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March 1, 2019

E-PORTAL FILING

Mr. Adam Teitzman, Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: **Docket No. 20180148-EI - In re: Review of 2019-2021 storm hardening plan, Florida Public Utilities Company.**

Dear Mr. Teitzman:

Attached for filing on behalf of Florida Public Utilities Company, please find the Company's Petition for Approval of its Updated Storm Hardening Plan, which includes its 2019-2021 Storm Hardening Plan as Exhibit 1, and is filed in accordance with Rule 25-6.0342, Florida Administrative Code.

As always, please don't hesitate to let me know if you have any questions. Thank you for your assistance with this filing.

Kind regards,

Beth Keating
Gunster, Yoakley & Stewart, P.A.
215 South Monroe St., Suite 601
Tallahassee, FL 32301
(850) 521-1706

cc:/ Tom Ballinger

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of 2019-2021 storm hardening plan, Florida Public Utilities Company.	) Docket No. 20180148-EI)) Filed March 1, 2019

PETITION OF FLORIDA PUBLIC UTILITIES COMPANY FOR APPROVAL OF UPDATED STORM HARDENING PLAN

Florida Public Utilities Company ("FPUC" or "Company"), pursuant to Rule 25-6.0342(2), Florida Administrative Code, hereby petitions the Florida Public Service Commission (PSC) to approve the Company's 2019-2021 Storm Hardening Plan. The Commission has approved prior iterations of this Plan by Order No. PSC-2008-0327-FOF-EI, Order No. PSC-2010-0687-PAA-EI, Order No. PSC-2013-0368-PAA-EI, and Order No. PSC-2016-0570-PAA-EI.

In support of this Petition, FPUC states:

1. The Company is an electric utility with its principal office located at:

Florida Public Utilities Company
1750 S 14th Street, Suite 200
Fernandina Beach, FL 32034

2. The name and mailing address of the persons authorized to receive notices are:

Beth Keating
Gunster Law Firm
215 South Monroe St., Suite 601
Tallahassee, FL 32301

Mike Cassel
Florida Public Utilities Company
1750 S 14th Street, Suite 200
Fernandina Beach, FL 32034

Mr. Drane "Buddy" Shelley
Florida Public Utilities Company
1750 S 14th Street, Suite 200
Fernandina Beach, FL 32034

3. Rule 25-6.0342(2), Florida Administrative Code, provides as follows:

> (2) Storm Hardening Plans. Each utility shall, no later than 90 days after the effective date of this rule, file with the Commission for its approval a detailed storm hardening plan. Each utility's plan shall be updated every 3 years, unless the Commission, on its own motion or on petition by a substantially affected person or utility, initiates a proceeding to review and, if appropriate, modify the plans. In a proceeding to approve a utility's plan, the Commission shall consider whether the utility's plan meets the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties.

4. Attached hereto as Exhibit 1, is FPUC's 2019-2021 Storm Hardening Plan, which includes FPUC's updated storm hardening specifications.

5. The Company has ten storm hardening projects planned for the 2019-2021 timeframe with six of those projects to be undertaken in the Company's Northwest Division. One such project that is of critical importance to the Northwest Division is the planned upgrade of a 7.2 mile feeder serving Cottondale, Florida, including such critical loads as the local police station, fire station, the high school and city offices. For the Northeast Division, a key project is the effort to replace the wood poles supporting the 69 KV line that traverses Amelia Island with concrete poles.

6. As the updated Plan reflects, FPUC also continues to make modifications to its hardening strategies in an effort to enhance future storm restoration efforts. Among the key areas of adjustment are the use of drone inspections, along with climbing inspections, to ensure that transmission facilities are inspected at least every 6 years. The Company is also researching new techniques to mitigate damage from storm surge and flooding.

7. FPUC's updated Storm Hardening Plan will be provided to third-party attachers and joint users. The Company will request that responsive comments, if any, be provided

by April 10, 2019. Consistent with Rule 25-6.0342(6), Florida Administrative Code, the Company will endeavor in good faith to address any concerns raised by attachers.

8. FPUC's updated 2019-2021 Plan is consistent with the Commission's Rule and will further enable the Company to continue implementing significant storm resilience benefits in a cost-effective manner.

