



800.262.5131
912.462.5131
www.oremc.com

Fax:
Nahunta 912.462.6100
Kingsland 912.882.1362
Hilliard 904.845.7510

March 11, 2020

State of Florida
Public Service Commission

RE: Filing of Report on Standards of Construction
Pursuant to Rule 25.6.0343, F.A.C.

To Whom it may Concern:

Okefenokee REMC herewith files the attached report on Standards of Construction for Calendar Year 2019. We apologize for missing the March 1, 2020 submittal deadline. We had some database issues that had to be addressed to assess the required data.

Regards,

/s/ Ernie Thomas

Ernie Thomas
System Engineer

Serving - Brantley, Camden, Charlton, Glynn, Ware, Wayne, Baker and Nassau Counties

Post Office Box 602
Nahunta, GA 31553-0602

Post Office Box 2530
Kingsland, GA 31548-2530

Post Office Box 1229
Hilliard, FL 32046-1229



Report to the Florida Public Service Commission
Pursuant to Rule 25-6.0343, F.A.C.
Calendar Year 2019

1) Introduction

Okefenoke Rural Electric Membership Corporation
P.O. Box 602
14384 Cleveland Street
Nahunta, Georgia 31553

Contact Information:

Ernie Thomas
System Engineer
800-262-5131 Ext. 1138
912-462-6100 Fax
ernie.thomas@oremc.com

Travis Page
Manager of Distribution Services
800-262-5131 Ext. 1160
912-462-6100 Fax
travis.page@oremc.com

2) Members Served

As of December 31st 2019, Okefenoke Rural Electric Membership Corporation serves 27,068 active meters in the state of Georgia, and 10,818 active meters in the state of Florida. The total number of active meters served system-wide is 37,886.

3) Standards of Construction

a) National Electric Safety Code Compliance

Construction standards, policies, guidelines, practices, and procedures at the Okefenoke Rural Electric Membership Corporation comply with the National Electrical Safety Code (ANSI C-2) [NESC]. The edition of the NESC in effect at the time of the facility's initial construction governs electrical facilities.

b) Extreme Wind Loading Standards

The design of Okefenoke Rural Electric Membership Corporation's facilities is not guided by the extreme loading standards on a system wide basis. The cooperative continues to make conscious efforts to improve the resiliency of the distribution system when replacing poles and constructing new lines. These efforts typically involve increasing the pole class, size, and strength of pole-top materials, as well as reducing conductor span lengths. Many older, weaker poles were removed and/or replaced in conjunction with the projects enumerated in Section 4d of this report.

Okefenoke Rural Electric Membership Corporation has participated in the Public Utility Research Center's (PURC) granular wind research study through the Florida Electric Cooperative Association. The investor-owned utilities, municipal utilities, and the rural electric cooperatives in the state of Florida formed a committee and collectively sponsored a project to collaborate on research on infrastructure hardening. The steering committee of the Project Sponsors determined that there was a need to accurately characterize the severe dynamic wind loading that accompanies the high winds of a storm/hurricane. The Project Sponsors entered into a wind monitoring agreement with WeatherFlow, Inc., in 2007. Under the agreement, Florida Sponsors agreed to provide WeatherFlow with access to their properties and to allow WeatherFlow to install, maintain and operate portions of their wind monitoring network facilities on utility-owned properties under certain conditions in exchange for access to wind monitoring data generated by WeatherFlow's wind monitoring network in Florida. WeatherFlow's Florida wind monitoring network includes 50 permanent wind monitoring stations around the coast of Florida, including one or more stations located on utility-owned property. The wind monitoring agreement expired in early 2012; however, it was renewed in April 2017 and will renew automatically annually on the effective date for an additional one year period, unless terminated by the parties to the agreement.

It is expected that future forensic investigations of the utilities' infrastructure failure will be conducted and compared with wind observations. This will allow the correlation of failure modes to wind speed and turbulence characteristics.

