and Reporting

A pole inspection report will be filed with the Florida Public Service Commission by March 1st of each year. The report shall contain the following information:

1) A description of the methods used for structural analysis and pole inspection.

2) A description of the selection criteria that was used to determine which poles would be inspected.

3) A summary report of the inspection data including the following:

a. Number of poles inspected.
b. Number of poles not requiring remediation.
c. Number of poles requiring remedial action.
d. Number of poles requiring minor follow up.
e. Number of poles requiring a change in inspection cycle.
f. Number of poles that were overloaded.
g. Number of inspections planned.

C. Program Cost and Funding

(i). Pole Analysis Funding

As stated above, there are currently approximately 774,000 joint use attachments on approximately 450,000 distribution poles and approximately 7,400 joint use attachments on transmission poles. DEF will analyze the "worst case" poles in a tangent line of similar poles as deemed appropriate during field inspections.

In order to meet the obligations, set forth in Order No. PCS-06-0144-PAA-EI, DEF requires incremental funding annually to successfully gather data and enter it into the required reporting format. See calculation that follows. The estimated figures in these charts are "best estimates," given information and facts known at this time and are subject to change or modification.

Annual Unit & Cost Estimate

Distribution poles with joint use	Annual inspected (8-yr cycle)	10% of Distribution poles analyzed	1% of Distribution poles replaced	Transmission poles with joint use	Annual inspected (8-yr cycle)	30% of Transmission poles analyzed	10% of Transmission poles replaced	Total cost to analyze poles (O&M)	Total cost to replace poles (capital)
450,000	56,000	5,600	56	5900	738	221	22	$551,950	$585,000

Document title:	Document number:
Transmission Wood Pole Inspection, Boring, Excavation, and Treatment Guidelines	TECP-MIM-TRM-00118
	Revision No.: 001
Keywords: TEEM-EE, line patrols, groundline inspection, maintenance instructional material	Applies to: Transmission – All Regions

1.0 Introduction

This maintenance procedure provides specific guidance for performing wood pole groundline inspections including any of the following; sound & boring tests, partial or full excavation of soils, preservative application, and pole wraps. A listing specific of lines and inspection requirements will be included in a work authorization.

The Contractor shall furnish and maintain all tools, equipment, and materials, and labor to properly inspect Duke Energy facilities as set forth in these specifications. This inspection covers both Duke Energy owned and Duke Energy leased poles.

This inspection guideline is to be utilized along with ***TECP-MIM-TRM-00026*****,** Transmission Line Material Condition Assessment Procedure; Ground Patrols.

2.0 Definitions of Units

2.1 Pole Position Identification: For multipole structures such as H-frames and suspension or deadend structures, poles are to be identified as A, B, C, etc., from left to right, when facing higher structure numbers. Single pole structures will always identified as pole A.

2.2 Crop Damage: To ensure the upmost respect for landowners and planted fields, Duke Energy will not pay crop damage caused by an inspection contractor. All received claims will be forwarded to the contractor.

2.3 Standard Access: This rate will be paid when the structure can be accessed by motor vehicle, by foot, or with the use of an ATV such as a four wheeler. The right-of-way may include obstructions including fences, small ditches or streams, and high vegetation that can be driven through.

2.4 Hard Access: This rate will be paid when the structure can only be accessed with the aid of vehicles such as tracked a four wheeler or Marsh-Masters. The right-of-way has obstacles such as high water, deep water crossings, deep mud, or extreme rocky terrain that would make traversing by normal means impossible or unsafe. This access rate will be paid in lieu of the standard access rate.

2.5 Hourly Rate: An hourly rate will be paid to access a structure when the right-of-way is impassible due to extreme vegetation density or diameter and cannot be driven or walked when utilizing the vehicles listed in Sections 2.3 or 2.4.

2.6 Sound & Bore Patrol Requirements: In Florida, a portion of the lines to be patrolled will require three specific inspection tasks including the following; sounding, soil excavation, and boring. They are described in Sections 5.1, 5.2, and 5.3. Only the wood poles encountered on a line for this type of inspection will be compensated for. The contractor will be expected to walk/drive by and skip individual and sections of steel and concrete poles on these lines without payment.

2.7 Public Utility Commission of Ohio (PUCO): This specification is applicable to all regions, however, inspection work in Ohio requires the usage of a separate specification titled “Ground-line Inspection and Treatment of Wood Poles”, dated 12/18/07.

