Clay Electric Cooperative, Inc.

February 11, 2021

Penny Buys
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850
pbuys@psc.state.fl.us.com

Re: Standards of Construction Report Pursuant to Rule 25-6.0343, F.A.C.

Dear Ms. Buys:

Enclosed is Clay Electric Cooperative, Inc.'s report to the Florida Public Service Commission as required by Rule 25-6.065 F.A.C. for the calendar year 2020.

Also enclosed is Clay Electric Cooperative, Inc.'s reliability data for the calendar year 2020. This is a voluntary filing Clay agreed to provide using readily available data. As Clay has stated before, we do not have sufficient data to calculate MAIFIe, therefore, this indices is not furnished.

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

Sincerely,

Frank R Holmes

Frank R. Holmes, P.E.
Chief Operating Officer
(352) 473-8000, Ext. 8319
fholmes@clayelectric.com

FH/kc

Clay Electric Cooperative, Inc.
Outage Data for 2020

1. Table of Outage Events by Cause

Outage Data 2020	
Cause Code	**Number**
Tree/Limb-Green	2045
Tree/Limb-Dead	1474
Defective Equipment	752
Lightning	653
Animal	426
Bad Transformer	361
Consumer Problem	283
Damaged by Man	189
Car Hit Pole	70
Bad R/W	60
Bad Primary URD	57
Bad Secondary	47
Wire Down	41
Tree/Limb Sec./Service	33
Overloaded Equipment	10
Consumer Caused	7
	6508

2. Table of Actual and Adjusted Outage Indices

The tables do not include the MAIFIe indice because Clay does not collect momentary data on its over 1,900 down line reclosures.

a. Adjusted Outage Indices

Category	**2020 Adjusted**
SAIDI (Minutes)	204.97
CAIDI (Minutes)	97.9
SAIFI (Events)	2.09
L_Bar (Minutes/Outage)	102.47
CEMI5 (Cust>5 Events)	15,689

b. Actual Outage Indices

Category	**2020 Actual**
SAIDI(Min)	600.59
CAIDI(Min)	122.04
SAIFI	4.92
L_Bar (Minutes)	167.87
CEMI5 (Cust>5 Events)	66,455

Clay Electric Cooperative, Inc.
Report to the Florida Public Service Commission
Pursuant to Rule 25-6.0343, F.A.C.
Calendar Year 2020

1. Introduction

Utility: Clay Electric Cooperative, Inc.
Post Office Box 308
Keystone Heights, Florida 32656

Contact: Frank Holmes, Chief Operating Officer
Phone: (352) 473-8000 ext. 8319
Fax: (352) 473-1319
Email: fholmes@clayelectric.com

2. Number of meters served:

Approximately 186,000

3. Standards of Construction:

a.) National Electrical Safety Code Compliance

Clay's construction standards, policies, guidelines, practices, and procedures comply with the National Electrical Safety Code (ANSI C-2) [NESC]. Electrical facilities constructed on or after February 1, 2017 will be in compliance with the 2017 NESC. Electrical facilities constructed prior to February 1, 2017 are governed by the edition of the NESC in effect at the time of the facility's initial construction.

b.) Extreme Wind Loading Standards

Clay's construction standards, policies, guidelines, practices, and procedures for transmission facilities are guided by the extreme wind loading standards specified by Figure 250-2(d) of the 2017 edition of the NESC. Any transmission lines rebuilt or relocated since adoption of 2017 NESC has also been designed to the extreme wind loading standards.

Clay's construction standards, policies, guidelines, practices, and procedures for distribution facilities are not designed to be guided by the extreme wind loading standards specified by Figure 250-2(d) except as required by rule 250-C. Clay's experiences in the 2004, 2016 and 2017 hurricanes did not indicate a need to go to the extreme wind loading standards. However, Clay is participating in the Public Utility Research Center's (PURC) granular wind research study through the Florida Electric Cooperative Association (FECA). Clay attended the annual conference held in Gainesville in 2018.