We have previously discussed the impact of increasingly severe storms and the increased population and utility infrastructure along the coast on greater interest in storm preparedness. PURC researchers continue to discuss the collaborative effort in Florida with the engineering departments of the state regulators in New York, New Jersey, and Pennsylvania, and regulators in Jamaica, Grenada, Curacao, St. Lucia, the Bahamas, Samoa, and the Philippines. In 2019, stakeholders in Puerto Rico and California also showed interest in the collaborative's efforts. While all of the regulators and policymakers showed great interest in the genesis of the collaborative effort, and the results of that effort, they have not, at this point, shown further interest in participating in the research effort. In 2019, there continued to be considerable interest in Florida's hardening efforts from the popular media in California, in light of continued wildfire problems in the state and their aftermath.

c) Flooding and Storm Surges

Okefenoke Rural Electric Membership Corporation has participated through the Florida Electric Cooperative Association in the Public Utility Research Center's (PURC) study on the conversion of overhead electric facilities to underground (Under-grounding) and the effectiveness of under-grounding facilities in preventing storm damage and outages. The study was performed in three phases.

Phase I concluded that the conversion of overhead electric distribution systems to underground is costly and that these costs are in excess of quantifiable benefits, except in rare cases where the facilities provide particularly high reliability gains or otherwise have a higher than average impact on community goals. No prior cost benefit study recommends broad-based under-grounding, but several recommend targeted under-grounding to achieve specific community goals.

Phase II was completed in August 2007, and examined four specific project case studies in Florida. Some observations reported from the case study are:

1. Cost per circuit mile varies widely based on a variety of factors.
2. Cost per consumer varies widely based on both the cost per circuit mile and the amount of high-density housing.
3. Little data is available from the case studies on the impacts of under-grounding on non-storm reliability and hurricane performance, but the evidence suggests that the under-grounding had little impact on non-storm reliability and that hurricane reliability of underground systems is not perfect due to storm surge damage.
4. There is very limited data on cost and benefits of under-grounding for these projects, whereas information is available about project description and project cost.

Phase III of the PURC study on the conversion of overhead electric facilities to under-ground involved the development of a computer model to identify and evaluate the costs and benefits of under-grounding specific facilities in Florida. Although the primary focus is the impact of under-grounding on hurricane performance, this study also considered the benefits and drawbacks of under-grounding during non-hurricane conditions. The collaborative group has refined the computer model developed by Quanta Technologies and there has been a collective effort to learn more about the function and functionality of the computer code. PURC and the project sponsors have worked to fill information gaps for model inputs and significant efforts have been invested in the area of forensics data collection.

In addition, PURC has worked with doctoral and master's candidates in the University of Florida Department of Civil and Coastal Engineering to assess some of the inter-relationships between wind speed and other environmental factors on utility equipment damage. PURC has also been contacted by engineering researchers at the University of Wisconsin and North Carolina State University with an interest in the model, though no additional relationships have been established. In addition to universities, PURC has been in contact with stakeholders in Puerto Rico in light of PURC Director Mark Jamison's appointment to the Southern States Energy Board Blue Ribbon Task Force on the future of Puerto Rico's energy system. The stakeholders, government and task force are concerned with strategies to make Puerto Rico's system more resilient and are interested in the role that the model could play. Finally, PURC has been contacted by California stakeholders interested in applying the principles of the model to the mitigation of the interactions between the electricity grid and the surrounding vegetation, potentially reducing the risk of wildfires. Despite the outside interest, there are no concrete plans to expand the scope of the model at this time. Every researcher that contacts PURC cites the model as the only non-proprietary model of its kind.

The research on the relationship between wind speed and rainfall is still under review by the engineering press. Further results of this and related research can likely be used to further refine the model. The PURC steering committee has taken steps to extend the research collaboration Memorandum of Understanding so that the industry will be in a position to focus its research efforts on under-grounding research, granular wind research, and vegetation management when significant storm activity affects the state.

