GRU
More than Energy™

GAINESVILLE REGIONAL UTILITIES

Energy Delivery

February 3, 2025

Penelope Buys
Engineering Specialist
Division of Engineering
Florida Public Service Commission

pbuys @psc.state.fl.us

Dear Ms. Buys,

Attached is the Gainesville Regional Utilities (GRU) 2024 Storm Hardening Report. We believe all reporting requirements of Rule 25-6.0343 have been addressed and satisfied. However, should there be any unanswered questions, or need for further expansion or clarification, we will address such needs in a timely manner upon notice. GRU has been proactive historically in nearly all facets of the Storm Hardening initiative; we are pleased to report our programs and successes to the Commission.

Sincerely,

Chad D. Parker
Acting Energy Delivery Officer

/enclosure

GRU Storm Hardening Report
to the Florida Public Service Commission
Pursuant to Rule 25-6.0343, F.A.C.
Calendar Year 2024

1) Introduction

a) Gainesville Regional Utilities (GRU)

b) Physical Address: 4747 N. Main Street, Gainesville, FL 32609
Mailing Address: PO Box 147117, Station E2A, Gainesville, Florida 32614-7117

c) Chad Parker, Energy Delivery Officer (352) 393-6452; parkercd@gru.com

2) Number of customers served in calendar year 2024

GRU serves Gainesville proper as well as Gainesville's urban fringe but does not serve the University of Florida main campus. GRU served a total of 106,115 electric customers in 2024, which can be broken down by class as follows:

Residential Customers	92,733
Non-Residential Customers	13,382
Total:	106,115

3) Standards of Construction

a) National Electrical Safety Code Compliance

GRU's Material and Construction Standards are continuously maintained and updated to ensure compliance with the applicable version of the National Electric Safety Code (NESC). Current facilities are installed following the 2023 version of the NESC. Facilities installed prior to February 2023 were constructed in accordance with the version of the NESC applicable at the time of construction.

b) Extreme Wind Load Standards

GRU's current Material and Construction Standards are guided by the extreme wind loading requirements specified by http://windspeed.atcouncil.org/ as recommended by the 2023 NESC. These standards have been applied to both new construction initiated on or after February of 2023 and major planned work that requires the expansion, rebuild or relocation of existing facilities initiated on or after February of 2023. Electric distribution facilities installed prior to that date were constructed in compliance with the applicable version of the NESC at that time.

c) Flooding and Storm Surges

GRU is located in North Central Florida, roughly equidistant to both coasts. GRU's electric distribution facilities are not subject to storm surges and have limited exposure to flooding. In areas where there has been significant flooding in the past, GRU evaluates if electrical facilities should be moved or converted from overhead to underground to mitigate the impact of future flooding.

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

Electrical construction standards, policies, guidelines, practices, and procedures at GRU provide for the placement of new and replacement distribution facilities in a manner that ensures safe and efficient access for installation and maintenance.

GRU has instituted a Continuous Improvement Program. The reliability of each distribution circuit is analyzed monthly. When warranted, a plan is developed to improve the reliability of poor performing circuits once the root cause issue(s) has been identified. The work is prioritized based on the anticipated reduction of frequency and length of service interruptions as well as best value (cost/benefit) to be realized. The program also identifies the worst performing operating devices and most compromised primary voltage underground cable. Outages are reviewed daily to determine if any device has repetitive problems. The renewal and/or replacement of problem devices and cables are prioritized based on the anticipated customer service improvement and best value to be realized.

As part of this program, existing facilities which are difficult to access are evaluated to determine if they can be relocated. Historically, GRU has found it very difficult to relocate rear-lot facilities to the roadway due to the cost to convert to underground facilities in the front-lot, including the cost of relocating the customer's meter. Therefore, when it is not possible to relocate limited access facilities to a more accessible location, other solutions are developed to enhance circuit and operating device reliability. GRU has also integrated the use of motorized and non-motorized rear-lot construction and maintenance equipment to assist in the replacement and/or repair of limited access facilities. Also, long distribution laterals are reconfigured and shortened (segmented) when possible, to further improve system reliability. Additional work continues to be performed to remove high strength messenger cable from overhead facilities to protect existing wood poles from breaking due to vegetation impacting the overhead aerial cable lines.