Though Clay intends to continue to self-audit and evaluate our system to determine any immediate needs for system upgrades and hardening in isolated areas, Clay will consider the results of the PURC research before making any final commitments. At this time, Clay does not have sufficient evidence or data to support the cost and effort required to increase our design standards to comply with the extreme wind loading.

c.) Flooding and Storm Surges

Clay is a non-coastal utility; therefore, storm surge is not an issue. Clay does experience minor localized flooding on underground and supporting overhead facilities. Clay continuously evaluates these flood prone areas for possible solutions. Clay is participating through the FECA in the PURC studies on the conversion of overhead electric facilities to underground and the effectiveness of underground facilities in preventing flood damage and outages. Clay will consider the results of this study before making final commitments on system hardening for flooding.

d.) Safe and Efficient Access of New and Replacement Distribution Facilities

Clay's practice since the 1970's has been to construct our underground and overhead facilities in subdivisions along lot lines adjacent to public/private roadways to facilitate safe and efficient access for installation, operation, and maintenance. In other locations Clay's policies, guidelines, practices, and procedures provide for placement of new and replacement facilities along roadways or areas readily accessible by our crews and vehicles to ensure efficient and safe operation and maintenance.

e.) Attachments by Others:

The pole attachment agreements between Clay and third party pole attachment companies include language which specifies that the attachment company, not the cooperative, has the burden of assessing pole strength and safety before they attach to the pole. Clay periodically performs follow-up audits of attachments to ensure the attachment is properly installed. In 2015, Clay performed a complete attachment inspection and count. This inspection and count did not assess pole strength and safety, only attachment quantities. The scheduled audit for 2020 was postponed due to the pandemic. As of 12/31/2020, fifteen (15) distinct utilities have over 114,000 attachments on Clay poles.

4. Facility Inspections:

Transmission

a.) Clay currently owns and maintains (1855) transmission structures consisting of (2556) total poles broken down as follows: (1537) wood, (1005) concrete and (14) steel. Wood transmission poles that are deemed as needing to be replaced are evaluated and considered for upgrade to concrete.

Prior to 2007, Clay was on a ten (10) year ground line pole inspection cycle for all wooden transmission poles. The inspection method used involves the sound and bore technique including excavation at the ground line per RUS guidelines. In 2016, Clay reviewed the ground line transmission pole inspection program and decided to continue the ten (10) year inspection cycle in the future. A complete ground line inspection was completed in 2020.

In keeping with the 2007 internal review of its ground visual patrol, climbing inspection and helicopter inspections, Clay initiated a complete climbing inspection of every transmission structure in 2008. This climbing inspection will continue on a four (4) year cycle. Offset from the four (4) year climbing inspection cycle will be a two (2) year ground patrol visual inspection cycle. Should a complete ground patrol scheduled inspection coincide with a complete climbing inspection, the ground patrol inspection will be forgone in favor of the complete climbing inspection. A climbing inspection was performed in 2020.

b.) Clay performed a ground line transmission pole inspection in 2016. The next scheduled ground line pole inspection is 2026.

c.) Clay performed a complete climbing inspection in 2020.

During the 2013 review of its ground visual patrol, climbing inspection and helicopter inspections, Clay deemed it necessary to perform helicopter inspections of every structure one time a year. Helicopter inspections are typically performed in June.

d.) Clay performed one (1) Corona survey helicopter inspection in 2020. The inspection was performed in October and November. A total of 1,855 structures were inspected consisting of 2,556 poles and thirty-eight (38) substations. The inspection report is attached.

e.) The 2020 inspections found thirty-five (35) poles of the 2,556 total system poles were in need of replacement of height-class as follows: (2) 45-2, (2) 50-1, (6) 55-1, (9) 60-1, (2) 65-1, (11) 70-1, (2) 75-1, and (1) 80-1. Attached is a copy of the Maintenance Work Summary 2020. All, but six (6) poles were completed in 2020 with the remaining expected to be completed in 2nd quarter of 2021.

f.) The inspections identified four (4) locations where trees endangered the lines. These have been corrected.

g.) No new construction and rebuild transmission projects were done in 2020.

Distribution

a.) Clay owns and maintains approximately 214,000 distribution poles on it system.