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

Electrical construction standards, policies, guidelines, practices, and procedures at the Okefenoke Rural Electric Membership Corporation provide for placement of new and replacement distribution facilities so as to facilitate safe and efficient access for installation and maintenance. Wherever new facilities are placed (i.e. front, back or side of property), all facilities are installed so that Okefenoke Rural Electric Membership Corporation's facilities are accessible by its crews and vehicles to ensure proper maintenance/repair is performed as expeditiously and safely as possible. Okefenoke Rural Electric Membership Corporation

decides on a case-by-case basis whether existing facilities need to be relocated. If it is determined that facilities need to be relocated, they will be placed in the safest, most accessible area available.

e) Attachments by Others

The majority of pole attachment agreements between Okefenoke Rural Electric Membership Corporation and third-party attaching companies include language which specifies that the attaching company, not the cooperative, has the burden of assessing pole strength and safety before they attach to the pole. The attaching company is required to submit detailed attachment plans along with the attachment application, which will ensure that the new attachments fully comply with the latest edition of the National Electrical Safety Code. Okefenoke Rural Electric Membership Corporation performs follow-up audits of attachments to ensure the attachment is properly installed and maintained.

The AT&T of Georgia, the AT&T of Florida, and the BCI-James Cable LLC pole attachment license agreements all require that the attaching party at all times maintain all of its attachments in accordance with the specifications of the agreement. This includes as a minimum, the requirements of the National Electrical Safety Code (NESC) and subsequent revisions thereof. As a part of the permitting process for new attachments, the attaching company is required to submit all technical information necessary for verification by the pole owner of compliance with the NESC. Okefenoke Rural Electric Membership Corporation performs follow-up audits of attachments to ensure the attachment is properly installed and maintained.

4) Facility Inspections

a) Guidelines, Practices, and Procedures

Okefenoke Rural Electric Membership Corporation uses RUS Bulletin 1730B-121, entitled "Pole Inspection and Maintenance" as a guideline for inspecting its distribution lines, poles, and structures. The cooperative owns no transmission facilities. The cooperative has utilized both contractors and cooperative personnel to administer the inspection and maintenance program. This procedure includes visual inspection from ground-line to the top of the pole, sound and bore with excavation, and chemical treatment of the poles.

b) 2019 Inspections

Okefenoke Rural Electric Membership Corporation inspected 7,144 distribution poles per the above guidelines of Section 4a above in the year 2019. A contractor was used for these inspections. This represents approximately 12.16% of the 58,735 wood poles on the system as of December 31, 2019.

In addition to the standard pole inspection program, Okefenoke Rural Electric Membership Corporation also performed visual inspections of a substantial number of poles in conjunction with the engineering and construction of many capital projects throughout the year 2019. The capital projects included new construction, system upgrades, pole replacement projects, conductor replacement projects, road moving jobs, line relocation projects, and other miscellaneous projects. Many older poles were retired and replaced with these projects.

OREMC’s in-house line and system visual inspection program continues. Meter men and line staking personnel have the necessary tools to conduct routine line, service wire, and meter base inspections as a part of their daily activities. Following is a summary of the 2019 in-house inspections and status of corrections:

	<u>OH/URD Inspections</u>	<u>Meter Base Inspections</u>	<u>Total Qty / %</u>
Number of Inspections	5562	9254	14816
Issues Discovered	182 / 3%	600 / 6%	782 / 2%
Issues Resolved	38 / 27%	387 / 65%	425 / 54%
Remainder To Be Resolved	144 / 73%	213 / 35%	357 / 46%

The remaining issues are planned for correction by the end of 2nd Quarter, 2020. The 2020 inspections are in progress.

c) Rejections

During the 2019 pole inspections per section 4a guidelines, 157 distribution poles were rejected. This represents a rejection rate of approximately 2.2% of the 7,144 poles inspected in the year 2019. The cause for the rejection of each of these poles is summarized in the table below:

Summary of OREMC 2019 Pole Inspection Rejections.

Cause of Rejection	Qty. of Poles
Ground Rot	149
Above Ground Damage	8
TOTAL	157

d) Replacement and Remediation

The 2019 pole inspection was completed late in the year 2019. Therefore approximately 150 reject poles are scheduled to be replaced in first or second quarter of year 2020.