WHEREFORE, Florida Public Utilities Company hereby respectfully asks that the Commission determine that FPUC's 2019-2021 Storm Hardening Plan complies with Rule 25-6.0342, Florida Administrative Code.

Respectfully submitted this 1st day of March, 2019, by:

Beth Keating
Gunster, Yoakley & Stewart, P.A.
215 South Monroe St., Suite 601
Tallahassee, FL 32301

Attorneys for Florida Public Utilities Company

EXHIBIT 1

STORM HARDENING PLAN
OF
FLORIDA PUBLIC UTILITIES COMPANY

Florida Public Utilities Company

Storm Hardening Plan 2019 - 2021

Rule 25-6.0342 F.A.C.

March 1, 2019

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FLORIDA PUBLIC UTILITIES COMPANY

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INTRODUCTION

This filing is to fulfill the Requirement for Investor Owned Electric Utilities to File Ongoing Storm Hardening Plans and Implementation Cost Estimates as set forth in Rule 25-6.0342(2), Florida Administrative Code, FPSC Order PSC-07-0043A-FOF-EU, and Order No. PSC-08-0327-FOF-EI.

1.0 Wood Pole Inspection Plan

In 2008, Florida Public Utilities Company (FPUC) implemented an eight year inspection cycle program for all wooden transmission and distribution poles. The current edition of the National Electric Safety Code (NESC) is used as the basis for pole inspections. The results of these inspections are reported to the FPSC in the FPUC annual distribution reliability report.

FPUC performs inspections of all wooden transmission and distribution poles in accordance with the predetermined cycles. Cycles have been established, for each FPUC division, based on a logical and efficient method for inspecting poles. The cycles may fluctuate year to year based on unforeseen factors but FPUC will ensure that all poles are inspected at least once every eight years.

FPUC visual inspects, sound and selectively bores (if internal decay is suspected) all CCA poles less than 21 years of age. Unless a pole fails sound and bore, a full excavation is not to be performed. Since random sampling has produced no results indicating a need to continue, FPUC has canceled the random sampling criteria for all future inspections or until circumstances arise that indicates random sampling should be reinstated.

Inspection Process

The typical inspection consists of a visual inspection to determine if any defects are found that would require that the pole be replaced. Should this inspection indicate that the pole is not suited for continued use, it will be rejected and the appropriate corrective action (replacement, bracing, etc.) will be planned.

If the pole is found acceptable on the visual inspection, except certain CCA poles previously discussed, the pole will be sound and bored to determine the internal condition of the pole. Should this test indicate that the pole is not suited for continued use, it will be rejected and the appropriate corrective action (replacement, bracing, etc.) will be planned.

If the pole is found acceptable in the sound and bore test, all poles, except certain CCA poles previously discussed, will be excavated and tested. If this test indicates the pole is suitable

for continued service, the pole will be treated and backfilled. Should this test indicate that the pole is not suited for continued use, it will be rejected and the appropriate corrective action (replacement, bracing, etc) will be planned. Methods are available from Contractors that will allow below ground inspection of poles in concrete or asphalt areas. These methods will be utilized to inspect in accordance with procedures above.

FPUC will perform both strength and loading assessments on each pole inspected should the above mentioned test indicate that the pole is suitable for continued use.

Strength and Loading Assessment

The Strength Assessment will compare the current measured circumference to the original circumference of the pole. The effective circumference of the pole will be determined to ensure that the current condition of the pole meets the requirements in Table 261-1A of the NESC. Should this test indicate that the pole is not suited for continued use, it will be rejected and the appropriate corrective action (replacement, bracing, etc.) will be planned.

The Loading Assessment will consider actual attachments on the pole. In performing this test, field measurements, span lengths, attachment heights, wire sizes and other attachments (including 3rd party attachments) will be analyzed in order to determine if current FPUC specifications are met and if this application meets NESC requirements. Should this test indicate that the pole is not suited for continued use, it will be rejected and the appropriate corrective action (replacement, bracing, etc.) will be planned.

Should poles be encountered that are of the same size, condition and construction, sampling will be conducted in order to ensure the strength and loading characteristics are sufficient.