2.8 Removal of Vines: At times significant amounts of vegetation around the pole should be expected. Removal of such vegetation to access the pole will not be compensated unless they extend 10 foot in height. This unit will also include application of a herbicide around the base of the pole or guy anchor.

2.9 Installation of Structure Numbers: A unit price will be paid for the installation of a structure number on a pole as indicated in the work authorization.

2.10 Repair of Broken or Stolen Pole Grounds: A unit price will be paid for the repair of broken pole grounds. Duke Energy will provide the squeezeons, staples, wire. The contractor shall wear appropriate PPE and rubber gloves, and provide needed tools.

3.0 Safety Considerations

3.1 Contractor performance regarding safety is critical to the success of this contract. The Contractor will be expected to perform in accordance with the range of acceptable performance to meet or exceed goals.

3.2 All lines will normally be energized during the course of this work. The contractor shall utilize appropriate protective equipment needed to protect the general public and contractor's employees and to guard against interference with the normal operations of these lines.

3.3 Any hazardous conditions encountered that may endanger life, property, or cause an outage shall be reported to the Duke Energy immediately by phone.

3.4 When digging around the pole care must be taken not to break the pole ground wire or cause it to disconnect from the ground rod. Pole grounds pulled away from the pole because of work interference shall be re-stapled to the pole after work is completed.

3.5 If a pole ground is found to be broken or stolen, the contractor will be compensated to make the repair using approved tools and connectors provided by Duke Energy. Rubber gloves must be worn when performing this task.

4.0 Logistics and Employee Qualifications

4.1 Duke Energy will provide locations of all poles to be inspected via electronic shape files.

4.2 If the contractor has not previously worked for Duke Energy, proof must be provided that they have at least 5 years of experience in both ground line inspection work and preservative application.

4.3 The Contractor shall supply Duke Energy with both a written verification of inspection experience in years and a listing of training opportunities for each employee.

4.3.1 Each pole inspector shall be a permanent, full-time employee of the having at least one year of experience in ground line inspection and treatment work.

4.3.2 Each Foreman/Crew Leader shall be a permanent, full-time employee having at least two years of experience in ground line inspection and treatment work.

4.3.3 Each Supervisor (oversees multiple crew members) shall be a permanent, full-time employee having at least four years of experience in supervising ground line inspection and treatment work.

4.3.4 If Contractor employs non-English speaking persons, Contractor shall ensure that a bilingual person fluent in speaking, reading, and writing both in English and the other language is available at the jobsite where the non-English speaking person(s) are working for purposes of safety and hazard related communications, communicating technical information, emergency response, and similar issues.

4.4 All Contractor employees working for Duke Energy shall possess a cellular telephone equipped with voicemail, texting, and with the ability of sending photographs electronically. This is necessary in case of emergency, customer complaint, or other reason. The contractor shall also provide Duke Energy with names and phone numbers prior to the start of work and when personnel changes are made.

4.5 The Contractor shall develop a detailed work schedule. This schedule should include the prioritization of lines to be patrolled, anticipated start/finish dates, and names and number of inspectors/supervisors that will be working, etc. This schedule shall be reviewed with Duke Energy prior to the start of work and undated copies shall be sent monthly.

4.6 For productivity reasons it is mandatory that the Contractor provides an agreed upon number of pole inspectors to an area.

4.7 The Contractor shall report work location(s) via email by no later than 8:00 am to the Duke Energy daily or advise Duke Energy if no work is to be performed on that day.

4.8 The successful contractor shall attend a planned face to face “kick-off” meeting prior to the start of work. The agenda for this meeting is to review work plans, schedule, expectations, and safety. The contractor is expected to bring the following to the meeting, if not already completed, the following data.

4.8.1 Names and cellular phone numbers of all hands-on and support employees that will working on the on the Duke Energy system.

4.8.2 Verification of each employees required qualifications and experience. It is expected that the individuals completing the work will attend this meeting.

4.8.3 Safety Data Sheets (SDS) and copies of the chemical labels and preservative materials that will be used, if required.

4.8.4 The Contractor shall supply the Duke Energy names of employee holding responsibility/accountability for the Pesticide Applicator License as issued by the State in which the work will be performed, if applicable.

4.9 The Contractor shall obtain, at his expense, any necessary permits from any owner, municipality, or other authority on whose premises the work is to be done prior to the start of work.

