Gulf Coast
Electric Cooperative
A Touchstone Energy® Cooperative

Gulf Coast Electric Cooperative, Inc.
Report to the Florida Public Service Commission
Pursuant to Rule 25-6.0343, F.A.C.
Calendar Year 2015

1) Introduction:

Gulf Coast Electric Cooperative, Inc. (GCEC) main office is located within the city limits of Wewahitchka, Gulf County, Florida seventeen miles inland from the Gulf of Mexico. The Cooperative's district offices are located with the communities of Southport, Bay County, Florida and Parker, Bay County, Florida approximately thirteen miles and four miles inland from the Gulf of Mexico respective. The cooperative serves electricity to 20,058 active customers in Gulf, Calhoun, Bay, Walton, Jackson and Washington counties. GCEC's distribution system is composed of both aerial and underground power distribution lines operating at 14.4/24.94kV. GCEC purchases energy from PowerSouth Energy Cooperative in Andalusia, Alabama, and receives power at eight 115kV substations and two 46kV substations.

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2) In calendar year 2015, GCEC served:

18,746 Residential Consumers
830 Small Commercial Consumers
22 Large Commercial Consumers
460 Other Sales to Pubic Authorities
20,058 Total Active Consumers (Meters)

3) Standards of Construction:

a. National Electric Safety Code Compliance

Gulf Coast Electric Cooperative, Inc. complies with the National Electric Safety Code (ANSI C-2) [NESC]. As of January 1, 2016, Gulf Coast Electric Cooperative's construction standards comply with the NESC 2012 Edition. For electrical facilities constructed prior to this date are in compliance with and governed by the edition of the NESC in effect at the time of the facilities' initial construction.

Through both internal and external quality controls, Gulf Coast Electric Cooperative ensures that all our distribution system is designed, constructed, operated, and maintained in accordance with all applicable provisions of the most current and accepted criteria of the NESC and all applicable and current electrical and safety requirements of any state and local governmental entity.

b. Extreme Wind Loading Standards

At this time, Gulf Coast Electric Cooperative, Inc. facilities are not bound by the extreme loading standards as our system is 99.9% under the 60ft 'extreme wind loading' requirements. The method of construction used by GCEC does, however, meet the 'design to withstand, without conductors, extreme wind loading in Rule 250C applied in any direction on the structure'. GCEC continues to self-audit and evaluate our system to determine any immediate needs for system upgrades and hardening in isolated areas.

"RUS (Rural Utilities Service) electrical standard requirements are in addition to, and not in substitution for or a modification of, the most current and accepted criteria of the NESC and any applicable electrical or safety requirements of any state or local government entity."

c. Flooding and Storm Surges

Gulf Coast Electric Cooperative, Inc. standards policies, guidelines, practices, and processes address the effects of flooding and storm surges on underground facilities and supporting overhead facilities. As required by RUS (Rural Utilities Services), high voltage cables are connected to padmounted underground facilities, such as transformers, switchgears, junction boxes, etc., with sealed "dead front" elbow connections rather than exposed, "live front" terminations that could be faulted by flood waters.

Gulf Coast Electric Cooperative participated 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. An update of activates from PURC to its Steering Committee regarding Hurricane Hardening is included as an attachment to this report.

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

Electrical construction standards, policies, guidelines, practices, and procedures at Gulf Coast Electric Cooperative, Inc. provide for replacement of new and replacement distribution facilities 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 install so that the GCEC facilities are accessible by its crews and vehicles to ensure proper maintenance/repair is performed as expeditiously and safely as possible. GCEC 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 are placed in the safest, most accessible area available.

e. Attachments by Others

Electrical construction standards, policies, guidelines, practices, and procedures at Gulf Coast Electric Cooperative, Inc. include written safety, pole reliability, pole loading capacity, and engineering standards and procedures for attachments by others to the utility's distribution poles. Routine pole line inspections of 'work-orders' are performed by GCEC's consulting engineer for newly constructed jobs. These inspections encompass all pole line construction criteria. General inspections are currently done on an eight year cycle.

4) Facilities Inspection:

a. Describe the utility's policies, guidelines, practices, and procedures for inspecting transmission and distribution lines, poles, and structures including, but not limited to, pole inspection cycles and pole selection process.

Gulf Coast Electric Cooperative, Inc. has no transmission lines.

Gulf Coast Electric Cooperative, Inc. conforms to RUS Bulletin 1730B-12 for Pole Inspection and Maintenance, and performs general pole inspections on its distribution lines on an eight-year cycle. Poles that do not pass inspection are changed out to satisfy service and safety reliability and to meet the requirements of the National Electrical Safety Code in effect at the current time. The pole selection process is by substation and distribution feeder.