FPUC will collect all relevant information on the pole inspections on an annual basis for all FPUC owned poles. Information will be maintained in a spreadsheet format by location, pole size, pole class, test results, etc. and be in such a form that summary information can be developed. Poles owned by other companies will be inspected in accordance with their specific procedures and FPUC will cooperate with any work caused by pole replacements. FPUC will work closely with 3rd party owners to share information on all poles in order to ensure work is completed in a timely manner.

In order to ensure the integrity of the pole inspection procedure, the contractor will be required to perform quality control assessments of work in order to ensure pole inspection requirements are being met and provide documentation that this has occurred.

FPUC will submit a summary report, as required, to the Florida Public Service Commission by March 1 of each year outlining results of the previous year's inspection. The summary will include type of inspection, poles inspected, pole data, poles rejected, reasons for rejection, and poles replaced or braced. This information will be analyzed on a continuing basis to determine trends associated with pole replacements in order to improve the overall inspection program.

The estimated cost to perform pole inspections will be approximately $135,000 per year. It is estimated that 3800 poles will be inspected each year. Since we are inthe the second pole inspection cycle, we anticipate the pole failure rate to be 5% or less. Therefore, approximately 190 poles will require replacement. The associated cost to replace decayed poles will be approximately $295,000 per year.

2.0 Ten Part Storm Preparedness Plan

2.1 Vegetation Management

FPUC is currently working towards the accomplishment of a three year vegetation management cycle on main feeders which began in June 2014. The plan also includes a six year vegetation management cycle on laterals on the system.

The program will include the following:

1. Three year vegetation management cycle on all main feeders.
2. Six year vegetation management cycle on all laterals.
3. Increased participation with local governments to address vegetation management and alternatives in order to improve overall reliability due to tree related outages.
4. Information will be made available to customers regarding the maintenance and placement of trees.
5. Annual inspection of main feeders to critical infrastructure prior to the storm season to identify and perform necessary trimming.
6. Address danger trees located outside the normal trim zone and located near main feeders as reported.

Based on FPU's 2014 GIS information, as shown below, the total system to be maintained in the vegetation management program involves 710.5 miles of distribution lines and 19.47 miles of transmission lines. The distribution lines are made up of 139.63 miles of main feeders and 570.87 miles of laterals. For purposes of managing the program, the above figures will be kept constant for a full 6 year vegetation cycle as our feeders and laterals will have insignificant length additions during that timeframe. After completing an entire 6 year vegetation management cycle, FPU will query again the GIS system to obtain updated figures. These figures will then be used as the basis for managing the next 6 year vegetation cycle. This approach will allow FPU to properly monitor and report annual progress to ensure the program meets the objectives outlined.

FPU Vegetation Management Program - 2014 to 2019 (3 Year Feeder and 6 Year Lateral Cycles)		
	Total Miles (Baseline 2014*)	
	Feeders	**Laterals**
NE Division **	53.21	64.81
NW Division	105.89	506.06
Total FPU	**159.1**	**570.87**

* Data obtained from GIS systems

** Includes 19.47 miles of transmission lines

2.2 Joint-Use Pole Attachment Audit

FPUC currently has joint use agreements with multiple telecommunication and cable television providers. In 2016, an audit was initiated with all joint use attachers in order to identify the total number of attachments and identify any existing violations. GIS mapping information was used as a basis for conducting the audits.

FPUC currently has identified a total of 7,101 telecommunication attachments and 12,568 cable television attachments within the distribution system. FPUC is also attached to 513 other company's poles.

During the inspection process, the following data was collected for use in analyzing the integrity of joint use poles. The assessments was conducted in the pole inspection program described above.

1. Pole Location (GPS information from mapping system)
2. Owner of the pole
3. City/County location
4. Pole type
5. Pole height
6. Pole class
7. Pole treatment
8. Date manufactured
9. Date Inspected (if known)
10. Date retreated (if known)
11. Joint use attachers (company name)
12. Type of joint use attachment
13. Violations
14. Miscellaneous Comments

The information collected in the audit was compiled and handled in accordance with the specific joint use agreement for that attachment. Any dangerous conditions identified that could result in a failure of the pole will be addressed immediately. The cost to manage the joint use audit was approximately $90,000. The joint use audit was conducted in accordance with the contracts for the third party attachers.

