

**Homestead Energy Services
City of Homestead, Florida
Storm Hardening Report to the Florida Public Service
Commission Pursuant to Rule 25-6.0343, F.A.C.
Calendar Year 2017**

1) Introduction

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2) Number of customers served in calendar year 2017

25,032

3) Standards of Construction

a) National Electric Safety Code Compliance

Construction standards, policies, guidelines, practices, and procedures at Homestead Energy Services comply with the National Electrical Safety Code (ANSI C-2) [NESC]. For electrical facilities constructed on or after November 1, 2017, the 2017 NESC applies. Electrical facilities constructed prior to November 1, 2017, are governed by the edition of the NESC in effect at the time of the facility's initial construction.

b) Extreme Wind Loading Standards

Construction standards, policies, guidelines, practices, and procedures at Homestead Energy Services are guided by the extreme wind loading standards as specified by <http://windspeed.atcouncil.org/> for structures greater than 60' tall, and as recommended by the 2017 NESC Figure 250-2(b) for structures less than 60' tall for: 1) new construction; 2) major planned work, including expansion, rebuild, or relocation of existing facilities, assigned on or after December 10, 2006; and 3) targeted critical infrastructure facilities and major thoroughfares.

Homestead Energy Services is also participating in the Public Utility Research Center's (PURC) granular wind research study through the Florida Municipal Electric Association.

c) Flooding and Storm Surges

Electrical construction standards, policies, guidelines, practices, and procedures at Homestead Energy Services address the effects of flooding and storm surges on underground distribution facilities and supporting overhead facilities. New underground facilities are placed on ground high enough to minimize the impact of flooding.

Homestead Energy Services is also 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 Municipal Electric Association

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

Electrical construction standards, policies, guidelines, practices, and procedures at Homestead Energy Services provide for placement of new and replacement distribution facilities so as to facilitate safe and efficient access for installation and maintenance.

All new residential services are in the front lot and are underground. All new facilities are installed so that Homestead Energy Services' facilities are accessible by its crews and vehicles to ensure proper maintenance/repair work is performed as expeditiously and safely as possible. Homestead Energy Services 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 Homestead Energy Services 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. All of these items are part of the Pole Attachment Agreements that Homestead Energy Services enters into with each attaching party. The agreements include language which specifies that the attacher, not Homestead Energy Services, has the burden of assessing pole strength and safety before they attach to the pole. Homestead Energy Services performs follow-up audits of attachments to ensure the attachment is properly installed and maintained.

4. Facility Inspections

- 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.**

All transmission poles are concrete. A drone thermographic inspection of all transmission lines was completed in late 2017. With the advent of drone technology, Homestead Energy Services will be performing transmission line inspections on a three year cycle.

Wooden distribution poles are inspected in accordance with standard industry guidelines including sound and bore and loading evaluations. HES employs a contractor to perform pole inspections on an eight-year cycle. All new wooden poles are CCA as are the majority of the poles currently installed in the system. Class II, Class I or concrete poles are used for new construction or for any Class IV or Class V poles that are found to be in need of replacement. Homestead Energy Services makes the determination regarding which class of pole to be used on a case-by-case basis.

Annually, a thermographic inspection is performed on all of the feeder circuits and any problems noted are repaired. This inspection was completed in May, 2017.

Distribution pole inspections are on an 8 year cycle, with 12.5% of the population scheduled to be inspected each year. Actual inspections typically yield about a 15% inspection rate.

Pole selection has been done through a multi-city agreement coordinated by the Florida Municipal Power Association.

b) Describe the number and percentage of transmission and distribution inspections planned and completed for 2017.

The entire transmission system was inspected in 2017 via drone. All transmission structures are concrete.

During the 2016/2017 Fiscal Year Homestead inspected approximately 15% of the system poles.

c) Describe the number and percentage of transmission poles and structures and distribution poles failing inspection in 2017 and the reason for the failure.

Transmission Poles: 2 poles out of 135 failed inspection, or 1.5%. Both poles had cracks in the concrete at the top of the pole.

Distribution Poles: 101 poles out of 4713 failed inspection in 2017, or 2.1%. With Butt Rot being the most prevalent cause, followed by upper roof rot and split tops. The breakdown is shown in the table below.