5.0 Wood Pole Inspection Requirements

5.1 Overall site inspection and pole sounding;

5.1.1 This section is required for ALL wood poles, regardless of regional location.

5.1.2 The site is to be first assessed to ensure there is no danger from any abnormal situations such as unattached conductors, broken crossarms, severely decayed poles, or broken guy wires.

5.1.3 Any requested data collection items for both the pole and structure should be collected, including pole birthmark information, structure configuration, insulator type, etc.

5.1.4 Each pole shall be sounded with a waffle head type hammer thoroughly in all quadrants from groundline to 7 feet high to determine integrity and possible decay. Sounding should leave marks that are recognizable in the event of an audit. (All wood poles are to be sounded regardless of age, species, or treatment).

5.1.5 If any sign of decay, soft wood, hollowness, or abnormal coloration is found, the pole is also to be probed or drilled with a suitable tool to ascertain the extend of the found deterioration.

5.1.6 If the decay is found below grade soil shall be removed as necessary to aid with the testing.

5.1.7 Poles are to be rejected if the decay or shell thickness meets the criteria as defined in Section 6.0.

5.2 Soil excavation requirements;

5.2.1 When soil excavation is required in the work authorization, excavation shall be completed as follows;

5.2.2 Excavation should only be initiated after it is determined that the sounding test or visual inspection up the pole does not already deem that the pole needs to be replaced.

5.2.3 Soil is to be removed around the entire pole to a depth of 12 inches. The hole shall extend at least 4 inches from the pole at the 12 inch depth and 10 inches from the pole at groundline.

5.2.4 When poles are located on lawns, the turf shall be removed with care, placed on a ground cover such as a tarp, and carefully replaced when work is completed.

5.2.5 If any sign of decay, soft wood, hollowness, or abnormal coloration is found, the pole is also to be probed or drilled with a suitable tool to ascertain the extend of the deterioration.

5.2.6 CCA poles 15 years old or less are not to be excavated unless decay is found during sounding and probing.

5.3 Boring requirements;

5.3.1 When borings are required in the work authorization, they shall be completed as follows;

5.3.2 A 3/8” diameter boring shall be drilled adjacent to where the most suspected decay is found during the sounding test. If no decay is suspected, the boring shall be taken near the deepest check. If there are no checks the boring shall be taken on either side of the pole in the same direction as the line is facing. The boring shall begin pole entry at groundline, be taken at a 45 degree angle, and proceed past the center of the pole.

5.3.3 If decay pockets are detected, a minimum of two additional borings shall be taken to determine the extent of decay. Any pole with a hollow center shall have the thickness determined with a shell depth indicator.

5.3.4 All inspection holes shall be plugged with tightly fitting CCA-treated wood dowels.

5.3.5 Poles are to be rejected if decay or shell thickness meets the criteria as defined in Section 6.0 Pole treatment requirements;

5.4 Pole Treatment requirements;

5.4.1 When internal treatment is required in the work authorization, treatment application shall be applied as follows;

5.4.2 Poles with no indication of decay are NOT to be treated.

5.4.3 Poles meeting the criteria to be replaced due to the sounding test, drilling, or visual inspection up the pole are NOT to be treated.

5.4.4 When poles are found to have decay or to be hollow, treatment shall be applied only from below grade to 18 inches above groundline. Treatment is not to be applied above 18 inches.

5.4.5 A standard treatment rod and vendor has been included in the bid units. Duke Energy will accept proposals for equivalent treatment products.

5.4.6 Treatment shall utilize a ½" hole is to drilled to ensure the applied product is as close to the decayed pole regions as possible.

5.4.7 The treatment hole shall be drilled at a 30 degree downward angle to a maximum depth of 12 inches, or to the center of the pole.

5.4.8 If preservative rods are used, two shall be applied to each drilled hole.

5.4.9 All preservative holes shall be sealed with a removable threaded plastic plug.

5.4.10 Section 5.5 must be considered before proceeding with treatment.

5.5 Re-treatment requirements;

5.5.1 If previously treated poles meet the strength requirements to remain in service and it is determined additional preservative is required, before drilling any new holes the following is to be performed;

5.5.1.1 Existing holes in the vicinity of the new needed treatment are to be opened and the existing rods evaluated for decay.

