# Report to the Florida Public Service Commission

# Pursuant to Rule 25-6.0343, F.A.C.

# Calendar Year 2012

## 1) Introduction

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## 2) Members Served

As of December 31st 2012, Okefenoke Rural Electric Membership Corporation serves 24,759 active meters in the state of Georgia, and 9,914 active meters in the state of Florida. The total number of active meters served system-wide is 34,673.

## 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]. For electrical facilities constructed on or after February 1, 2012, the 2012 NESC applies. The edition of the NESC in effect at the time of the facility's initial construction governs electrical facilities constructed prior to February 1, 2012.

**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. Though we continue to self-audit and evaluate our system to determine any immediate needs for system upgrades and hardening in isolated areas, at this time we do not have sufficient data to substantiate the effort and cost of making major upgrades to our system. The cooperative has made conscious efforts over the years when replacing poles and building new lines, to upgrade the pole class size and strength of pole-top materials.

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 an agreement with Weather Flow, Inc. to establish a granular wind observation network designed to capture the behavior of the dynamic wind field upon hurricane landfall. Weather Flow now has 50 permanent wind monitoring stations located in the coastal areas of Florida. These stations collect wind, temperature, and barometric pressure data, and have been made available to the project sponsors. The measurement of the overland ground level wind behavior during storm landfall will provide useful information to utilities considering hardening their infrastructure against hurricane wind loads.

There have been no significant impacts from hurricanes to the state since the wind monitoring network was established. Once a hurricane occurs and wind data is captured, it is expected that forensic investigations of the utilities' infrastructure failure will be conducted and compared with wind observations to correlate failure modes to wind speed and turbulence characteristics

Also, the project sponsors desired to better understand the probable failure modes for various severe weather conditions. A group was formed to attempt to improve post-storm forensic data consistency. PURC developed a uniform forensics data gathering system for use by the utilities and a database that will allow for data sharing among the project sponsors. When a hurricane occurs and wind data is captured, forensic investigations of utilities infrastructure failure, conducted by the utility companies will be overlaid with wind observations. This should allow correlation of failure modes to wind speed and turbulence characteristics. Project sponsors and PURC will analyze such data.

**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 undergrounding on hurricane performance, this study also considered the benefits and

drawbacks of undergrounding 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. As would be expected, there are many variables in the inputs that must be assumed. The utility must attempt to come up with a reasonable assessment of the values of these variables. Some of these variables are initial availability of repair crews and the rate at which additional crews become available. Additional information should become available to all the utilities as the model is continually refined. Since the state has not been affected by any hurricanes since the database software was completed, there is currently no data. Therefore, future efforts to refine the undergrounding model will occur when such data becomes available.

Additionally, 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 other universities with an interest in the model, though no additional relationships have been established. The researchers that contact PURC all cite 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.

**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. A registered professional engineer licensed in the state in which the attachment is made, is required to certify that new permitted 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 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) 2012 Inspections

Okefenoke Rural Electric Membership Corporation performed visual inspections of 380 poles in year 2012. The Cooperative plans to employ a much intensified focus on Pole and Overhead Maintenance in 2013. The target will be in excess of 5,000 poles for 2013.

The Cooperative also inspected 156 pieces of underground equipment. The URD inspection program will continue in year 2013.

### c) Replacement and Remediation

Of the 380 poles that were visually inspected in 2012, 43 poles were found that required minor repairs such as repairing guy wires, grounds, etc. The repairs on the 43 poles were completed during the year 2012. 14 of the 380 poles were replaced. Also, there 118 maintenance tickets left over from year 2011 that were addressed during the maintenance work of year 2012.

Of the 156 pieces of underground equipment inspected in year 2012, 14 of these required maintenance and the maintenance was completed in 2012. Seven of these pieces of URD equipment were replaced.

## 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) 2012 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 2012, the cooperative actually cut and trimmed 700 miles of right of way. This equates to approximately 28% of the cooperative's 2,535 miles of overhead distribution line. The cooperative has traditionally been on a five-year cut and trim cycle. But efforts over the last several years have been directed at reducing the trim cycle to four years, or less. The cooperative intends to continue that trend through 2013.

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 2012 we utilized a contractor to spray approximately 600 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.

In 2013, we are also beginning a pilot project with a contractor that will use an herbicide treatment to side trim existing right of way. The idea is to use an herbicide in conjunction with mechanical side trimming. This method will be evaluated as time goes on to determine if the cooperative can possibly extend the 4 year trim cycle with the mechanical equipment.

The PURC research group facilitated a vegetation management conference in March 2007. Okefenoke Rural Electric Membership sent representatives to this workshop. A few important points were taken away from the conference.

1. It is impractical to eliminate all tree-related outages during high-wind events such as hurricanes.
2. Communication with and education for the public on all aspects of vegetation management as it relates to reliable utility operations is crucial.
3. Adequate and consistent financial resources must be available for vegetation management programs to be successful.
4. There is a need for training, recruiting, and retaining highly qualified, skilled tree crews.
5. Utilities should continue to monitor and patrol critical distribution facilities such as major feeders and feeders that serve critical infrastructure.
6. Storm preparation and restoration logistics are critical to timely and effective storm recovery.
7. Cooperation between utilities and government at multiple levels is also important.

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.