2.3 Inspection Cycle of Transmission Structures

Transmission inspections were completed on all transmission facilities and included a detailed onspection of the 138 KV and 69 KV transmission lines in December 2018. FPUC will ensure that all structures have a detailed inspection performed at a minimum of every six years. The inspection will include fifty (50) 138 KV structures and two hundred seventeen (217) 69 KV structures. Total cost to perform a complete inspection on all structures was approximately $60,000.

Transmission substation equipment will also be inspected annually to document the integrity of the facility and identify any deficiencies that require action.

The inspections will ensure that all transmission towers and other transmission line supporting equipment such as insulators, guying, grounding, conductor splicing, cross-braces, cross-arms, bolts, etc. are structurally sound and firmly attached. Similarly, all transmission substations will be inspected to ensure that all structures, buss work, insulators, grounding, bracing, bolts, etc. are structurally sound and firmly attached.

Each inspection will be fully documented in order to provide information in accordance with FPSC guidelines and will reported annually.

2.4 Storm Hardening Activities for Transmission Structures.

FPUC's existing 138 KV system is constructed using concrete and steel structures and generally comply with the new storm hardening requirements. This system will continue to be inspected as outlined above to ensure the integrity of the system. The six year transmission inspection was completed in December, 2018 by a Contractor. The results were submitted in January, 2019 and FPU will address any structure or material failures as soon as practical.

FPUC's 69 KV system consist of a total of 217 poles of which 105 are concrete. All installations met the NESC code requirements at the time of construction. A policy of replacing all existing wood poles with concrete has been in place for some time. This policy requires that when it becomes necessary to replace a wood pole due to construction requirements or concerns with the integrity of the pole, a concrete pole meeting the current NESC requirements will be utilized. Therefore, FPUC will continue to storm harden several 69 KV transmission structures each year until complete.

2.5 Geographic Information System (GIS)

FPUC has implemented a GIS mapping system in both divisions which has been operational since January 2008. The GIS identifies the distribution and transmission facilities overlaid on a land base map which allows the ability to record data on all physical assets. The system also communicates with the Customer Information System and provides information to the Outage Management System that allows collection of data used in determining reliability.

The GIS is used as an integral part of the data collection in many of the programs mentioned in this document. This system will also collect information regarding joint use attachments which will provide additional information in conducting the joint use audit.

2.6 Post-Storm Data Collection and Forensic Analysis

FPUC has a forensics oversight team to coordinate communications, schedule data collection activities, and final reporting requirements. Our plans are to utilize a Contractor to collect, analyze, and report on field data collected which will be entered into the FPUC Outage Management System (OMS). FPUC will utilize the Contractor's standard reporting forms for submitting forensic data to the FPSC.

The following is a copy of the FPUC "FORENSIC DATA COLLECTION AND REPORTING" procedure:

FORENSIC DATA COLLECTION AND REPORTING

PURPOSE:

To set standards and responsibilities for the collection, assessment, and reporting of storm related damage to FPUC transmission, substation, and distribution structures and equipment. To accomplish these tasks in an orderly manner, safely, and with a minimum of interference with the process of system restoration following a storm.

PROCESS:

A minimum of 72 hours prior to the storm; FPU will initiate the forensic process by alerting team members both in-house and external of the impending event. All contact information will be verified for accuracy and all equipment will be checked to make sure it is in good working order.

48 hours prior to the storm; begin the process of accessing where the storm is most likely to strike and determine the best locations for forensic teams. Inform team members of more specific information as it becomes available.

24 hours prior to the storm; notify all team members of actual crew personnel, mobilization plan, safety procedures, and reporting instructions.

After the storm; perform a forensic investigation at each location encountered that meets reportable criteria. Damage locations to include but not limited to poles, wires, crossarms, insulators, transformers, reclosers, capacitor banks, cutouts, any other equipment that is damaged or has caused a customer outage.

Damage areas will be determined and teams dispatched utilizing FPU's outage management system, reports from customers, and reports from restoration crews.

RESPONSIBILITIES:

An FPUC Forensic Team Leader will be assigned and will be responsible for managing the overall forensic effort. This will include tracking storm progress, coordinating team deployment, communication with local Operations Centers, review findings, and generating final reports.

Florida Public Utilities Company will utilize Consultants,or Southeastern Electric Exchange (SEE) Member Teams to provide forensic investigative teams that will be responsible for safely collecting information on storm damage. Damaged facilities are defined as broken poles, leaning poles, broken or downed wires, damaged line equipment, and any other incident that has caused a customer outage.