Prior to 2007, Clay was on a ten year ground line inspection cycle for all wooden distribution poles. The inspection program consists of excavation and sound and bore at the ground line according to RUS guidelines as well as a visual inspection of the of the pole for other maintenance items. This inspection cycle covered all distribution poles regardless of treatment type.

In 2008, Clay revised the inspection cycle to eight (8) years. This revised cycle uses a phased-in approach that resulted in a few years with cycle times of ten (10) years until the transition to the eight (8) year inspection cycle was completed in 2013.

In 2016, Clay evaluated its overall pole inspection and maintenance program and revised it to consist of two separate pole inspection programs. The first inspection program will be the groundline inspection program as described in the first paragraph of section (a) above. The second inspection program, the System Feeder Inspection, is to consist of a total inspection of all distribution poles excluding the groundline. The objective of this inspection is to address a variety of pole related issues such as pole and pole top maintenance, pole loading, NESC code and joint use violations and include service related issues such as arresters, transformers and other pole mounted equipment.

Each of the two pole inspection programs will be performed on a ten (10) year cycle with the one offsetting the other by five (5) years. The result is all distribution poles being inspected every five (5) years.

The overall program objective is to focus on system improvement and maintenance associated with the distribution feeders scheduled for the particular cycle year with the expectation that this will generate a balanced workload across the system.

b.) In 2020, the System Feeder Inspection and the Groundline Pole Inspections were performed. The total number of distribution poles inspected in 2020 was 46,025.

c.) Clay inspected 46,025 distribution poles in 2020. A summary of the rejects and reason for failure is listed below. In addition a summary of pole maintenance items by type has been included. Note that work completed in 2020 may include carryover work from 2019 inspections.

2020 Pole Inspection				
Total Poles Inspected: 46,025				
Summary of Reject Poles by Cause				
Description	**Quantity of Rejects**	**% of Total Poles Inspected**	**Remediation**	**Completed Quantity**
Clearance	23	0.05%	Replacement	9
Danger	8	0.02%	Replacement	2
Ground Rot	24	0.05%	Replacement	12
Holes High	65	0.14%	Replacement	80
Int Rot	54	0.12%	Replacement	49
NULL	13	0.03%	Replacement	41
Split	295	0.64%	Replacement	457
Split Top	0	0.00%	Replacement	0
Storm Damage	0	0.00%	Replacement	0
SysImprove	0	0.00%	Replacement	0
Top Decay	1887	4.10%	Replacement	1894
Totals:	**2369**	**5.15%**		**2544**

2020 Pole Inspection				
Total Poles Inspected: 46,025				
Summary of Maintenance Items by Type				
Description	**Quantity**	**% of Maint. vs. Total Poles Inspected**	**Remediation**	**Completed Quantity**
2Way Feed	6	0.01%	Maintenance	11
Animal Guard	1556	3.38%	Maintenance	1441
Arrestor	173	0.38%	Maintenance	169
Bear Wrap	21	0.05%	Maintenance	0
Bent/Bow	50	0.11%	Maintenance	40
Bond Wire	37	0.08%	Maintenance	136
Bonding	694	1.51%	Maintenance	619
Bonding-Loose	123	0.27%	Maintenance	112
Bonding-Static	77	0.17%	Maintenance	90
Bondwire Repair	97	0.21%	Maintenance	110
Bondwire Replace	10	0.02%	Maintenance	27
Brace	30	0.07%	Maintenance	51
Broken Guy	30	0.07%	Maintenance	18
Clearance	47	0.10%	Maintenance	41
CrossArm	136	0.30%	Maintenance	136
Frayed Neu	0	0.00%	Maintenance	0
Frayed Prim	0	0.00%	Maintenance	0
Guy Guard	22	0.05%	Maintenance	29
Holes/High	712	1.55%	Maintenance	890
Insulator	36	0.08%	Maintenance	25
Leaking Tx	0	0.00%	Maintenance	1
Leaning	364	0.79%	Maintenance	350
Line Down	17	0.04%	Maintenance	9
Line Low	209	0.45%	Maintenance	138
Loose Bond	0	0.00%	Maintenance	1
Loose Guy	412	0.90%	Maintenance	381
Loose Hrd	46	0.10%	Maintenance	71
No G On Pole	1590	3.45%	Maintenance	1030
Pole Loading	0	0.00%	Maintenance	0
R/W	125	0.27%	Maintenance	144
Rusted Tx	17	0.04%	Maintenance	42
S/L Day Burner	21	0.05%	Maintenance	23
S/L Globe	41	0.09%	Maintenance	38
S/L Ground	14	0.03%	Maintenance	26
Service Covers	51	0.11%	Maintenance	60
Split Top	2301	5.00%	Maintenance	1625
Srvc Hrd	0	0.00%	Maintenance	4