GRU completed a cable injection program in 2019. This program injected direct buried cable that was not strand-filled to extend the life of the cable past its intended lifespan. Since completion of the project, GRU has monitored the cables and replaces any cable that fails post injection process.

After removing all sub-surface switchgears to increase reliability and avoid extended outages relating to that equipment, GRU has focused on eliminating radial URD feeds. Construction standards have been modified to prevent, or limit, the construction of new radial URD feeds. These changes limit the number of customers affected by single cable failures while also allowing for decreased restoration times of URD outages.

GRU continues to advance its Supervisory Control and Data Acquisition (SCADA) distribution system re-closer program (101 devices in total) which enables the utility to monitor and reconfigure its distribution circuits automatically and remotely. Furthermore, GRU is in the process of implementing Advanced Distribution Management System (ADMS) to allow for better visibility and control of the Distribution system. The ADMS system, in conjunction with SCADA, allows for quicker identification of where a fault occurred and optimized switching times to restore power to as many customers as possible. These increases in functionality provide the means to effectively manage loads between individual circuits during peak loading times to protect the system from overloading conditions that could lead to failure.

GRU's transmission structure hardening program consists of improving roads and culverts to facilitate restoration in case of outages and limiting public access to transmission right-of-ways and easements where feasible. GRU also completely changed from wooden to ductile iron poles on one transmission line that consists of 30 structures. Additional work of this nature is forecast in the coming years to address another transmission line.

e) Attachment by Others

The pole attachment agreements between GRU and third parties attaching to GRU structures include language which specifies that the third-party, not GRU, has the burden of assessing pole strength and safety before they attach to the pole. GRU performs follow-up audits of attachments to ensure any attachment is properly installed and maintained by the third-party entities.

4. Facility Inspections

a) Policies, guidelines, practices, and procedures for inspecting transmission and distribution lines, poles, and structures.

GRU has had a comprehensive and periodic pole inspection/treatment program since 1992.

Overview

- The inspection cycle has been established at eight (8) years.
- The inspection method is to sound and bore every wood pole greater than ten years of age and to perform a complete visual inspection of those poles for cracks, splitting and obvious decay.

- The pole base is exposed (where possible) to eighteen inches to inspect for indications of decay. Where such exposure is not possible, the pole is treated with MITC-fume, a pesticide that will migrate throughout the pole to prevent rot, decay and insect damage.
- Pole treatment is documented by pole inspection program maps and in electronic data files.

Transmission

GRU has detailed inspection and ground line treatment performed on all wood transmission poles following an eight-year cycle. The inspection and treatment of those poles consists of a sound and bore to locate unseen decay pockets and a full visual inspection. The ground line inspection includes exposing the pole to a depth of eighteen inches below ground line. After inspection, any decay is removed, and preservative paste is applied to prevent future decay. Transmission lines are also treated with MITC-fume to prevent internal decay as well. MITC-fume is a pesticide that migrates throughout a pole to prevent rot, decay and insect damage. Visual inspections also provide information about other items such as damaged hardware, woodpecker holes, cracks, splits and decayed pole tops. GRU replaces all rejected poles within one year of the inspection date. Rejected poles determined to be a "priority" are replaced immediately.

Distribution

GRU performs a detailed inspection and ground line treatment on all wood distribution poles ten years of age or older on an eight-year cycle. The inspection and treatment of these poles consists of sound and bore to locate unseen decay pockets and a full visual inspection. The ground line inspection includes exposing the pole to a depth of eighteen inches below ground line where possible. After inspection, any decay discovered is removed and preservative paste is applied to prevent future decay. Distribution poles that cannot be fully ground line inspected are treated with MITC-fume to prevent internal decay. Visual inspections also provide information on other problems such as damaged hardware, woodpecker holes, cracks, splits and decayed pole tops. GRU replaces all rejected poles within one year of the inspection date. Rejected poles determined to be a "priority" are replaced immediately.

b) Number and percentage of transmission and distribution inspections planned and completed for 2024.