REPORTING:

All post storm forensic data collected will be entered in Standard forms. The form allows both overhead and underground damage to be entered and data must

be entered separately for each incident. Pictures of damages from multiple views will be taken and included for clarity and additional assessment. The form utilized for the data collection is shown below.

FPU Post-Storm Forensics Data Collection Sheet

Date of Data Gathering _____

Storm Information

A. Storm Name _____

B. Wind Information
   1 predominant direction _____
   2 intensity _____
   3 tornadoes (Y/N) _____

C. Rain
   1 Amount (inches) _____
   2 Duration (hours) _____

D. Storm
   1 Speed (mph) _____
   2 Wind field _____

Location Information

A. Geographic Location of Observation (GIS) / Equipment ID # _____
B. Soil Type _____
C. Surface Grade _____
D. Topology (ditch, hill, etc.) _____
E. Flood zone? (Y/N) _____
F. Exposure level (coastal, suburban, inner city, urban, rural) _____
G. Attach pictures, video? (Y/N) _____
H. Debris in area (describe) _____
I. Tree Density (light, medium, heavy) _____

Overhead Facilities Information

A. What was the object that failed? (check all that apply)
   1 Cross arm? _____
   2 Pole? _____
   3 Span/line? _____

B. Observed cause of failure (check one)
   1 Debris _____
   2 Tree _____
   3 Wind only _____
   4 Cascade _____

C. Pole Information

1 Attributes

a. Is the pole a primary feeder? Lateral? (check one)
   1) Primary Feeder _____
   2) Lateral _____

b. Types of trusses (describe) _____

c. Owner (name) _____

d. Contruction Type of pole (check one)
   1) Tangent _____
   2) Angle _____
   3) Right angle _____
   4) Dead end _____

2 Pre-wind condition

- a. Wind grade
- b. Class
- c. Height (feet)
- d. Birth Year
- e. Type of pole (CCA, Penta, Creasote)
- f. Span length (approximate, in feet)
- g. Decay or deterioration? (Y/N)
  - 1) Circumference at decay (inches)
- h. Last inspected
  - 1) Year
  - 2) Receive treatment? (butt wrap, chemical, unknown)
- i. Braced? (Y/N)
- j. Guyed? (Y/N)

3 Break? (Y/N)

- a. Height measurement at break (check one)
  - 1) Lower 1/3
  - 2) Middle 1/3
  - 3) Upper 1/3
- b. Circumference at break (inches)
- c. Break at foreign attachments? (Y/N)
- d. Break at own attachments? (Y/N)
- e. Direction of break

4 Is pole leaning? (Y/N)

- a. Direction
- b. Angle from vertical

5 Own conductors

- a. Number primary
- b. Number secondary
- c. Horizontal or vertical (H/V)

6 Attached equipment

- a. Transformer (Y/N)
- b. Arrestor (Y/N)
- c. Cap bank (Y/N)
- d. Disconnect (Y/N)
- e. Re-closer (Y/N)
- f. Fuse (Y/N)
- g. Regulator (Y/N)
- h. Other (describe)

7 Per third party attachment

- a. Owner (name)
- b. Type (coax, telephone, fiber, antenna)
- c. Number of cables
- d. Size (diameter in inches)
- e. Location on pole (height in feet)
- f. Guiding (Y/N)
- g. Authorized or unauthorized?
- h. Over-lashed? (Y/N)

8 Cascade

- a. Is this an endpoint? (Y/N)
- b. What started cascade? (describe)
- c. What stopped cascade? (describe)
- d. Direction of lean/down?
- e. Type of guiding (describe)

9 What wasn't damaged? (describe)

Underground Facilities Information

A. What was the object that failed?

1 Equipment (check one)
- a. Transformer
- b. Switchgear
- c. Load break cabinet
- d. Capacitor bank
- e. Other (please describe)

2 Enclosure type (check one)
- a. Stainless steel
- b. Aluminun
- c. Mild steel
- d. Other (please describe)

3 Conduit? (Y/N)

4 Direct buried cable? (Y/N)

5 Underground vault? (Y/N)

B. Attributes of facilities

1 Type (check one)
- a. Feeder
- b. Lateral

2 Anchoring equipment
- a. Type of pad (describe)
- b. Type of attachment to pad (describe)

3 Age of facilities (years)

4 Pre-storm condition
- a. Date of last inspection (year)
  - 1) Receive treatment? (describe)
- b. Cable depth relative to surrounding area (feet)
- c. Hardened? (Y/N)
- d. Installer (name)