5.5.1.2 If the rods are decayed two new ones are to be inserted.

5.5.1.3 If the existing rods are not decayed adding new ones will not be effective. When this is observed, NO new rods are to be added.

5.5.1.4 If the existing treatment plug is wood, it is to be replaced with a removal plastic plug. If necessary use a larger size as removal of the wood plug may have damaged the hole.

6.0 Pole Reject Criteria

6.1 Priority 0 Pole Replacements: These poles shall be reported to Duke Energy via a phone call immediately when found. Replacement efforts will begin immediately.

6.1.1 Pole is broken.

6.1.2 Pole is in imminent danger of failing or has initial signs of failing.

6.2 Priority 1 Pole Replacements: These poles have a moderate probability of causing an outage and will be replaced within 12 weeks of identification.

6.2.1 Hammer test or probing at groundline reveals internal rot, decay, or hollowness with a shell thickness of 2 inches or less is found in any location.

6.2.2 Hammer test or probing at groundline reveals rot or decay that extends more than 2 inches into the pole along more than 1/4 of the pole circumference.

6.2.3 Contractor "effective diameter" calculations determine the pole has lost more than 50 percent of the original pole strength.

6.2.4 Woodpecker holes extend through the pole and daylight is visible.

6.2.5 Longitudinal pole deflection exceeds 5 feet.

6.2.6 Extensive longitudinal cracking exists through critical attachments.

6.2.7 Earth washout at the pole base compromises the pole integrity.

6.3 Priority 2 Pole Replacement: These poles have a low probability of causing an outage and will be replaced during normal work schedules.

6.3.1 Hammer test or probing at groundline reveals internal rot, decay, or hollowness with a shell thickness of 2 - 4 inches is found at any location.

6.3.2 Hammer test or probing at groundline reveals rot or decay extends 3 or more inches into the pole along more than ¼ of the pole circumference.

6.3.3 Contractor "effective diameter" calculations determine the pole has lost more than 33 percent of the original pole strength.

6.3.4 Hammer test reveals significant shell cracking or soft wood, indicated by sound or caving of the wood.

6.3.5 Woodpecker holes contain extensive nesting cavities in critical locations.

6.3.6 Woodpecker holes are extensive and generally at least "softball" sized.

6.3.7 Pole checks up the pole reveal significant evidence of decay, insect damage, or shell separation, as indicated by caving the pole, sawdust, or sound.

6.3.8 Longitudinal pole deflection is between 3 – 5 feet.

6.3.9 Transverse pole deflection is more than 20 degrees.

6.3.10 Earth washout the pole base requires the pole to be replaced.

6.3.11 Pole must meet NESC "at replacement" strength requirements, which occurs when at least 2/3 of the original required pole strength remains. This is specified in the NESC Code, Table 26101A, Footnote 2.

6.4 Priority 9 Pole Repairs: These poles defects have no probability of causing an outage. The identified work will only be tracked and monitored unless the defect eventually qualifies the pole for a Priority 2 status.

6.4.1 Woodpecker holes not meeting the criteria for pole replacements.

6.4.2 Other minor deficiencies as described in document TECP-MIM-TRM-00026.

7.0 Pole Tagging

7.1 All inspected poles shall be marked with an aluminum tag identifying the work performed, contractor name, and inspection date that is clearly legible.

7.2 Inspection tags shall be placed five (5) feet above groundline on the side of the pole most easily seen from roads or nearby access locations. If none are present, place the tag on the birth mark side of the pole.

7.3 A Priority 0 reject pole does not need to be marked. Duke Energy response will be immediate.

7.4 A Priority 1 reject pole is to be marked by **two** 1-1/2" by 1-1/2" white aluminum tags placed immediately below the inspection tag.

7.5 A Priority 2 reject pole is to be marked by **one** 1-1/2" by 1-1/2" white aluminum tags placed immediately below the inspection tag.

8.0 Photograph Requirements

8.1 A digital photograph is required to be taken of all defects that result in a Priority 1 or 2 rejected pole and E-mailed to Duke Energy. The E-mail shall include the Line name, structure number, date, and a brief description of the defect.

8.2 The photograph should be at least 1 megapixel in size resolution and be taken at a distance that clearly shows the defect but also includes as much as possible the pole and surroundings.

9.0 Quality Assurance and Quality Control

9.1 All work shall be entirely satisfactory to Duke Energy and shall be subject to inspection. The Contractor shall audit no less than 1% of all poles inspected. Poles are to be selected totally at random and be checked for accuracy and quality of work. This audit is to be completed at the Contractor's own expense.

