

(City Of Tallahassee)
Report to the Florida Public Service Commission Pursuant to
Rule 25-6.0343, F.A.C.
Calendar Year 2019

1) Introduction

a) City of Tallahassee Electric Utility

b) 2602 Jackson Bluff Road, Tallahassee, FL 32304-4408

c) Contact information:

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Or

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Or

Steve Dotson Operations Manager, Electric Power Delivery Office Phone # (850) 891-5070 Fax # (850) 891-5058 Clyde.dotson@talgov.com

2) Number of meters served in calendar year 2019 – 123,646

3) Standards of Construction

A) National Electric Safety Code Compliance

The City of Tallahassee Electric Utility (City) has adopted the National Electric Safety Code as the standard for electric transmission and distribution system design and therefore designs electric transmission and distribution facilities to the latest edition of the National Electric Safety Code. During the calendar year 2019, the City designed new facilities according to the current version of the NESC. All distribution engineering standards, guidelines, policies, practices and procedures are in accordance with this Code. The City uses custom software to check pole loading to determine NESC requirements are met. Examples of the pole loading calculations are shown below.

Wind Load Calculations

(FOR NESC LIGHT LOADING CONDITIONS)

Wood Pole Selection Criteria		Project Name: COT Electric		Project #:		
Drop Down Lists		Project Location: Example 1 - Spec Manual page 21-103				
Select Pole Species	Southern Yellow Pine	Station Number:	Engineer:	Date:	2-28-18	
Select Grade Const.	Grade C	Maximum Allowable Resulting Moment of Wood Pole(s) (Net At Groundline)	Calculated Fibre Stress Imposed On Pole (At Groundline)	Calculated Maximum Windspan That May Be Utilized With This Pole Class and Given Loads	Pass/Fail Evaluation For Pole As Specified	
Select Pole Class	3					
Select Pole Length	60	84,438 (Ft-Lbs)	29743.8 (Ft-Lbs)	598.181 Feet	PASS	
Select Burial Depth	7.0					
Input Back Span	210					
Input Forward Span	210					
Select # Poles in Structure	1					
Conductors & Cable						
Description	Conductor Selection	Number Of Conductors	Conductor Height (Ft)	Calculated Wind Span (Ft)	Calculated Wind Pressure (Lbs)	Calculated Moment (Ft-Lbs)
Primary Conductor Runs:		Select Conductor	Input Num.	Input Hgt.		
	1	4/0 AAAC BARE	3	42	210	567.7
	2	4/0 AAAC BARE	1	34	210	185.9
	3					
	4					
	5					
	6					
	7					
	8					
Secondary Conductor Runs:		Select Conductor	Input Num.	Input Hgt.		
	1					
	2					
	3					
	4					
	5					
	6					
	8					
Telephone Cable Runs:		Select Conductor	Input Num.	Input Hgt.		
	1					
	2					
	3					
	4					
	5					
	6					
	8					
CATV Cable Runs:		Select Conductor	Input Num.	Input Hgt.		
	1					
	2					
	3					
	4					
	5					
	6					
	8					
TRANSFORMERS						
Description	Transformer Selection	Number Of Units	Midpoint Height (Ft)	Calculated Wind Pressure (Lbs)		
Transformers:						
	1					
	2					
	3					
LINE EQUIPMENT						
Description	Equipment Selection	Number Of Units	Midpoint Height (Ft)	Calculated Wind Pressure (Lbs)		
Line Equipment:						
	1					
	2					
	3					
RISERS AND SWITCHES						
Description	Riser/Switch Selection	Number Of Units	Midpoint Height (Ft)	Calculated Wind Pressure (Lbs)		
Risers/Switches:						
	1					
	2					
	3					
	4					
	5					
	6					
	7					

Note: For risers, use top of riser terminations as "midpoint height".

Wind Load Calculations

(FOR NESC LIGHT LOADING CONDITIONS)