In the course of engineering and construction of the capital projects mentioned in section 4b above, many poles were replaced or retired from the Okefenoke REMC system. The following table summarizes the projects in which poles were replaced or retired:

Work Plan Code	Description	New Poles Added	Poles Retired
100	New Construction to to new Members	308	49
300	System Improvement	148	123
606	Pole Replacement	201	203
607	Miscellaneous Replacements	10	18
608	Conductor Replacements	73	62
609	Misc. Plant Additions	10	4
610	Road Moves	0	0
611	Line Relocations	34	38
999	Retirement Only	0	87
Totals		784	584

The cooperative continues its pole inspection process with the assistance of Osmose as a 3rd party contractor. The program will include approximately 7,500 poles to be inspected in 2020.

Though the cooperative did not experience a direct hit from a major hurricane during 2019, it did experience tropical storm force winds from a couple of storms during 2019. The OREMC distribution system withstood the tropical storm force winds well, with pole failure rates of less than 0.2%. Most of the outages were the result of trees and debris on the conductors. The

minimal pole failure rate is attributed to the cooperative's past philosophy and practice of upgrading pole class and strength ratings of pole-top equipment.

5. Vegetation Management

a) Guidelines, Practices, and Procedures

Okefenoke Rural Electric Membership Corporation utilizes contractors for its vegetation management programs, with supervision from the cooperative's staff. Vegetation control practices consist of complete clearing to the ground-line, trimming, and herbicide application. The herbicide is generally applied to the sections of line cleared the previous year, thereby extending the clearing cycle beyond what would normally be needed. The cooperative is also widening right of ways from twenty to thirty feet wide, wherever practical. These practices have allowed the cooperative to move to a five-year trim cycle, rather than a three-year cycle.

Problem trees outside the right of way or easement are handled on a case-by-case basis. Often a landowner will contact the cooperative, requesting danger tree removal. The cooperative's right of way foreman will investigate and facilitate the tree removal if it is feasible to do so. In other instances, problem trees are reported by cooperative employees or other persons, and the right of way foreman will attempt to obtain landowner permission to remove the problem tree. If permission is granted, the process is essentially the same as if the landowner reported the problem tree. The majority of the cooperative's system is rural, and the rural consumers are generally very supportive of the effort to remove the problem trees to help avoid power interruptions.

b) 2019 Vegetation Management

Okefenoke Rural Electric Membership Corporation has traditionally used 500 miles as a targeted annual goal for right of way trimming and clearing. For the year 2019, the cooperative trimmed approximately 510 miles of right of way.

In addition to our routine cut and trim cycle, we are also incorporating a similar 4 year plan to spray herbicide to the floor of our existing right of way. In 2019 we utilized contractors (NaturChem) to spray approximately 506 miles of right of way. We typically wait one year after the mechanical cut and trim crews have side trimmed an area before we use herbicide to help maintain the woody vegetation that remains on the floor of the right of way.

OREMC is a proud sponsor and attendee at the annual Woodbine GA Tree seminar. The cooperative strives to take advantage of educational and networking opportunities such as this at every opportunity.

In an effort automate our ROW program OREMC has implemented the Partner Software ROW module. We have been collecting and posting data to the system since January 2017. The software will allow us to keep track of our trimming and herbicide cycles. It also allows us to keep track of issues like danger trees, cycle busters, and no work zones like organic farms.

The cooperative is planning to implement in year 2020 a Danger Tree Program to target trees that may not be within our right of way, but will damage our lines if they fall. This program will particularly target dead, weak, or leaning trees. In late 2019 OREMC added a 2-man contract crew specifically tasked to inspect and remove danger trees outside of our normal ROW.

Okefenoke REMC will continue to consider these and other areas for improvement in its vegetation management processes and will participate in any future conferences or discussions concerning utility best practices. The cooperative has multiple employees who have achieved the Certified Arborist qualifications, as well as licensed pesticide applications, with emphasis on wood treatment and right of way herbicide spraying.