9.2 A quality control inspection shall be performed for each time period of not less than one (1) week's work but not to exceed two (2) weeks' previous work. The quality control will be conducted with the Contractor's supervisor and a Duke Energy representative when available.

9.3 The quality control inspection shall consist of the partial to complete re-inspection of those poles selected. The re-inspection shall include re-excavation and re-boring if those tasks were performed.

9.4 Serious errors found by Duke Energy will be brought to the attention of the Contractor. Corrective actions satisfactory to Duke Energy must be remedied before the next quality control check. The corrective action may include re-working all poles back to the previous quality control check point at no cost to Duke Energy.

9.5 Results of Contractor audits shall be communicated electronically to Duke and include the pole inspector names.

9.6 Duke Energy shall be issued a copy of the contractor quality control field report.

10.0 Data Collection and Inspection Detail Reports

10.1 Data provided to the Contractor will be by electronic files in an Excel or Shape-file type spreadsheet format. All data collected by the contractor shall be added to the spreadsheet and returned without eliminating any fields received from the original Duke Energy provided files. This enables downloading the spreadsheet directly into Duke Energy databases.

10.2 Data deliverables and report requirements includes but is not limited to the following;

10.2.1 Maintenance region

10.2.2 Line name, line code, and or line number

10.2.3 Structure number, including poles A, B, C, etc.

10.2.4 Structure GPS coordinates

10.2.5 Date pole inspected

10.2.6 Pole length and class

10.2.7 Pole manufacturer and birthmark date

10.2.8 Pole species

10.2.9 Type of external/internal treatments applied

10.2.10 Original/effective ground line circumference

10.2.11 Observed deficiencies and associated repair/replace priorities

10.3 Reporting Requirements

10.3.1 A summary of all poles inspected & work performed on an individual line or substation basis, including number of poles inspected, and failure rate.

10.3.2 Copies of all internal audit reports.

10.3.3 Reports are to be provided only after ALL work on a line is completed in its' entirety.

10.3.4 A weekly inspection progress schedule must be submitted to the Project Manager at the start of each week for the previous weeks work.

10.3.5 Duke Energy must be notified by email as line circuit inspections are completed to monitor timeline for end of circuit files and invoicing.

10.3.6 Invoicing and inspection reports are to be provided only after ALL work on a circuit is completed in its' entirety.

10.3.7 Invoices and end of circuit files must be sent to Duke Energy 30 days or less from time of notification of circuit inspection completion.

10.3.8 All invoicing for current year inspection program must be presented to Duke Energy for final payment no later than December 15th.

Transmission Document Approval Form

issued 5/15/18

Section A: Document identification and type of action

Document no.: TECP-MIM-TRM-00118

Revision no.: 001

Document title: Transmission Wood Pole Inspection, Boring, Excavation, and Treatment Guidelines.

Type of action:

- ☐ New
- ☐ Cancellation
- ☐ Suspension
- ☑ Revision
- ☐ Ownership Change
- ☐ Renumber
- ☐ Periodic review completed, as required

For Document Management staff use only:

- ☐ Editorial Change
- ☐ Migration
- ☐ Control element revision _____ (does not require approval authority signature)

Applies to: (Select all that apply)

- ☑ Duke Energy
- ☐ Duke Energy Carolinas, LLC
- ☐ Duke Energy Progress, LLC
- ☐ Duke Energy Florida, LLC
- ☐ Duke Energy Indiana, Inc.
- ☐ Duke Energy Kentucky, Inc.
- ☐ Duke Energy Ohio, Inc.
- ☐ Group _____
- ☑ Department Transmission - All Regions
- ☐ Other _____

Security Restrictions Required: ☐ Yes ☑ No

If yes, explain (see instructions on page 2) _____

Compliance Applicability: (required field)

- ☑ None
- ☐ State Codes/Standards
- ☐ HIPAA
- ☐ Sarbanes-Oxley
- ☐ OSHA _____
- ☐ NERC
- ☐ FERC Standards of Conduct
- ☐ Patriot Act
- ☐ Other _____

Complete if submitting a form: (see instructions on page 2)

Does the form have a parent, governing or instructional procedure? ☐ No ☐ Yes (Procedure No: _____)

How is the form to be completed or used? ☐ Hard Copy (completed by hand) ☐ Online Data Entry (fillable PDF)

- ☑ Communication plan established
- ☑ Impact Reviews completed

Description of document action or summary of changes:

The incorrect document version was included in the initial release. This revision corrects that mistake.

