



CENTRAL FLORIDA ELECTRIC COOPERATIVE, INC.

PO BOX 9, CHIEFLAND, FLORIDA 32644

TELEPHONE 352-493-2511

February 28th, 2018

Ms. Penny Buys
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Standards of Construction Report of Central Florida Electric Cooperative, Inc. pursuant to Rule 25-6.0343, F.A.C.

Ms. Buys,

Central Florida Electric Cooperative, Inc. has attached the report of the Standards of Construction Report pursuant to Rule 25-6.0343. If there are any questions please contact me at your convenience.

Sincerely,

Benjamin R. Dawson

Chief Operating Officer

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

Calendar Year 2017

1) Introduction

a) Central Florida Electric Cooperative, Inc.

b) PO Box 9
11491 NW 50th Ave.
Chiefland, Florida 32644

c) Contact information:
Ben Dawson
Chief Operating Officer
(352) 493-2511 Ext. 6903

d) Central Florida Electric Cooperative, Inc., is an electric distribution cooperative in north central Florida, serving approximately 35,853 services as of year-end, 2017. The Cooperative maintains 3,926 miles of overhead distribution line, 304 miles of underground distribution line, and 43 miles of transmission line. Central Florida Electric Cooperative, Inc. serves consumers in Alachua, Dixie, Gilchrist, Lafayette, Levy and Marion Counties. The Cooperative operates 16 distribution substations, purchasing power at 69 kV from Seminole Electric Cooperative, Inc., a statewide cooperative power supplier.

The Cooperative's service territory, located in the "Big Bend" area of Florida, is flanked by the Gulf of Mexico on the west; Tri-County and Clay ECI's to the north and northeast; and Sumter and Withlacoochee ECI's to the south and southeast. Much of the area is rural, where small farms, multiple dairies, and timberlands are the predominant land usage. There are several relatively small urban areas within the service area, along with some "pockets" of residential development.

The service area is bisected by U.S. Highway 19 & 98, which runs from the northwest to the southeast, and by U.S. Highway 27A, which runs west to east.

2) Number of meters served in calendar year 2017:

35,853 connected meters.

3) Standards of Construction:

a) National Electric Safety Code Compliance:

Construction standards, policies, guidelines, practices, and procedures at Central Florida Electric Cooperative, Inc. comply with the National Electrical Safety Code (ANSI C-2) [NESC]. For electrical facilities constructed on or after January 1, 2017, the 2017 NESC applies. The edition of the NESC in effect at the time of the facility's initial construction governs electrical facilities constructed prior to January 1, 2017.

b) Extreme Wind Loading Standards:

The wind standard for the Central Florida Electric Cooperative, Inc. facilities is between 100 mph inland and 130 mph at the coast. At this time, Central Florida Electric Cooperative, Inc. facilities are not designed to be guided by the extreme loading standards on a system wide basis. Central Florida Electric Cooperative, Inc. is participating in the Public Utility Research Center's (PURC) granular wind research study through the Florida Electric Cooperative Association. We continue to self-audit and evaluate our system to determine any immediate needs for system upgrades and hardening in isolated areas, but at this time we do not have sufficient data to substantiate the effort and cost of making major upgrades to our system. We do look at projects on a case-by-case basis for evaluation for upgrades and hardening. Attached is a report updating the activities of PURC and its Steering Committee.

c) Flooding and Storm Surges:

Central Florida Electric Cooperative, Inc. is in a constant evaluation of our standards, policies, guidelines, practices and procedures that address the effects of flooding and storm surges on underground facilities and supporting overhead facilities. Central Florida Electric Cooperative, Inc. is participating in the Public Utility Research Center's (PURC) study on the conversion of overhead electric facilities to underground and the effectiveness of undergrounding facilities in preventing storm damage and outages through the Florida Electric Cooperative Association. Attached is a report updating the activities of PURC and its Steering Committee.

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

Electrical construction standards, policies, guidelines, practices, and procedures at Central Florida Electric Cooperative, Inc. 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 or side of property), all facilities are installed so that Central Florida Electric Cooperative, Inc.'s facilities are accessible by its crews and vehicles to ensure

proper maintenance/repair is performed as expeditiously and safely as possible. Central Florida Electric Cooperative, Inc. does not install facilities in the rear of property. Central Florida Electric Cooperative, Inc. 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:

Electrical construction standards, policies, guidelines, practices, and procedures at the Central Florida Electric Cooperative, Inc. include written safety, pole reliability, pole loading capacity, and engineering standards and procedures for attachments by others to the utility's electric transmission and distribution poles. By pole attachment agreement, we ensure attachments to our poles comply with the above before we approve pole attachment permits.