Wood Pole Selection Criteria		Project Name: COT Electric		Project #:			
Drop Down Lists		Project Location: Example 2 - Spec Manual page 21-103					
Select Pole Species	Southern Yellow Pine	Station Number:	Engineer:	Date:	2-28-18		
Select Grade Const.	Grade C	Maximum Allowable Resulting Moment of Wood Pole(s) (Net At Groundline)	Calculated Fibre Stress Imposed On Pole (At Groundline)	Calculated Maximum Windspeed That May Be Utilized With This Pole Class and Given Loads	Pass/Fail Evaluation For Pole As Specified		
Select Pole Class	3						
Select Pole Length	45	78,898 (Ft-Lbs)	60674.6 (Ft-Lbs)	356.12 Feet	PASS		
Select Burial Depth	8.5						
Input Back Span	250						
Input Forward Span	210						
Select # Poles in Structure	1						
Conductors & Cable							
Description		Conductor Selection	Number Of Conductors	Conductor Height (Ft)	Calculated Wind Span (Ft)	Calculated Wind Pressure (Lbs)	Calculated Moment (Ft-Lbs)
Primary Conductor Runs:		Select Conductor	Input Num.	Input Hgt.			
	1	668 AAAC BARE	1	37.5	230	333.8	12620.3
	2	668 AAAC BARE	1	34.2	230	333.8	11418.6
	3	668 AAAC BARE	1	30.9	230	333.8	10318.8
	4	668 AAAC BARE	1	21.87	230	333.8	7301.9
	5						
	6						
	7						
	8						
Secondary Conductor Runs:		Select Conductor	Input Num.	Input Hgt.			
	1	1/0 TPX	1	18.36	230	372.1	8828.0
	2						
	3						
	4						
	5						
	6						
	7						
	8						
Telephone Cable Runs:		Select Conductor	Input Num.	Input Hgt.			
	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
CATV Cable Runs:		Select Conductor	Input Num.	Input Hgt.			
	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
TRANSFORMERS							
Description		Transformer Selection	Number Of Units	Midpoint Height (Ft)	Calculated Wind Pressure (Lbs)	Calculated Moment (Ft-Lbs)	
Transformers:							
	1	TRANS: 60 KVA	1	28.3	83.2	2189.0	
	2						
	3						
LINE EQUIPMENT							
Description		Equipment Selection	Number Of Units	Midpoint Height (Ft)	Calculated Wind Pressure (Lbs)	Calculated Moment (Ft-Lbs)	
Line Equipment:							
	1						
	2						
	3						
RISERS AND SWITCHES							
Description		Riser/Switch Selection	Number Of Units	Midpoint Height (Ft)	Calculated Wind Pressure (Lbs)	Calculated Moment (Ft-Lbs)	
Risers/Switches:							
	1						
	2						
	3						
	4						
	5						
	6						
	7						
Note: For risers, use top of riser terminations as "midpoint height".							

b) Extreme Wind Loading Standards

For structures exceeding 60 ft. or more above ground, the City's construction standards, policies, guidelines, practices, and procedures are guided by the extreme wind loading standards as specified in Section 25 of the National Electric Safety Code for 1) new construction 2) major planned work, including expansion, rebuild, or relocation of existing facilities and 3) targeted critical infrastructure facilities and major thoroughfares. For structures, less than 60 ft. above ground, the City's construction standards, policies, guidelines, practices, and procedures are guided by the basic wind loading standards. There have not been any catastrophic events to date to indicate that stronger design considerations are necessary on the City's electric system.

c) Flooding and Storm Surges

The City is not a coastal community subject to flooding and storm surges, these types of standards, practices, guidelines, and procedures do not apply to the City's service territory.

However, the City of Tallahassee Electric Purdom Generation Station in St. Marks, Florida located on the St Marks River near the Gulf of Mexico is subject to storm surge & flooding. A comprehensive plan is in place to address flooding & storm surge within the "Hurricane Preparation Evacuation and Recovery Plan for the Sam O. Purdom Generation Station" This plan is designed to provide the Purdom plant personnel with guidance in preparing for, responding to and recovering from a hurricane and the impacts of wind and flooding that may occur to the plant and its vicinity. This plan shall be reviewed annually by the City for its adequacy. Every five (5) years, this plan shall be updated and submitted to the following agencies for review and comment.

- The Florida Department of Community Affairs • City of St. Marks • Wakulla County Emergency Management Office • Leon County Emergency Management Office • City of Tallahassee Emergency Management Office

The City 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 FPCS with a report of research activities. For further information, contact Amy Zubaly, Executive Director, FMEA, 850-224-3314, ext. 1, or

Azubaly@publicpower.com

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

All newly designed distribution facilities are placed within either distribution easements or are within the right of way limits on a road. The City discontinued the practice of rear lot construction many years ago. No distribution easements are allowed away from easily accessed areas for new construction. To the extent that alternatives exist for replacing other distribution facilities in a safe and efficiently accessed area, the City would consider all possibilities before leaving existing situations in less than desirable locations.

e) Attachments by Others

The Joint-Use agreements between the City and third-party(s) address terms and conditions of pole attachments. Since July 2006, the City has not issued a permit for pole attachment(s) without reviewing both the loading details and clearance details supplied by the joint user. Poles are replaced as the clearances and loading dictates. All loading is reviewed in compliance with the latest edition of the National Electric Safety Code.

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.**

Pole Inspection/Treatment Program – Eight Year cycle

o The City's pole/structure inspection and treatment program was initiated several years ago and has been refined through each inspection cycle. The City's program is defined so that every eight years a new pole inspection and treatment cycle is initiated to inspect all the distribution and transmission wood poles and structures on the City's system over a two to three-year period. During these inspections, visual inspections are made of the City's concrete and/or steel structures with any deficiencies needing attention reported. The inspection/treatment program includes the following: (i) visual inspection for wood poles less than 10 years old (ii) sound and bore inspections for poles greater than 10 years old (iii) internal treatment and fumigant treatment as required (iv) reinforcement/replacement as required (v) assessment and evaluation of poles to determine whether they meet the applicable N.E.S.C. strength standard and (vi) record keeping of data for the GIS database. The City has found this inspection process, used typically throughout the industry, has resulted in high reliability and appropriate maintenance levels at reasonable cost.

- b) Describe the number and percentage of transmission and distribution inspections planned and completed for 2019.