2020 Pole Inspection (Continued)				
Total Poles Inspected: 46,025				
Summary of Maintenance Items by Type				
Description	**Quantity**	**% of Maint. vs. Total Poles Inspected**	**Remediation**	**Completed Quantity**
Srvc Loop	0	0.00%	Maintenance	10
St Light	17	0.04%	Maintenance	23
Stub Pole	259	0.56%	Maintenance	290
Top Decay	2586	5.62%	Maintenance	2281
U-Guard	157	0.34%	Maintenance	124
UnAuth Attach	90	0.20%	Maintenance	75
Totals:	**12174**	**26.45%**		**10691**

d.) On the attached CD or email the complete inspection report for each rejection and maintenance items is included. All rejections are expected to be replaced by end of 2nd quarter of 2021. All maintenance items are expected to be completed by the end of the 2nd quarter of 2021. Summary groupings by height and class are as follows:

2020 Pole Inspection					
Total Poles Inspected: 46,025					
Summary of Reject Poles by Height and Class					
Height	**Class**	**Quantity**	**% of Quantity vs. Total Poles Inspected**	**Remediation**	**Completed Quantity**
20	6	0	0.00%	Replacement	2
20	7	0	0.00%	Replacement	0
25	5	0	0.00%	Replacement	1
25	6	11	0.02%	Replacement	9
25	7	1	0.00%	Replacement	0
30	3	0	0.00%	Replacement	0
30	4	0	0.00%	Replacement	0
30	5	0	0.00%	Replacement	0
30	6	439	0.95%	Replacement	503
30	7	0	0.00%	Replacement	0
35	2	0	0.00%	Replacement	0
35	3	3	0.01%	Replacement	0
35	4	59	0.13%	Replacement	62
35	5	5	0.01%	Replacement	9
35	6	1033	2.24%	Replacement	1048
35	7	2	0.00%	Replacement	3
40	2	2	0.00%	Replacement	0
40	3	4	0.01%	Replacement	1
40	4	130	0.28%	Replacement	198
40	5	380	0.83%	Replacement	363
40	6	227	0.49%	Replacement	256
45	2	3	0.01%	Replacement	2
45	3	7	0.02%	Replacement	0
45	4	41	0.09%	Replacement	71
45	5	1	0.00%	Replacement	1
45	6	0	0.00%	Replacement	2
50	1	2	0.00%	Replacement	0
50	2	1	0.00%	Replacement	1
50	3	12	0.03%	Replacement	9
50	4	0	0.00%	Replacement	1
55	1	1	0.00%	Replacement	1
55	3	3	0.01%	Replacement	1
60	1	0	0.00%	Replacement	0
60	2	1	0.00%	Replacement	0
65	1	1	0.00%	Replacement	0
Total		**2369**	**5.15%**		**2544**

