(City of Tallahassee)
Report to the Florida Public Service Commission Pursuant to
Rule 25-6.0343, F.A.C.
Calendar Year 2020

1) Introduction

a) City of Tallahassee Electric Utility

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

c) Contact information:

Rob McGarrah General Manager – Electric Utility Office Phone # (850) 891-5534 Fax # (850) 891-5162 Rob.McGarrah@talgov.com
Or

Richard Ash Assistant General Manager – Electric Power Delivery Office Phone # (850) 891-5091 Fax # (850) 891-5058 Richard.Ash@talgov.com

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 2020 – 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 2020, 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	
Drop Down Lists	
Select Pole Species	Southern Yellow Pine
Select Grade Const.	Grade C
Select Pole Class	3
Select Pole Length	50
Select Burial Depth	7.0
Input Back Span	210
Input Forward Span	210
Select # Poles in Structure	1

Project Name:	COT Electric	Project #:	
Project Location:	Example 1 - Spec Manual page 21-103		
Station Number:		Engineer:	Date: 2-26-16

Maximum Allowable Resisting 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
84,438 (Ft-Lbs)	29743.6 (Ft-Lbs)	598.181 Feet	PASS

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	667.7		28423.1
	2	4/0 AAAC BARE	1	34	210	186.9		6320.6
	3							
	4							
	5							
	6							
	7							
	8							
Secondary Conductor Runs:		Select Conductor	Input Num.	Input Hgt.				
	1							
	2							
	3							
	4							
	5							
	6							
Telephone Cable Runs:		Select Conductor	Input Num.	Input Hgt.				
	1							
	2							
	3							
	4							
	5							
	6							
CATV Cable Runs:		Select Conductor	Input Num.	Input Hgt.				
	1							
	2							
	3							
	4							
	5							
	6							

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					
Note: For risers, use top of riser termina- tions as "midpoint height".	3					
	4					
	5					
	6					
	7					

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: 2-26-16
Select Grade Const.	Grade C	Maximum Allowable Resisting 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	45				
Select Burial Depth	8.5				
Input Back Span	260	78,886 (Ft-Lbs)	60674.6 (Ft-Lbs)	355.12 Feet	PASS
Input Forward Span	210				
Select # Poles In Structure	1				

Conductors & Cable			Number Of Conductors	Conductor Height (Ft)	Calculated Wind Span (Ft)	Calculated Wind Pressure (Lbs)	Calculated Moment (Ft-Lbs)
Description		Conductor Selection					
Primary Conductor Runs:		Select Conductor	Input Num.	Input Hgt.			
	1	556 AAAC BARE	1	37.5	230	333.9	12520.3
	2	556 AAAC BARE	1	34.2	230	333.9	11418.5
	3	556 AAAC BARE	1	30.9	230	333.9	10316.8
	4	556 AAAC BARE	1	21.87	230	333.9	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	6828.0
	2						
	3						
	4						
	5						
	6						
Telephone Cable Runs:		Select Conductor	Input Num.	Input Hgt.			
	1						
	2						
	3						
	4						
	5						
	6						
CATV Cable Runs:		Select Conductor	Input Num.	Input Hgt.			
	1						
	2						
	3						
	4						
	5						
	6						

TRANSFORMERS			Number Of Units	Midpoint Height (Ft)		Calculated Wind Pressure (Lbs)	
Description		Transformer Selection					
Transformers:							
	1	TRANS: 50 KVA	1	28.3		83.2	2189.0
	2						
	3						

LINE EQUIPMENT			Number Of Units	Midpoint Height (Ft)		Calculated Wind Pressure (Lbs)	
Description		Equipment Selection					
Line Equipment:							
	1						
	2						
	3						

RISERS AND SWITCHES			Number Of Units	Midpoint Height (Ft)		Calculated Wind Pressure (Lbs)	
Description		Riser/Switch Selection					
Risers/Switches							
Note: For risers, use top of riser terminations as "midpoint height".	1						
	2						
	3						
	4						
	5						
	6						
	7						

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.

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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 2020.

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 2020 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 11 which was 0.4% of the total poles in the system.