The City performs a climbing and physical inspection of every transmission structure on its system at least every five years. A plan is developed from the inspections to make all the necessary repairs and/or refurbishments during periods of the year when load conditions permit the scheduling of line outages (typically fall and spring periods unless it is an emergency repair). In 2019 a complete inspection of the City’s transmission Poles was implemented and completed. The number of rejected poles in the inspection was a total of 5 which was .0014% of the total poles in the system.

- c) Describe the number and percentage of transmission poles and structures and distribution poles failing inspection in 2019 and the reason for the failure.

Transmission data from pole inspection started in Fiscal Year 2020 as follows.

Wood Transmission Poles			
Size	Count rejected	Reason for rejection	Planned Replacement Date
60/3	1	Woodpecker Damage	2020
65/3	1	Woodpecker Damage	2020
70/1	1	Woodpecker Damage	2020
75/1	3	Woodpecker Damage	2020
90/1	1	Woodpecker Damage	2020

The Restoration/Replacement will be performed in the upcoming year (2020).

No Failures were found on steel or concrete Poles/Structures.

The City will start its Distribution System pole inspection in 2020 and will have Data for this by 2021.

- 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 2019, including a description of the remediation taken.

Wood Distribution Poles Replacements				
Size/Old	Size/New	No.	Percentage Inspected	Remediation Taken
30/5	35/4	5	0.00%	Replace w/larger class
30/6	35/4	1	0.00%	Replace w/larger class
30/7	35/4	3	0.00%	Replace w/larger class
35/4	35/4	91	0.00%	N/A
35/5	35/4	17	0.00%	Replace w/larger class
35/6	35/4	5	0.00%	Replace w/larger class
40/2	40/2	9	0.00%	N/A
40/3	40/3	76	0.00%	N/A
40/4	40/3	12	0.00%	Replace w/larger class
40/5	40/3	2	0.00%	Replace w/larger class
45/1	45/1	5	0.00%	N/A
45/2	45/2	8	0.00%	N/A
45/3	45/3	69	0.00%	N/A
45/4	45/3	3	0.00%	Replace w/larger class
50/2	50/2	39	0.00%	N/A
50/3	50/3	6	0.00%	N/A
50/4	50/3	1	0.00%	N/A
55/2	55/2	13	0.00%	N/A
55/3	55/3	12	0.00%	N/A
60/2	60/2	9	0.00%	N/A
65/2	65/2	1	0.00%	N/A

Wood Transmission Poles replaced after the City's climbing/visual inspections.				
Size/Old	Size/New	No.	Percentage Inspected	Remediation Taken
70/3	75/1	2	0.00%	N/A
75/2	80/2	3	0.00%	N/A

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 rights-of-way or easements, and an explanation as to why the utility believes its vegetation management practices are sufficient.

The City's design standards exceed the National Electric Safety Code requirements for horizontal clearances to all transmission lines. This typically dictates easement widths that provide for larger clear zones from trees and other structures. The transmission system is managed on a three-year trim cycle with target clearance of twenty (20) feet. City Line Clearance and Vegetation Management Program maintains an eighteen-month trimming cycle of all overhead distribution lines targeting six feet of line clearance and the removal of hazard trees pursuant to the City Commission's established guidelines. City's vegetation management program also utilizes directional pruning, and the selective removal of those trees that cannot be maintained in a professional manner. When it is necessary to remove a protected tree for any reason we replace it with a "utility compatible tree". We also regularly remove those dead, diseased, and dying trees that represent the potential for an outage or endanger the public.

- b) Describe the quantity, level, and scope of vegetation management planned and completed for transmission and distribution facilities in 2019.
- Transmission – All 230 KV lines were visually inspected annually for dead, diseased and dying trees as well as any obvious structural problems. All transmission Rights of Way and/or easements were mowed during FY2016 and will be mowed annually for the foreseeable future. Those lines that pass through residential areas will be mowed 3-4 times during the growing season in order to reduce customer complaints regarding "overgrown ROWs". The vegetation along the side of the lines running through rural areas is pruned with the use of a Jaraff mechanical trimmer. We began pruning the transmission lines in January of 2015 and finished in December of 2016. The Jaraff crew skips over locations where the lines pass near or through residential areas because of the appearance of the trees after being mechanically pruned. Those locations are pruned with the use of aerial lifts so that proper pruning cuts can be made leaving a more aesthetically pleasing appearance. However, whether mechanical or by hand, target clearance is twenty feet from conductors. A broad-spectrum granular herbicide is applied to the base of all poles, steel structures, guy wires, and cross fences to eliminate the growth of underbrush and vines around the facilities.

Overhead Distribution Lines Managed in 2019 (1,114.04 miles)

- **The city managed 1,114.04 Miles of overhead Distribution Lines in 2019, vegetation management was performed and completed on twenty nine percent of our system. The city does not have a complete system herbicide management program but does periodic spot spraying and/or mowing in areas deemed necessary as vegetation such as vines, kudzu or other types of fast-growing invasive species need to be controlled in between our regular scheduled trim cycles.**

6. Storm Hardening Research

(City of Tallahassee) 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.1001, or azubaly@publicpower.com.