2020 Pole Inspection					
Total Poles Inspected: 46,025					
Summary of Poles by Height and Class with Maintenance Items					
Height	**Class**	**Quantity**	**% of Quantity vs. Total Poles Inspected**	**Remediation**	**Completed Quantity**
20	5	0	0.00%	Maintenance	1
20	6	1	0.00%	Maintenance	1
20	7	0	0.00%	Maintenance	0
25	2	0	0.00%	Maintenance	0
25	5	1	0.00%	Maintenance	1
25	6	10	0.02%	Maintenance	18
25	7	1	0.00%	Maintenance	0
30	2	0	0.00%	Maintenance	0
30	3	0	0.00%	Maintenance	1
30	4	9	0.02%	Maintenance	6
30	5	7	0.02%	Maintenance	1
30	6	1562	3.39%	Maintenance	1379
30	7	7	0.02%	Maintenance	0
35	1	0	0.00%	Maintenance	1
35	2	1	0.00%	Maintenance	0
35	3	0	0.00%	Maintenance	1
35	4	157	0.34%	Maintenance	179
35	5	25	0.05%	Maintenance	25
35	6	2704	5.88%	Maintenance	2118
35	7	0	0.00%	Maintenance	1
40	1	1	0.00%	Maintenance	3
40	2	4	0.01%	Maintenance	8
40	3	19	0.04%	Maintenance	16
40	4	917	1.99%	Maintenance	909
40	5	2448	5.32%	Maintenance	2366
40	6	746	1.62%	Maintenance	539
45	1	2	0.00%	Maintenance	4
45	2	35	0.08%	Maintenance	20
45	3	121	0.26%	Maintenance	44
45	4	337	0.73%	Maintenance	297
45	5	8	0.02%	Maintenance	3
45	6	0	0.00%	Maintenance	0
50	1	24	0.05%	Maintenance	55
50	2	60	0.13%	Maintenance	12
50	3	132	0.29%	Maintenance	100
50	4	5	0.01%	Maintenance	7
50	5	0	0.00%	Maintenance	2
55	1	9	0.02%	Maintenance	4
55	2	0	0.00%	Maintenance	1
55	3	6	0.01%	Maintenance	5

2020 Pole Inspection (Continued)					
Total Poles Inspected: 46,025					
Summary of Poles by Height and Class with Maintenance Items					
Height	**Class**	**Quantity**	**% of Quantity vs. Total Poles Inspected**	**Remediation**	**Completed Quantity**
55	4	4	0.01%	Maintenance	0
60	1	9	0.02%	Maintenance	2
60	2	3	0.01%	Maintenance	0
60	3	6	0.01%	Maintenance	0
60	4	1	0.00%	Maintenance	0
60	5	1	0.00%	Maintenance	1
65	1	5	0.01%	Maintenance	4
65	2	0	0.00%	Maintenance	3
65	3	0	0.00%	Maintenance	0
65	4	0	0.00%	Maintenance	0
65	6	0	0.00%	Maintenance	0
70	1	0	0.00%	Maintenance	1
75	1	0	0.00%	Maintenance	0
75	2	0	0.00%	Maintenance	0
80	1	0	0.00%	Maintenance	1
90	1	0	0.00%	Maintenance	0
100	1	0	0.00%	Maintenance	0
100	5	0	0.00%	Maintenance	0
105	1	1	0.00%	Maintenance	2
110	1	1	0.00%	Maintenance	2
115	1	12	0.03%	Maintenance	2
Total		**9402**	**20.43%**		**8146**

5. Vegetation Management

Transmission

a.) Clay's vegetation management program for the transmission rights-of-way covers approximately 216 miles of transmission line and consists of mowing, herbicide spraying, and systematic recutting. Clay performs all three methods on its entire transmission system. While Clay is doing systematic recutting on our transmission corridor, they attempt to remove any danger trees off right-of-way.

Clay's vegetation program has been very effective in keeping Clay's transmission system safe and reliable. During the hurricanes of 2004, 2016 and 2017, Clay sustained no damage to its transmission system from vegetation.

Clay's systematic program for mowing and spraying is on a 3 year cycle while Clay's systematic recutting program is on a 3, 4, or 5 year cycle as needed.

b.) In 2020, Clay met or exceeded its scheduled mowing and spraying on the transmission system. Clay exceeded its goal by mowing 58.19 of 53.87 miles of transmission right-of-way in 2020. Clay met its goal by spraying 53.62 miles of transmission right of way in 2020. In 2020, Clay recut 45.49 of 44 miles or 103.39% of transmission right-of-way. Attached are files of Clay's mowing, spraying, and recutting program for 2020.

Two hundred forty-eight (248) vegetation management discrepancies, one hundred forty-four (144) dead or danger trees, thirty-four (34) maintenance trims, and seventy (70) vines were found and corrected during two (2) annual vegetation management ground inspections in 2020.

