



**Clay Electric Cooperative, Inc.**

February 27, 2023

Penny Buys  
Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee, Florida 32399-0850  
[PBuys@PSC.STATE.FL.US](mailto:PBuys@PSC.STATE.FL.US)

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 25-6.0343 F.A.C. for the calendar year 2022.

Also enclosed is Clay Electric Cooperative, Inc.'s reliability data for the calendar year 2022. 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 MAIFI, therefore, this index is not furnished.

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

Sincerely,

Chris Bryan, P.E.  
Chief Engineer  
(352) 473-8000, Ext. 8428  
[cbryan@clayelectric.com](mailto:cbryan@clayelectric.com)

A Touchstone Energy® Cooperative

**Clay Electric Cooperative, Inc.**  
**Outage Data for 2022**

1. Table of Outage Events by Cause

<b>Outage Data 2022</b>	
<b>Cause Code</b>	<b>Number</b>
Bad R/W	4761
Unknown	1435
Defective Equipment	995
Lightning	953
Animal	660
Bad Transformer	472
Consumer Problem	185
Damaged by Man	239
Tree/Limb-Green	31
Bad Secondary	45
Tree/Limb-Dead	89
Car Hit Pole	104
Wire Down	24
Bad Primary URD	15
Consumer Caused	9
Tree/Limb Sec./Service	35
Overloaded Equipment	4
	10056

2. Table of Actual and Adjusted Outage Indices

The tables do not include the MAIFI index because Clay does not collect momentary data on its over 1,900 down line reclosers.

a. Adjusted Outage Indices

<b>Category</b>	<b>2022 Adjusted</b>
SAIDI (Minutes)	187.16
CAIDI (Minutes)	81.48
SAIFI (Events)	2.3
L_Bar (Minutes/Outage)	98.61
CEMI5 (Cust>5 Events)	19,571

b. Actual Outage Indices

<b>Category</b>	<b>2022 Actual</b>
SAIDI(Min)	580.59
CAIDI(Min)	135.24
SAIFI	4.29
L_Bar (Minutes)	202.08
CEMI5 (Cust>5 Events)	70,375

Clay Electric Cooperative, Inc.  
Report to the Florida Public Service Commission  
Pursuant to Rule 25-6.0343, F.A.C.  
Calendar Year 2022

**1. Introduction**

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

Contact: Chris Bryan, Chief Engineer  
Phone: (352) 473-8000 ext. 8428  
Fax: (352) 473-1790  
Email: [cbryan@clayelectric.com](mailto:cbryan@clayelectric.com)

**2. Number of meters served:**

Approximately 192,451

**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 follow 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 2022, Clay performed a complete attachment inspection and count. This inspection and count did not assess pole strength and safety, only attachment quantities. As of 12/31/2022, sixteen (16) distinct utilities have over 112,500 attachments on Clay poles.

**4. Facility Inspections:**

Transmission

a.) Clay currently owns and maintains (1842) transmission structures consisting of (2531) total poles broken down as follows: (1528) wood, (1068) concrete and (21) 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 2022 and the next ground line inspection will be 2024.

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 2021. The inspection was performed in October. A total of 1,855 structures were inspected consisting of 2,557 poles and thirty-eight (38) substations. The inspection report is attached.
- e.) The 2022 inspections found three (3) poles of the 2,531 total system poles needed replacement of height-class as follows: (2) 60-1, (1) 65-1, Attached is a copy of the Maintenance Work Summary 2022.
- f.) New construction and rebuild transmission projects completed in 2022 resulted in the construction of 5 new concrete poles/structures.

2022 Transmission Pole Inspection				
Summary of Maintenance Items by Type				
Transmission Pole Section	Description	Completed Quantity	% of Total Maintenance Items from Inspected Poles	Remediation
Poles				
<b>Height</b>	<b>Class</b>			
60-1	1	2	0.08%	Changeout
65-1	1	1	0.04%	Changeout
	<b>Total</b>	<b>3</b>	<b>0.12%</b>	

Arms	26'	2	0.08%	Replace
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Insulators	String	28	1.11%	Replace
	Susp. Poly	1	0.04%	Replace

Transmission Structures	1842
Total Inspected Poles	2531
<b>Total Transmission Poles</b>	<b>2617</b>
Concrete	1068
Steel	21
Wood	1528
<b>Total</b>	<b>2617</b>

### Distribution

- a.) Clay owns and maintains approximately 238,900 distribution poles on its 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 2022, the System Feeder Inspection and the Groundline Pole Inspections were performed. The total number of distribution poles inspected in 2022 was 56,652.
- c.) Clay inspected 56,652 distribution poles in 2022. 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 2022 may include carryover work from 2021 inspections.