The City of Tallahassee contractor competed the entire Distribution system pole inspection in 2020 number of rejected poles during the inspection is 1301 which is 2.4% of total poles on the system that will be replaced in 2021/2022.

c) Describe the number and percentage of transmission poles and structures and distribution poles failing inspection in 2020 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	2	Woodpecker Damage	2020
65/3	4	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.

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 2020, including a description of the remediation taken.

Wood Distribution Poles Replacements				
Size/Old	Size/New	No.	Percentage Inspected	Remediation Taken
25/5	35/4	2	100%	Replaced w/ larger class
25/6	35/4	1	100%	Replaced w/ larger class
30/2	35/4	1	100%	Replaced w/ larger class
30/4	35/4	2	100%	Replaced w/ larger class
30/5	35/4	2	100%	Replaced w/ larger class
30/6	35/4	17	100%	Replaced w/ larger class
30/7	35/4	6	100%	Replaces w/ larger class
35/4	35/4	20	100%	N/A
35/5	35/4	34	100%	Replaced w/ larger class
35/5	40/3	13	100%	Replaced w/ larger class
35/4	40/3	8	100%	Replaced w/ larger class
35/4	45/1	1	100%	Replaced w/ larger class
35/4	45/2	17	100%	Replaced w/ larger class
34/4	45/3	3	100%	Replaced w/ larger class
34/5	50/2	2	100%	Replaced w/ larger class
35/6	35/4	4	100%	Replaced w/ larger class
35/6	40/3	20	100%	Replaced w/ larger class
35/6	40/2	1	100%	Replaced w/ larger class
35/6	45/3	1	100%	Replaced w/ larger class
35/6	45/2	1	100%	Replaced w/ larger class
40/3	40/2	11	100%	Replaced w/ larger class
40/2	40/2	0	100%	N/A
40/3	40/3	18	100%	N/A
40/4	40/3	20	100%	Replaced w/ larger class
40/4	40/2	4	100%	Replaced w/ larger class
40/4	45/3	9	100%	Replaced w/ larger class
40/4	45/2	3	100%	Replaced w/ larger class
40/4	50/1	1	100%	Replaced w/ larger class
40/4	50/2	2	100%	Replaced w/ larger class
40/4	55/3	1	100%	Replaced w/ larger class
40/5	40/3	10	100%	Replaced w/ larger class
40/3	45/3	8	100%	Replaced w/ larger class
45/1	45/1	0	100%	N/A
45/2	45/2	1	100%	N/A
45/3	45/3	21	100%	N/A
45/3	45/2	4	100%	Replaced w/larger class
45/4	45/3	1	100%	Replaced w/ larger class
45/3	50/2	2	100%	Replaced w/ larger class
45/3	55/2	1	100%	Replaced w/ larger class
45/3	55/3	2	100%	Replaced w/ larger class
50/1	55/3	1	100%	Replaced w/ larger class
50/2	50/2	5	100%	N/A

50/3	50/3	8	100%	N/A
50/3	50/2	1	100%	Replaced w/ larger class
50/3	55/3	3	100%	Replaced w/ larger class
50/3	60/2	5	100%	Replaced w/ larger class
50/4	50/3	1	100%	N/A
55/2	55/2	1	100%	N/A
55/3	55/3	5	100%	N/A
55/3	60/2	2	100%	Replaced w/ larger class
55/3	65/2	1	100%	Replaced w/ larger class
60/2	60/2	1	100%	N/A
60/3	60/2	1	100%	Replaced w/ larger class
65/2	65/2	1	100%	N/A

Wood Transmission Poles replaced after the City's climbing/visual inspections.				
Size/Old	Size/New	No.	Percentage Inspected	Remediation Taken
65/2	75/1	25	100%	Replaced w/ larger class
75/2	80/2	3	100%	Replaced w/ larger class

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 nine to twelve 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 2020

- **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 FY2020 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 2018 and finished in December of 2020. 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 2020 (1,040.08 miles)

- **The city managed 1,040.08 Miles of overhead Distribution Lines in 2020, vegetation management was performed and completed on twenty seven 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.