

Florida Public Service Commission Report
Pursuant to Rule 25-6.0343, F.A.C.
Calendar Year 2014

The following information is submitted pursuant to the Florida Public Service Commission rule 25-6.0343, F.A.C. for the calendar year of 2013.

1. Reporting Utility

Glades Electric Cooperative, Inc.
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2. Number of meters served in calendar year 2014: 16,252

3. Standards of Construction –

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 MOU was recently extended through December 31, 2015.

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 2014.

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 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 last 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 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 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. Currently, WeatherFlow's Florida wind monitoring network includes 50 permanent wind monitoring stations around the coast of Florida. The wind, temperature and barometric pressure data being collected at these stations has been made available to the Project Sponsors.

There have been no major impacts from hurricanes since the wind monitoring network was established. Once such an event does occur and wind data is captured, it is expected that forensic investigations of utilities infrastructure failure will be conducted and overlaid with wind observations to correlate failure modes to wind speed and turbulence characteristics. Project Sponsors and PURC will analyze such data at that time.

Glades Electric Cooperative (GEC) utilizes a Construction Standards Committee that meets on a quarterly basis to evaluate construction and material standards currently in place and to make recommendation of change. This committee consists of the Director of Operations, Cooperative Services Manager, Two Power Supply Managers and Two Line Personnel.

a) National Electric Safety Code Compliance:

Construction standards, policies, guidelines, practices, and procedures at Glades Electric Cooperative, Inc. comply with the National Electrical Safety Code (ANSI C-2) [NESC] as set forth by RUS Regulations. For electrical facilities constructed on or after August 1, 2011, the 2011 NESC applies. Electrical facilities constructed prior to August 1, 2011, are governed by the edition of the NESC in effect at the time of the facility's initial construction. RUS regulation is as follows:

RUS Regulation 7 CFR Ch. XVII (1-1-06 Edition), Subpart E – Electric System Design § 1724.50 Compliance with National Electrical Safety Code (NESC).

The provisions of this section apply to all borrower electric system facilities regardless of the source of financing.

(a) A borrower shall ensure that its electric system, including all electric distribution, transmission, and generating facilities, is designed, constructed, operated, and maintained in accordance with all applicable provisions of the most current and accepted criteria of the National Electrical Safety Code (NESC) and all applicable and current electrical and safety requirements of any State or local governmental entity. Copies of the NESC may be obtained from the Institute of Electrical and Electronic Engineers, Inc., 445 Hoes Lane, Piscataway, NJ 08855. This requirement applies to the borrower's electric system regardless of the source of financing.

(b) Any electrical standard requirements established by RUS 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 governmental entity.

(c) Overhead distribution circuits shall be constructed with not less than the Grade C strength requirements as described in Section 26, Strength Requirements, of the NESC when subjected to the loads specified in NESC Section 25, Loadings for Grades B and C. Overhead transmission circuits shall be constructed with not less than the Grade B strength requirements as described in NESC Section 26.

b) Extreme Wind Loading Standards

Construction standards, policies, guidelines, practices, and procedures at Glades Electric Cooperative are guided by the extreme wind loading standards specified by Figure 250-2(d) of the 2011 edition of the NESC for:

1. New Construction
2. Major planned work, including expansion, rebuilds, or relocation of existing facilities assigned on or after the effective date of the 2011 NESC edition.
3. Targeted critical infrastructure facilities and major thoroughfares.

c) Flooding and Storm Surges

Glades Electric Cooperative is a non-coastal utility but recognizes the potential for flooding should a catastrophic failure of the Herbert Hoover dike along the Lake Okeechobee southwestern shoreline occur. GEC participated in a workshop series hosted by Florida Catastrophic Planning with such a scenario and has evaluated standards, policies, guidelines, practices and procedures that address the effects of flooding and storm surges on underground facilities and supporting overhead facilities.

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

Electrical construction standards, policies, guidelines, practices, and procedures at the Glades Electric Cooperative 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 GEC's facilities are accessible by its crews and vehicles to ensure proper maintenance/repair is performed as expeditiously and safely as possible. GEC 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 pole attachment agreements between Glades Electric Cooperative and third-party attachers include language which specifies that the attacher, not the cooperative, has the burden of assessing pole strength and safety before they attach to the pole. In addition to the terms of pole attachment agreements, Glades Electric Cooperative has adopted a policy that places the burden of assessing pole strength and safety to all third party attachers. It is the intent of this policy to ensure all third party attachment agreements are uniform in responsibility assignments. GEC performs system wide attachment inspections on a two year cycle..

4. Facility Inspections

Glades Electric Cooperative policies, guidelines, practices and procedures for inspections and maintenance - Glades Electric Cooperative effectively inspects and maintains its transmission and distribution lines, poles, and structures through a number of regulations, procedures, and guidelines. These practices have proven to be invaluable previous storm impacts. Inspection and maintenance work is completed by utilizing GEC's System Improvement Plan, wood pole inspection cycle as established in RUS bulletin 1730B-121, and GEC's annual Strategic Work Plan.