Reject with Cause	Count
BROKEN POLE	1
BUTT ROT	52
BUTT ROT, HOLLOW HEART	2
BUTT ROT, HOLLOW HEART, SPLIT TOP, UPPER ROOF ROT, POLE MOVING IN GROUND	1
BUTT ROT, POLE MOVING IN GROUND	1
BUTT ROT, SPLIT TOP	5

BUTT ROT, SPLIT TOP, TERMITES	1
BUTT ROT, SPLIT TOP, WOOD PECKER DAMAGE	1
BUTT ROT, TERMITES	1
BUTT ROT, TERMITES, WOOD PECKER DAMAGE	1
BUTT ROT, TOP DECAY	1
BUTT ROT, UPPER ROOF ROT	2
BUTT ROT,POLE ROT AT TOP	1
EXPOSED POCKET	1
EXPOSED POCKET, UPPER ROOF ROT, ENCLOSED POCKET, BUTT ROT	1
HOLLOW HEART	2
HOLLOW HEART, BUTT ROT	1
HOLLOW HEART, BUTT ROT, EXPOSED POCKET	1
INTERNAL VOID 5 FT ABOVE GROUND	1
MECHANICAL DAMAGE	1
SPLIT TOP	6
SPLIT TOP, TERMITES, BUTT ROT	1
SPLIT TOP, UPPER ROOF ROT	2
SPLIT TOP,TOP DECAY	1
UPPER ROOF ROT	10
UPPER ROOF ROT, SPLIT TOP	1
UPPER ROOF ROT, WOOD PECKER DAMAGE	1
WOOD PECKER DAMAGE	1
Not Rejected	4612
Grand Total	4713

d) Describe the 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 in 2017, including a description of the remediation taken.

Transmission Poles: Two transmission poles (1.5%) were found to need remediation following the 2017 inspection. As the inspection was completed at the end of the year in 2017, remediation is planned for 2018 and consists of securing the tops with an extremely strong bonding material.

Distribution Poles:

During the past year, the following pole repairs and replacements were completed based on the results of the 2016 and 2017 inspections.

- *Removed five (5) defective poles*
- *Reworked six (6) pole with split top defects*
- *Transferred facilities to one (1) storm hardened poles owned by others*

- *New installation of two (2) 55 foot class III H*
- *Replaced four (4) 35 foot class 4 poles with class 2 poles*
- *Replaced twelve (12) 40 foot class 3 poles with 55 foot class III H*
- *Replaced five (5) 40 foot class 3 poles with class 2 poles*
- *Replaced sixteen (16) 45 foot class 3 poles with class 2 poles*

In addition, following Hurricane Irma, 162 wood poles were replaced with either Class II, Class I or concrete poles. The 162 poles failed as a result of 1) trees falling on spans of wire and pulling the poles down, 2) high wind gusts or microbursts, and 3) poles identified through inspection as needing replacement, but not yet addressed when the hurricane arrived.

5. Vegetation Management

- a) **Describe the utility's policies, guidelines, practices, and procedures for vegetation management, including programs addressing appropriate planting, landscaping, and problem tree removal practices for vegetation management outside of road right-of-ways or easements, and an explanation as to why the utility believes its vegetation management practices are sufficient.**

Homestead Energy Services employs a contractor for tree trimming services, and added an additional tree trimming crew at the end of 2016. Customers are provided literature regarding trees recommended for planting near power lines as requested. Homestead's geographic area is small and it is estimated that the entire system is trimmed on a two-year cycle. The City of Homestead recently enacted Code changes that require property owners to keep vegetation on private property trimmed to maintain six feet of clearance from HES facilities. There are no issues with vegetation management for transmission facilities. As a City department, Homestead Energy Services works with Public Works and Building and Zoning to ensure that appropriate landscaping is planned in the vicinity of electrical facilities.

- b) **Describe the quantity, level, and scope of vegetation management planned and completed for transmission and distribution facilities in 2017.**

The Public Utility Research Center has held two vegetation management workshops in 2007 and 2009. Through FMEA, Homestead Energy Services has a copy of their reports and will use the information to continually improve vegetation management practices. We will participate in future best practice workshops if there is interest. For additional detail see 5a.

6. Storm Hardening Research

Homestead Energy Services is a member of the Florida Municipal Electric Association (FMEA), which is participating with all of Florida's electric utilities in storm hardening research through the Public Utility Research Center at the University of Florida. Under separate cover, FMEA is providing the FPSC with a report of research activities.

For further information, contact Amy Zubaly, Executive Director, FMEA, 850-224-3314, ext.1, or azubaly@publicpower.com.