Section B: Approval

Who should sign? see instructions on page 2

Preparer(s)/Author(s)/Writer(s) (*signature not required*):

Dan Chapoton

Approval recommended (*print name*): Dan Chapoton	Dan Chapoton Digitally signed by Dan Chapoton Date: 2018 05 07 12:33:17 04'00' (*signature*)	Date: 5/17/18
Approval recommended (*print name*):	(*signature*)	Date:
Approval recommended (*print name*):	(*signature*)	Date:
Final Approval (*print name*): Dan Maley	Daniel J. Maley Digitally signed by Daniel J. Maley Date: 2018.05.07 15:44:03 -04'00' (*signature*)	Date: 5/7/18

RETURN SIGNED FORM AS SCANNED PDF VIA E-MAIL OR FAX TO (919) 235-3165

Attachment L

Matthew R. Bernier
ASSOCIATE GENERAL COUNSEL

March 1, 2021

VIA ELECTRONIC FILING

Adam J. Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *2020 Annual Wood Pole Inspection Report; Undocketed*

Dear Mr. Teitzman;

Pursuant to Order Numbers PSC-06-0144-PAA-EI and PSC-07-0918-PAA-PU, please find enclosed Duke Energy Florida, LLC's ("DEF") Annual Wood Pole Inspection Report for CY 2020. This information is also contained in DEF's 2020 Annual Service Reliability Report dated March 1, 2021.

Thank you for your assistance in this matter. Please feel free to call me at (850) 521-1428 should you have any questions concerning this filing.

Sincerely,

/s/ Matthew R. Bernier

Matthew R. Bernier

MRB/cmw
Enclosure

cc: Penelope Buys, FPSC Division of Engineering

106 East College Avenue, Suite 800 ▪ Tallahassee, Florida 32301
Phone: 850.521.1428 ▪ Fax: 727.820.5041 ▪ Email: matthew.bernier@duke-energy.com

Duke Energy Florida (Distribution)
Annual Wood Pole Inspection Report
(Reporting Year 2020)

a	b	c	d	e	f	g	h	i	j	k	l	m
Total # of Wooden Poles in the Company Inventory	# of Pole Inspections Planned this Annual Inspection	# of Poles Inspected this Annual Inspection	# of Poles Failing Inspection this Annual Inspection	Pole Failure Rate (%) this Annual Inspection	# of Poles Designated for Replacement this Annual Inspection	Total # of Poles Replaced this Annual Inspection	# of Poles Requiring Minor Follow-up this Annual Inspection	# of Poles Overloaded this Annual Inspection	Method(s) V = Visual E = Excavation P= Prod S = Sound B= Bore	# of Pole Inspections Planned for Next Annual Inspection Cycle	Total # of Poles Inspected (Cumulative) in the 8-Year Cycle To Date	% of Poles Inspected (Cumulative) in the 8-Year Cycle To Date
820,626	100,000	86,357	1,746	2%	1,024	2,696	1,730	N/A	V, E, S, B, P	158,000	671,512	81.8%
If b - c > 0, provide explanation	N/A											
If d - g > 0, provide explanation	N/A											
Description of selection criteria for inspections	Poles for inspection in 2020 were chosen based on geographic location to continue cycle 2.											

- Poles noted in column "d" are for ground line rejects only. Additional poles are replaced based on pole top issues but are not included in this number.
- Failure rate in column "e" is for ground line rejects only.

Duke Energy Florida (Transmission)

Annual Wood Pole Inspection Report

(Reporting Year 2020)