<b>2022 Pole Inspection</b>				
<b>Total Poles Inspected: 56,562</b>				
<b>Summary of Reject Poles by Cause</b>				
Description	Quantity	% of Total Poles Inspected	Remediation	Completed Quantity
Clearance	0	0.00%	Replacement	6
CrossArm	0	0.00%	Replacement	1
DANGER	1	0.00%	Replacement	7
Ground Rot	88	0.16%	Replacement	63
Holes High	120	0.21%	Replacement	30
Int Rot	126	0.22%	Replacement	39
Split	89	0.16%	Replacement	348
SplitTop	4	0.01%	Replacement	5
SysImprove	0	0.00%	Replacement	0
Top Decay	3750	6.62%	Replacement	1541
<b>Totals:</b>	<b>4178</b>	<b>7.37%</b>		<b>2040</b>

<b>2022 Pole Inspection</b>				
<b>Total Poles Inspected: 56,652</b>				
<b>Summary of Maintenance Items by Type</b>				
Description	Quantity	% of Maint. vs. Total Poles Inspected	Remediation	Completed Quantity
2Way Feed	4	0.01%	Maint	7
Animal Guard	354	0.62%	Maint	817
Arrestor	0	0.00%	Maint	69
Bear Wrap	0	0.00%	Maint	9
Bent/Bow	16	0.03%	Maint	26
Bond Wire	9	0.02%	Maint	13
Bonding	200	0.35%	Maint	291
Bonding Repair	55	0.10%	Maint	43
Bonding Replace	33	0.06%	Maint	37
Bonding-Loose	0	0.00%	Maint	2
Bonding-Static	0	0.00%	Maint	3
Brace	26	0.05%	Maint	22
Broken Guy	17	0.03%	Maint	17
Clearance	3	0.01%	Maint	7
CrossArm	19	0.03%	Maint	4
Frayed Neut	1	0.00%	Maint	0
Frayed Prim	2	0.00%	Maint	0
Guy Guard	0	0.00%	Maint	1
Holes/High	433	0.76%	Maint	287



<b>2022 Pole Inspection (continued)</b>				
<b>Total Poles Inspected: 56,652</b>				
<b>Summary of Maintenance Items by Type</b>				
Insulator	18	0.03%	Maint	27
Leaking Tx	1	0.00%	Maint	0
Leaning	461	0.81%	Maint	279
Line Down	19	0.03%	Maint	8
Line Low	97	0.17%	Maint	85
Loose Guy	271	0.48%	Maint	264
Loose Hrd	39	0.07%	Maint	20
No G On Pole	239	0.42%	Maint	322
Notified Customer	0	0.00%	Maint	0
Paint	0	0.00%	Maint	0
Pole Loading	0	0.00%	Maint	0
R/W	161	0.28%	Maint	59
Rusted Tx	32	0.06%	Maint	18
S/L Day Burner	12	0.02%	Maint	31
S/L Globe	14	0.02%	Maint	24
S/L Ground	0	0.00%	Maint	0
Service Covers	0	0.00%	Maint	10
Splintable	0	0.00%	Maint	0
Split Top	1623	2.86%	Maint	1169
Srvc Hrd	0	0.00%	Maint	1
Srvc Loop	0	0.00%	Maint	0
St Light	15	0.03%	Maint	6
Stub Pole	181	0.32%	Maint	236
Tank Rust	45	0.08%	Maint	50
Top Decay	1444	2.55%	Maint	1562
u-Guard	0	0.00%	Maint	12
UnAuth Attach	34	0.06%	Maint	91
<b>Totals:</b>	<b>5979</b>	<b>10.55%</b>		<b>4383</b>

d.) On the attached email the complete inspection report for each rejection and maintenance items is included. All rejections are expected to be replaced by end of 2<sup>nd</sup> quarter of 2023. All maintenance items are expected to be completed by the end of the 2<sup>nd</sup> quarter of 2023. Summary groupings by height and class are as follows:

## 2022 Pole Inspection

**Total Poles Inspected: 56652**

### Summary of Reject Poles by Height and Class

Height	Class	Quantity	% of Quantity vs. Total Poles Inspected	Remediation	Completed Quantity
20	6	1	0.00%	Replacement	0
24	6	3	0.01%	Replacement	0
24	7	4	0.01%	Replacement	1
25	6	4	0.01%	Replacement	0
30	3	2	0.00%	Replacement	0
30	4	5	0.01%	Replacement	0
30	5	17	0.03%	Replacement	2
30	6	775	1.37%	Replacement	212
30	7	8	0.01%	Replacement	1
35	2	0	0.00%	Replacement	0
35	3	0	0.00%	Replacement	0
35	4	77	0.14%	Replacement	62
35	5	37	0.07%	Replacement	4
35	6	1770	3.12%	Replacement	477
35	7	14	0.02%	Replacement	1
40	2	4	0.01%	Replacement	3
40	3	0	0.00%	Replacement	0
40	4	321	0.57%	Replacement	112
40	5	627	1.11%	Replacement	827
40	6	359	0.63%	Replacement	46
45	2	15	0.03%	Replacement	6
45	3	3	0.01%	Replacement	1
45	4	91	0.16%	Replacement	183
45	5	5	0.01%	Replacement	2
45	6	4	0.01%	Replacement	0
50	1	1	0.00%	Replacement	11
50	2	3	0.01%	Replacement	0
50	3	23	0.04%	Replacement	86
50	4	4	0.01%	Replacement	0
50	5	1	0.00%	Replacement	0
55	1	0	0.00%	Replacement	2
55	3	0	0.00%	Replacement	1
60	1	0	0.00%	Replacement	0
60	2	0	0.00%	Replacement	0
60	3	0	0.00%	Replacement	0
65	1	0	0.00%	Replacement	0
<b>Total</b>		<b>4178</b>	<b>7.37%</b>		<b>2040</b>