No Transmission Poles were inspected in 2024. Regarding distribution poles, 3,777 poles were inspected with 23 rejects (<1% reject rate). GRU completed 100% of planned work for 2024.

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

Of the 3,777 distribution poles inspected, 23 were identified for replacement (reject rate <1.0%). The replacements were caused by shell rot, mechanical damage, exposed pocket, enclosed pocket, split top, woodpecker holes and decayed tops. The low rate of rejected poles shows the benefits of our constant pole inspection program.

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.**

Transmission Poles

No remediation was needed.

Distribution Poles

Height/Class	# in class	% of total	Remediation
30/5	1	4.35%	Replaced or scheduled for replacement
30/6	11	47.83%	Replaced or scheduled for replacement
30/7	1	4.35%	Replaced or scheduled for replacement
35/5	1	4.35%	Replaced or scheduled for replacement
35/6	3	13.04%	Replaced or scheduled for replacement
40/4	3	13.04%	Replaced or scheduled for replacement
45/4	2	8.70%	Replaced or scheduled for replacement
55/3	1	4.35%	Replaced or scheduled for replacement
Total	23	100%	

5. Vegetation Management

a) **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.**

GRU's Vegetation Management work group establishes and maintains the clearances required to reliably operate approximately 560 miles of overhead distribution lines on a three-year rotating cycle. The work plans each year are defined, scheduled and executed by specific distribution circuits which range in size from approximately two to twenty-five miles in length. The prioritization of these circuits is based upon reliability and visual inspections. The vegetation management program includes maintenance of primary, secondary, and service drops. The utility also utilizes a selective herbicide program to reduce the density of undesirable vegetation as well as a tree growth regulator program to address specific problems. As much as it is possible to identify potentially hazardous trees from beyond the limits of the right-of-way/easement, GRU has a program to work with property owners to remove problem trees as they are identified.

The distribution vegetation maintenance program is based upon nationally recognized standards of tree care and vegetation management practices and adapted to Gainesville's environment and specific operating concerns. These standards and practices include, but are not limited to, the following:

- National Electric Safety Code
- ANSI A300 (Tree care - standard practices)
- ANSI Z133.1 (Tree care - safety practices)
- Shigo - Pruning trees near electrical utility lines
- Shigo - Tree Pruning
- Matheny and Clark - Evaluation of hazardous trees in urban areas

Components of the distribution maintenance program are:

- Routine utility tree pruning
- Selective tree removals based upon hazardous conditions
- Selective use of herbicides
- Selective use of tree growth regulators
- Selective mulching/mowing of ROW/easement floor

Appropriate Planting

GRU advocates "Planting the Right Tree in the Right Place".

GRU maintains several different types of ground level electric facilities, and the two the utility is most concerned with are switchgear and pad-mount transformers. It is imperative that customers do not plant shrubs and small trees directly in front of these facilities. Each facility has a decal that informs the public of the required clearance regarding the planting of trees and landscaping activities.

GRU has also developed a set of tree planting guidelines to be used by developers and engineers to keep trees and landscaping a specified distance away from the utility's

facilities. GRU collaborates with the city, Alachua County, landscape architects and developers to inspect and review development plans to ensure "right tree, right place" and provide a safe and reliable utility system for the future.