a	b	c	d	e	f	g	h	i	j	k	l	m
Total # of Wooden Poles in the Company Inventory	# of Pole Inspections Planned this Annual Inspection	# of Poles Inspected this Annual Inspection	# of Poles Failing Inspection this Annual Inspection	Pole Failure Rate (%) this Annual Inspection	# of Poles Designated for Replacement this Annual Inspection	Total # of Poles Replaced this annual Inspection	# of Poles Requiring Minor Follow-up this Annual Inspection	# of Poles Overloaded this Annual Inspection	**Method(s)** V=Visual E=Excavation P= Prod S=Sound & B=Bore R=Resistograph	# of Poles Inspections Planned for Next Annual Inspection Cycle	Total # of Poles Inspected (cumulative in the 8-Year Cycle to Date	% of Poles Inspected (Cumulative) in the 8-Year Cycle to Date
18,130	7,500	3,531	1,858	52.62%	688	1,111 Total: 766 + 334 = 1111	540	1	V = 12,031 (W,S,C) S&B = 3,371 (W) V(S) = 407 (LT) 12,438 = Total V Total Structures, includes LT Total S&B = 3,371	5,043	Inspected 13 = 1,273 Inspected 14 = 4,891 Inspected 15 = 5,856 Inspected 16 = 2,280 Inspected 17 = 1,902 Inspected 18 = 923 Inspected 19 = 4,545 Inspected 20 = 3,371 Total = 25,041 *2012 not included in cumm. totals. See note below.	138.12% *2012 not included in cumm. totals. See note below.

If b - c > 0, provide explanation	DEF Transmission visually inspects transmission lines with wood poles on 4 year cycle; estimating 'Planned Inspection-S&B' target based on 1/3 of the remaining balance; actual inspected equates to ~ 1/4 of balance (double the 1/8 requirement for S&B).
If d - g > 0, provide explanation	Inspections were completed through the end of the year. Some poles found to have 'failed' in 2019 were replaced in 2019, while others have been prioritized and worked into schedule for 2020. Defective/failed poles found in late 2019 are prioritized and worked into schedule for 2020; *1,027 were wood replaced within Maintenance (705) & DOT/Relo/Upgrades/Additions (322) for 2019.
Description of Selection Criteria for Inspections	DEF Transmission conducts Sound & Bore on wood poles on an 8-year cycle as per FPSC ruling. *DEF has been working toward data true-up – as stated in past Reliability Reports – to remain compliant with report due dates and still be responsive in reporting; DEF is providing updated S&B data (previous data may have included all inspections.) 2012 data was not available at this time of reporting; however, the 7 year Cum shows 100.5% of S&B on Remaining Wood Pole Inventory. DEF visually inspects Transmission lines with Steel or Concrete Poles and Lattice Towers on a 6-year cycle. DEF visually inspects Transmission lines containing wood poles on a 4-year cycle; estimating 'Planned Inspection-S&B' targeting 1/3 of wood pole remaining balance; Actuals completed at 1/4 of remaining balance. DEF's Annual Service Reliability Report Inspection criteria is included in: Attachment K-Transmission Wood pole Inspection-TECP-MIM-TRM-00118-Rev.001

Attachment B

Duke Energy Florida
CCA Pole Sampling Results (Less than 16 Years of Age)
(Reporting Year 2020)

a	b	c	d	e	f	g	h	i	j	k	l	m
Total # of CCA Poles Less than 16 Years of Age in the Company Inventory	Total # of Pole Inspections Planned this Annual Inspection	# of CCA Poles Less than 16 years of age Inspected this Annual Inspection	# of CCA Poles Less than 16 years of age sampled this Annual Inspection	# of CCA Poles Less than 16 Years of Age Failing Inspection this Annual Inspection	CCA Poles Less than 16 Years of Age Failure Rate (%) this Annual Inspection	# of CCA Poles Less than 16 Years of Age Designated for Replacement this Annual Inspection	Total # of Poles Replaced this Annual Inspection	# of CCA Poles Less than 16 Years of Age Requiring Minor Follow-up this Annual Inspection	# of Poles Overloaded this Annual Inspection	Method(s) V = Visual E = Excavation P= Prod S = Sound B= Bore	# of Pole Inspections Planned for Next Annual Inspection Cycle	Total # of Poles Inspected (Cumulative) in the 8-Year Cycle To Date
104,049	100,000	19,963	590	0	0%	0	N/A	3	N/A	V, E, S, B, P	N/A	N/A
If b - c > 0, provide explanation		N/A										
If d - g > 0, provide explanation		N/A										
Description of selection criteria for inspections		CCA poles to experience full inspection are randomly selected to represent a quantity of 1% or more of the total CCA poles less than 16 years of age in the inspection zone.										

Attachment M

2020 DEF DISTRIBUTION POLE INSPECTION DATA

PROVIDED ON CD

Attachment M

2020 FLORIDA POLE INSPECTION DATA

PROVIDED ON CD