4. Facility Inspections

- a) It is the policy of Central Florida Electric Cooperative, Inc. to inspect all of its transmission facilities with its crews on a yearly basis. All distribution poles are inspected or repaired at the ground line by contractors or in-house crews within a planned 9-year program. Poles are replaced by Central Florida Electric Cooperative, Inc. crews or contractors if found deteriorated beyond repair.
- b) Central Florida Electric Cooperative, Inc. planned and inspected forty-three miles of transmission in 2017. Central Florida Electric Cooperative, Inc. contractors completed a ground-line inspection and treatment of 14,150 distribution poles in 2017. This was approximately 16% of all distribution poles in the system. In 2017 Central Florida Electric Cooperative stopped inspecting and treating with "in-house" personnel and started contracting this work out. Central Florida Electric Cooperative, Inc. obtained a contractor for 2017 and 2018 and, with the completion of 2018 inspections, will increase the number of poles to be inspected by 50% to be able to catch back up and stay on a 9-year cycle. Approximately 18,000 poles (20.6%) are planned to be inspected in 2018.
- c) Out of the 14,150 distribution poles inspected in 2017, 530 were found to be deteriorated and are scheduled for replacement, a 3.75% rejection rate.

5. Vegetation Management

- a) Central Florida Electric Cooperative, Inc. is currently on a 5-year right-of-way vegetation clearance plan and is moving towards a 4-year right-of-way vegetation clearance plan. Trees are trimmed or removed within 15 feet of all main lines, taps, and guys. Dead trees, which could fall on the line from outside of our easements, are downed. Vines are removed from poles, guys and lines. In 2017, 611 miles of the approximately 3,141 miles of primary overhead-line on the system were trimmed.

Report on Collaborative Research for Hurricane Hardening

Provided by

The Public Utility Research Center
University of Florida

To the

Utility Sponsor Steering Committee

Final Report dated February 2018

I. Introduction

The Florida Public Service Commission (FPSC) issued Order No. PSC-06-00351-PAA-EI on April 25, 2006 (Order 06-0351) directing each investor-owned electric utility (IOU) to establish a plan that increases collaborative research to further the development of storm resilient electric utility infrastructure and technologies that reduce storm restoration costs and outages to customers. This order directed IOUs to solicit participation from municipal electric utilities and rural electric cooperatives in addition to available educational and research organizations. As a means of accomplishing this task, the IOUs joined with the municipal electric utilities and rural electric cooperatives in the state (collectively referred to as the Project Sponsors) to form a Steering Committee of representatives from each utility and entered into a Memorandum of Understanding (MOU) with the University of Florida's Public Utility Research Center (PURC). The third extension of this MOU was approved last year by the Research Collaboration Partners and now extends through December 31, 2018.

PURC manages the work flow and communications, develops work plans, serves as a subject matter expert, conducts research, facilitates the hiring of experts, coordinates with research vendors, advises the Project Sponsors, and provides reports for Project activities. The collaborative research has focused on undergrounding, vegetation management, hurricane-wind speeds at granular levels, and improved materials for distribution facilities.

This report provides an update on the activities of the Steering Committee since the previous report dated February 2017.

II. Steering Committee Workshop

On December 5, the Steering Committee organized a web-based workshop for over 40 participants from the Project Sponsors hosted by the University of Florida. The workshop was held to orient new members on the model of the costs and benefits of storm hardening strategies and to discuss the integration of data from recent storm activities.

The presenter for the workshop was Ted Kury. He first described the model and the overall flow of the simulation element. He then described the 115 different inputs to the model and demonstrated where to find them. Next, he demonstrated a test run of 50 hurricane years for the state and demonstrated how the model illustrates the shift in the probability distribution of the outcome variables. Finally, he demonstrated the model's ability to simulate single hurricanes, both historical and hypothetical.

Following the demonstration, the members discussed strategies for adding data from recent storm experiences to the model.

III. Undergrounding

The collaborative research on undergrounding has been focused on understanding the existing research on the economics and effects of hardening strategies, including undergrounding, so that informed decisions can be made about undergrounding policies and specific undergrounding projects.

The collaborative 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 was again contacted by researchers at the Argonne National Laboratory who expressed interest in modeling the effects of storm damage. The researchers developed a deterministic model, rather than a probabilistic one, but did use many of the factors that the Collaborative have attempted to quantify. They are currently working to incorporate stochastic elements into their model and have consulted PURC for guidance. Every researcher that contacts PURC cites the model as the only non-proprietary model of its kind.

The research discussed in previous years' reports 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.

IV. Wind Data Collection

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.

V. Public Outreach

In last year's report we discussed the impact of increasingly severe storms 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 Connecticut, New York, and New Jersey, Pennsylvania, and regulators in Jamaica, Grenada, Curacao, Samoa, and the Philippines. 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. PURC researchers also engaged with the popular media in preparation for, and in the wake of, Hurricane Irma.

VI. Conclusion

In response to the FPSC's Order 06-0351, IOUs, municipal electric utilities, and rural electric cooperatives joined together and retained PURC to coordinate research on electric infrastructure hardening. The steering committee has taken steps to extend the research collaboration MOU so that the industry will be in a position to focus its research efforts on undergrounding research, granular wind research and vegetation management when significant storm activity affects the state.