The City of Gainesville enjoys an especially dense tree canopy, one that is clearly favored by the community and its citizens. As a neighbor and responsible municipal electric utility, GRU has long acknowledged its obligation to serve its customers in the most effective and least intrusive manner. Consequently, the utility's ratio of underground to overhead electric distribution facilities is among the highest in the State.
GRU's Vegetation Management program was developed over time with a care and control agenda that has been recognized as a model program for electric utilities. GRU records and continually monitors vegetation-related service interruptions. Tree-related outages are recorded in one of three categories:

1) **Tree Preventable** – vegetation to be maintained within our easements
2) **Tree Non-Preventable** – vegetation from outside of our easements
3) **Vines** – The growth rates of vines can be variable and unpredictable. To complicate matters, the conductive tissue of a vine's vascular system can transfer electrical current – and be the primary cause for an outage, service interruptions, or serious injury.

Transmission Program

GRU was the subject of a North American Electric Reliability Council (NERC) performance and readiness audit in April 2006 where GRU's Vegetation Management Program received a Potential Example of Excellence (PEOE).

Their report stated, *"GRU has a well-documented and comprehensive vegetation management policy, program and knowledgeable staff. The GRU vegetation management program and staff oversight is identified as a potential example of excellence for its comprehensive, detailed procedures and performance of the program itself."*

An FRCC Spot Audit was conducted in the latter half of 2009. The results found the vegetation management program was in compliance with all requisite requirements.

b) Quantity, level, and scope of vegetation management planned and completed for transmission and distribution facilities.

GRU's transmission and distribution right-of way maintenance of vegetation is a routine and on-going, year-round program. This is accomplished through the use of a utility approved contractor directed and inspected by GRU's Forestry professionals and Utility management staff.

Transmission System Information

76.2 corridor miles @138 kV
2.5 corridor miles @ 230kV (falls into NERC Standard FAC-003-1)
GRU applies NERC Guideline FAC-003-1 over our entire transmission system.

Transmission Inspections

The program calls for semi-annual inspections (spring and fall) to identify conditions which would pose a near-term threat to the operation of the system such as insect infestations or any other factor that would impact tree mortality or structural integrity. The program also calls for a complete inspection immediately following any significant events such as hurricanes, tornadoes or fires.

Inspections cover 100% of GRU's transmission system and are conducted by Vegetation Management personnel.

Spring 2024 Inspection Summary:

Inspected – 100% of Transmission system.
Results – 25 trees were identified for trimming and 30 for removal.
Follow-up activities – Work orders issued and completed by contract tree crews, post checked by GRU Forester

Fall 2024 Hazard Tree Inspection Summary:

Inspected – 100% of Transmission system.
Results – 10 trees were identified for trimming and 25 for removal. Two large encroachment projects were identified and completed approximately 150 removals on R.O.W. edge at two separate locations.
Follow-up activities – Work orders issued and completed by contract tree crews, post checked by GRU Forester.

Transmission Maintenance

The floor of the transmission system was mowed twice in 2024 to limit accumulation of vegetative debris. Targeted and selective herbicide applications were also used to control those species which could grow to a mature height and interfere with the transmission system conductors. As noted above, the entire transmission system was also inspected twice routinely and three times for hurricane events in 2024 for potential hazard trees and to ensure all parts of the system met, or exceeded minimum vegetation clearances and would remain clear into the future inspection periods.

Distribution Maintenance

GRU maintained its cyclic distribution system maintenance cycle in 2024 and trimmed approximately 180 miles of programed work in accordance with our cyclic trimming program. Additional emphasis is being placed on hazard trees that are located out of our easements and right-of-ways as well as using various herbicides and growth regulators to increase trimming effectiveness.

Summary

GRU's cycle-based line clearance practices embrace the philosophy of storm hardening on critical feeders, double circuits, and three-phase backbone circuits. The utility uses best practices which include targeting dead, diseased or damaged trees, the removal of overhanging branches, and increased tree clearance. Out-of-cycle activities include frequent patrols and year-round monitoring and targeting of danger trees. GRU continuously reviews and improves its vegetation maintenance programs. This effort is realized in part by evaluating and using information presented in forums such as the Public Utility Research Center vegetation maintenance conference which was held January 26-27, 2009. That report was made available to GRU by the FMEA.