In accordance with RUS Bulletin 1730-1, Electric System Operation and Maintenance (O&M), GCEC visually inspects underground transformers and other padmount equipment on a four-year cycle for safety compliance and physical condition. Items found out of compliance or in need of maintenance are corrected in the same year. The selection area is determined by substation and feeder density.

GCEC also inspects with the PSC, a percentage of new completed pole line construction called for by the PSC. The section process is done by the PSC.

GCEC also inspects a percentage of new pole line construction chosen routinely on its own. The section process is done by random choice.

b. Describe the number and percentage of transmission and distribution inspections planned and completed for 2015.

Gulf Coast Electric Cooperative, Inc. has no transmission lines.

Gulf Coast Electric Cooperative, Inc. inspected 6,477 poles in 2015 with 32 rejects. This number reflects 13.3% of the poles owned by GCEC and 94.3% of poles planned for inspection for the year 2015.

Also in 2015, Gulf Coast Electric Cooperative, Inc. inspected 205 padmount transformers, 72 pull box cabinets, 3 padmount switchgear and 73 secondary pedestals; these 353 devices accounted for approximately 20.3% of the Cooperative's padmount equipment.

c. Describe the number and percentage of distribution poles failing inspection and the reason for the failure.

6,477 poles were inspected in 2015 with 32 poles rejected, for a rejection rate of 0.5%.

The reason for failure were:

Decay Pockets (2)	6.3%	Mechanical Damage (5)	15.6%
Decayed Top (2)	6.3%	Punk Wood (2)	6.3%
Butt Rot (21)	65.5%		

d. Remedial action taken.

Gulf Coast Electric Cooperative, Inc. has a continually active work order program for maintenance and replacement of its wood poles and structures. In 2015, 23.5% of GCEC's capital construction budget expenditure was the replacement of wood poles; a 59.7% increase from 2014.

5) Vegetation Management

Gulf Coast Electric Cooperative, Inc. owns and operates approximately 2,158 miles of overhead and 435 miles of underground electrical distribution lines. GCEC strives to clear all of the right-of-way (ROW) on a five year cycle. Presently, GCEC is on a definitive four year program. GCEC's line construction specifications are to clear between twenty (20) and thirty (30) foot width, "from ground to sky". Certified arborist personnel manage GCEC's ROW program. GCEC utilizes in-house ROW crews for clear-cut ROW maintenance program.

Estimated ROW clearing costs are approximately $1,000,000 annually to cut 100% on a four-year program. At this time, it is cost prohibitive for GCEC to cut 100% on a three-year cycle. GCEC cuts on a geographic and substation selective basis to maintain a respectful and systematic program.

GCEC is actively reclaiming all ROW, this includes the removal of all trees that fall in GCEC ROW. This is being accomplished by taking the time to educate property owners on the importance of clear ROW and the instruction as to what trees or plants can be planted around the ROW.

GCEC cut 375 miles of ROW in 2014 and 2015. GCEC plans to continue on this rotation to keep ROW on a 4 year rotation. We feel that this 4 year rotation along

with aggressively reclaiming GCEC ROW will reduce outages and provide better safety and awareness for the public.

GCEC works closely with the Florida DOT and the various county governments regarding vegetation management along road right-of-ways. GCEC also works closely with property owners for danger tree removal and in select cases, for plantings and landscaping.

Report on Collaborative Research for Hurricane Hardening

Provided by

The Public Utility Research Center
University of Florida

To the

Utility Sponsor Steering Committee

February 2016

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 recently approved 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 2015.

II. 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. 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.

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 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. Every researcher that contacts PURC cites the model as the only non-proprietary model of its kind.

The research discussed in last year's report 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.

III. 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, the wind, temperature, and barometric pressure data being collected at these stations is being made available to the Project Sponsors on a complimentary basis.

IV. Public Outreach

In last year's report we discussed the impact of increasingly severe storms on greater interest in storm preparedness. PURC researchers discussed the collaborative effort in Florida with the engineering departments of the state regulators in Connecticut, New York, and New Jersey, 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 continue to utilize the insight gained through the hurricane hardening research to contribute to the debate on undergrounding in the popular press, and reinforce the state of Florida as a thought leader in this area. PURC Director of Energy Studies Ted Kury was asked to contribute an article to the second quarter issue of *Utility Horizons* describing the modeling methodology for assessing the undergrounding of power lines. The essay also provided a link to an *Electricity Journal* article by Kury and Lynne Holt, another PURC researcher, which discusses Florida's cooperative approach and holds it up as a "best practice" in regulation. In addition, Kury has conducted interviews for the general press on the costs and benefits of underground power lines.

V. 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.