Wood Pole Inspection Cycle – Glades Electric Cooperative utilizes a ten (10) year sound/bore with excavation inspection cycle for all wood poles on the GEC system. This procedure is in compliance with RUS bulletin 1730B-121 which recommends an eight (8) year cycle but allows a three (3) year deviation as set forth in Section 3.4 of the bulletin. These inspections are done in addition to GEC's System Improvement Plan inspections as outlined in the section above.

GEC's Annual Strategic Work Plan – Glades Electric Cooperative utilizes an annual strategic work plan that is formulated from input from GEC's management staff, employees, and Board of Trustees. Strengths, Weaknesses, Opportunities, and Threats (SWOT analysis) are identified and evaluated on an annual basis as part of the strategic planning process. Goals and specific action steps are created as a result of the SWOT analysis and a work plan is devised. The work plan utilizes the Harvard Business School's "Balanced Scorecard" system to assure our Board of Trustees of our performance in all areas of the Strategic Work Plan. Pole inspection cycles, maintenance schedules, and system upgrades are included in the strategic work plan.

Transmission and distribution inspections planned and completed in 2014 – Glades Electric Cooperative planned and completed 100% of its 2014 maintenance and inspection goals. This work consisted of the following:

- a) **Distribution Inspections** – GEC Power Supply Managers visually inspected all 2,461 miles of GEC distribution lines for NESC code violations and hazardous conditions. GEC line crews conducted inspections on 118 miles of underground distribution representing 100% of GEC's URD.
- b) **Transmission Inspections** – GEC visually inspected 100% of its 83 miles of transmission lines through visual inspections.

c) Number and percentage of transmission poles and structures and distribution poles failing inspection and the reason for the failure.

- a) **Distribution Pole Rejects** – GEC had 458 reject poles. Most of these poles rejected were found during our Strategic Work Plan projects. The rejects were mostly due to decay or rot. Poles tops that were split were also replaced.

d) Number and percentage of transmission poles and structures and distribution poles, by pole type and class of structure, replaced or for which remediation was taken after inspection, including a description of the remediation taken.

- a) **Distribution Poles** – One hundred percent 100% of the reject poles identified in the 2014 pole inspection were replaced during 2014. GEC did not use the truss reinforcement method during 2014 and replaced all identified rejects. All reject poles were typically thirty five foot (35') class six (6) and forty foot (40') class five (5) pentachlorophenol treated wood poles. Replacement poles consisted of Chromated Copper Arsenate (CCA) wood poles. Thirty five foot (35') reject poles were replaced with forty foot (40') class five (5) CCA wood poles. Forty foot (40') reject poles were replaced with like size and upgraded to class three (3) CCA wood poles. GEC completed lightning arrestor maintenance on its entire distribution system in 2014 and replaced 456 lightning arrestors.
- b) **Transmission Poles** – In addition to the pole inspections, GEC upgraded 30 wood transmission structures and replaced with spun concrete poles.

5. Vegetation Management

Distribution Right of Way - Glades Electric Cooperative began a system wide circuit by circuit right of way trimming program in 1999. This initial trimming by circuit took four years to complete as GEC had never trimmed right of way in this manner. The trim cycle started over in 2003 and GEC was able to reduce and maintain the system wide circuit by circuit trimming to a three (3) year cycle. Trimming guidelines are established in RUS Bulletin 1728F-803 (D-803)

RIGHT-OF-WAY CLEARING SPECIFICATIONS

The right-of-way shall be prepared by removing trees, clearing underbrush, and trimming trees so that the right-of-way is cleared close to the ground and to the width specified. However, low growing shrubs, which will not interfere with the operation or maintenance of the line, shall be left undisturbed if so directed by the owner. Slash may be chipped and blown on the right-of-way if so specified. The

landowner's written permission shall be received prior to cutting trees outside of the right-of-way. Trees fronting each side of the right-of-way shall be trimmed symmetrically unless otherwise specified. Dead trees beyond the right-of-way which would strike the line in falling shall be removed. Leaning trees beyond the right-of-way which would strike the line in falling and which would require topping if not removed, shall either be removed or topped, except that shade, fruit, or ornamental trees shall be trimmed and not removed, unless otherwise authorized.

- a) **Quantity, Level, and Scope of vegetation management planned and completed in 2014:** Glades Electric Cooperative completed all planned right of way trimming in 2014. This work involved eight (8) distribution circuits from four (4) GEC substations.

GEC's transmission rights of ways were inspected during 2014. Transmission rights of ways are inspected annually and trimmed if necessary. Most of GEC's transmission lines are located on cultivated land and vegetation growth is not an issue.

GEC believes that its right of way program is a valuable asset to its members and feels that the current program is effective.