Distribution

a.) Clay owns and operates over 7,862 miles of overhead primary distribution lines. All of our primary lines are under our vegetation management program.

Clay's vegetation management program has been developed taking into account the widely different service areas Clay serves. Presently Clay's vegetation management program consists of a three-year cycle (city), a four-year cycle (urban) and a five-year cycle (rural) for all its distribution primary circuits. The average time for the three cycles is 4.6 years. The reason for the difference in cycle times is simply the difference between re-growth speed and trimming clearance. In the city areas Clay often cannot get the full 10' – 12' clearance Clay desires, plus these areas often have more water and fertilizers due to residential sprinkling and fertilizing. At the other extreme in rural areas, Clay can often get the full 10' – 12' clearance since much of the trees in these areas get only rain and not fertilizer. Every distribution primary feeder Clay has is assigned to one of these cycles and a schedule is developed to ensure completion of the cycle. On the attached CD or email is the complete right-of-way systematic recut plan. Annually after a feeder is recut, Clay's arborist evaluates the clearance obtained and the expected re-growth speed to establish the cycle for the next recut. The next recut could be 3, 4, or 5 years. Therefore, each year Clay's arborist evaluates a feeder's cycle and adjusts the cycle as needed to ensure safe and reliable operation of Clay's feeders.

Clay's Vegetation Management Program is a clear cut right-of-way maintenance program combined with mowing and spraying to provide a safe and reliable distribution system. Clay has approximately 1% of its feeder miles under a three-year cycle, 33% under a four-year cycle, and the remaining 66% is under a five-year cycle.

Clay has a Pre-Cycle Vegetation Maintenance Program consisting of annual inspections of all the distribution feeders for areas that may have the potential to cause an outage before the next cycle year. If Clay finds areas that need to be trimmed to carry the feeder to the next year, these areas will be trimmed on the Pre-Cycle Maintenance Program.

Clay's Dead/Danger Tree Removal Program is with annual inspections of the Pre-Cycle Maintenance Program. Clay also receives requests from members throughout the year for removal of dangerous trees. All of these are field inspected by Clay and action taken as required.

Before Clay begins recutting a feeder, Clay places a bill insert announcing the beginning of recutting in those accounts affected. A copy of the insert is attached.

Clay has a vegetation management webpage on its' website at www.clayelectric.com that explains Clay's Vegetation management Program in detail for consumers.

Clay also has several publications it produces to educate the public on Clay's right-of-way clearing program. These consist of a Tree Maintenance Notification door hanger as well as a brochure titled "Keeping the Lines Clear". These are given to members whenever a member asks or when Clay needs to cut danger trees or vegetation that is not on an easement of Clay's. Both publications are available on the vegetation management web page. A copy of each is attached.

Clay also produces a guide titled "Landscape Planning" which describes ways to landscape within or near the right-of-way that would be compatible with the right-of-way but yet still provide a safe and beautiful landscape. A copy of the guide is attached.

Clay also has a systematic vegetation mowing and herbicide spraying program of three-year cycles each.

Clay's Vegetation Management Program addresses all areas of vegetation from landscape planting to danger tree removal. Clay has been following this program diligently for many years now. While tree limbs are still one of Clay's largest outage causes, Clay is confident its vegetation management program is an effective way to provide for a safe and reliable distribution system. Clay strongly feels the 3, 4, or 5 year cycle they have developed and follow is a realistic program to implement. Reducing the cycle times in Clay's opinion without regard to clearance and re-growth would not result in a significantly safer or reliable distribution system.

b.) In 2020, Clay exceeded its goal by mowing 2512.43 of 2312.09 miles of its distribution circuits. Clay's vegetation spraying program covered 2313.41 miles of its distribution circuits which met Clay's goal. Clay's systematic vegetation recut program met its goal of covering 1969.9 miles of its distribution circuits. There was no carryover from 2020 into 2021. Clay's systematic vegetation recut, mowing, and spraying programs for 2020 are recorded in detail on the attached pdf files.

6. **Storm Hardening Research**

"Report on Collaborative Research for Hurricane Hardening" now provided to Florida's Public Service Commission (FPSC) by University of Florida's Public Utility Research Center (PURC).