2022 Pole Inspection					
Total Poles Inspected: 56652					
Summary of Poles by Height and Class with Maintenance Items					
Height	Class	Quantity	% of Quantity vs. Total Poles Inspected	Remediation	Completed Quantity
18	7	1	0.00%	Maintenance	0
24	6	6	0.01%	Maintenance	2
24	7	2	0.00%	Maintenance	4
30	1	0	0.00%	Maintenance	1
30	2	0	0.00%	Maintenance	0
30	3	0	0.00%	Maintenance	0
30	4	2	0.00%	Maintenance	0
30	5	8	0.01%	Maintenance	5
30	6	933	1.65%	Maintenance	998
30	7	12	0.02%	Maintenance	8
35	1	1	0.00%	Maintenance	1
35	2	0	0.00%	Maintenance	0
35	3	1	0.00%	Maintenance	2
35	4	135	0.24%	Maintenance	81
35	5	27	0.05%	Maintenance	39
35	6	1363	2.41%	Maintenance	1185
35	7	3	0.01%	Maintenance	2
40	2	8	0.01%	Maintenance	5
40	3	5	0.01%	Maintenance	3
40	4	517	0.91%	Maintenance	616
40	5	1066	1.88%	Maintenance	1223
40	6	283	0.50%	Maintenance	589
40	7	0	0.00%	Maintenance	1
45	1	0	0.00%	Maintenance	0
45	2	23	0.04%	Maintenance	13
45	3	4	0.01%	Maintenance	5
45	4	165	0.29%	Maintenance	230
45	5	16	0.03%	Maintenance	4
45	6	6	0.01%	Maintenance	5
50	1	206	0.36%	Maintenance	12
50	2	52	0.09%	Maintenance	0
50	3	152	0.27%	Maintenance	83
50	4	4	0.01%	Maintenance	4
50	5	2	0.00%	Maintenance	1
50	6	3	0.01%	Maintenance	2
55	1	2	0.00%	Maintenance	6
55	2	0	0.00%	Maintenance	0
55	3	5	0.01%	Maintenance	2
55	4	0	0.00%	Maintenance	0
55	5	0	0.00%	Maintenance	0

2022 Pole Inspection (continued)					
Total Poles Inspected: 56652					
Summary of Poles by Height and Class with Maintenance Items					
Height	Class	Quantity	% of Quantity vs. Total Poles Inspected	Remediation	Completed Quantity
55	6	0	0.00%	Maintenance	9
60	1	1	0.00%	Maintenance	1
60	2	1	0.00%	Maintenance	1
60	3	0	0.00%	Maintenance	2
60	4	0	0.00%	Maintenance	1
60	6	0	0.00%	Maintenance	3
60	H4	0	0.00%	Maintenance	0
65	1	0	0.00%	Maintenance	1
65	6	0	0.00%	Maintenance	0
80	2	0	0.00%	Maintenance	0
90	1	1	0.00%	Maintenance	0
100	1	0	0.00%	Maintenance	1
100	2	0	0.00%	Maintenance	0
105	1	2	0.00%	Maintenance	0
110	1	1	0.00%	Maintenance	0
<b>Total</b>		<b>5019</b>	<b>8.86%</b>		<b>5151</b>

## 5. Vegetation Management

### Transmission

- a.) Clay's vegetation management program for the transmission rights-of-way covers approximately 221 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 2022, Clay met or exceeded its scheduled mowing and spraying on the transmission system. Clay exceeded its goal by mowing 54.32 of 53.87 miles of transmission right-of-way in 2022. Clay exceeded its goal by spraying 62.77 of the 55.43 miles of transmission right of way in 2022. In 2022, Clay recut 49.69 miles or 110% of transmission right-of-way. Attached are files of Clay's mowing,

spraying, and recutting program for 2022.

Fifty-four (54) vegetation management discrepancies, fifty (50) dead or danger trees, and four (4) maintenance trims were found and corrected during two (2) annual vegetation management ground inspections in 2022.

### Distribution

- a.) Clay owns and operates over 9,322 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 considering 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 4.59 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 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](http://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 2022, Clay exceeded its goal by mowing 2320.76 of 1633.38 miles of its distribution circuits. Clay's vegetation spraying program covered 2336.98 miles of its distribution circuits which met Clay's goal. Clay's systematic vegetation recut program met its goal of covering 1892.63 miles of its distribution circuits. There was no carryover from 2022 into 2023. Clay's systematic vegetation recut, mowing, and spraying programs for 2022 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).