C. Observed cause of failure? (Y/N)

1 Source of water (check all that apply)
- a. Storm surge
- b. Flood water

2 Type of water (check one)
- a. Fresh water
- b. Salt water

3 Tree uprooting? (Y/N)

2.7 Outage Data for Overhead and Underground Systems

FPUC will continue to collect outage data for overhead and underground systems in order to evaluate the reliability associated with the two systems.

2.8 Coordination with Local Governments

FPUC actively participates with local governments in pre-planning for emergency situations and in coordinating activities during emergency situations. Current practice is to have FPUC personnel located at the county EOC's on a 24 hour basis and at the State EOC as needed during such emergencies in order to ensure good communications. .

FPUC has continued involvement with local governments regarding reliability issues with emphasis on both undergrounding and vegetation management. All parties have continued to cooperate in order to address vegetation management issues in a cost effective manner when possible so that overall reliability impacts are minimized.

FPUC has a dedicated Manager of Government Relations in the Northeast service territory that is responsible for maintaining relationships with local and state govement officials/staff, business and community leaders. This employee responds quickly to customer issues referred by elected and governmental officials and their representatives.

2.9 Collaborative Research

FPUC is currently participating with The Public Utility Research Center (PURC) as well as other investor owned, cooperative and municipal electric utilities in order to perform beneficial research regarding hurricane winds and storm surge within the state. PURC has demonstrated the ability to lead and coordinate multiple groups in the research activity. Therefore, FPUC will continue to support this effort but does not intend to conduct other types of research at this time.

The benefits of the research work among the utilities and PURC include increased and sustained collaboration and discussion among the members of the Steering Committee, greater knowledge of the determinants of damage during storm and non-storm times, greater knowledge and data from wind collection stations and post-hurricane forensics in the State of Florida, and continued state-to-state collaboration with others in the Atlantic Basin Hurricane Zone.

2.10 Disaster Preparedness and Recovery Plans

The primary objective of the Disaster Preparedness and Recovery Plan is to provide guidelines under which Florida Public Utilities Company will operate in emergency conditions. This information is contained within our Emergency Procedures that are updated on an annual basis. The following objectives are included to ensure orderly and efficient service restoration.

1. The safety of employees, contractors and the general public will have the highest priority.
2. Early damage assessment is required in order to develop manpower requirements.
3. Request additional manpower as soon as conditions and information indicate the need.
4. Provide for orderly restoration activities in order to provide efficient and rapid restoration.
5. Provide all logistical needs for employees and contractors.
6. Provide ongoing preparation of our employees, buildings, equipment and support function in advance of an emergency.
7. Provide support and additional resources for employees and their families should they need assistance to address injury or damage as a result of the emergency situation.

FPUC will utilize the plan to prepare for storms annually and will ensure all employees are aware of their responsibilities should the need arise. Based on the location of the storm, the division office in that area will be designated as the operations center and all restoration and logistical

activities will be coordinated from that location. Restoration activities will be handled in the following manner:

1. During the early stages of the emergency, restoration will be handled in the usual manner. All service will be restored as soon as possible.
2. As the storm intensifies and trouble reaches major proportions, the main restoration activities will be limited to keeping main feeders energized by clearing trouble without making repairs.
3. When the intensity of the storm is such that work can no longer be done safely, all work will cease and personnel will report to the office or other safe locations.
4. When the storm has subsided to a reasonable level and it is safe to begin restoration activities damage assessment and restoration of main feeders to critical customers will begin.
5. Restoration activities will continue in an effort to restore service in the following manner:
    a) Substations
    b) Main feeders to critical customers
    c) Other main feeders
    d) Undamaged primary
    e) Damaged primary, secondary, service, street lights, security lights

These guidelines are not intended to prevent responding to emergency situations. Any life threatening emergency will be handled immediately, in such a manner as to not endanger the lives of others.

Communication efforts with local governments, County and State EOC's and the media will be a key in ensuring a safe and efficient restoration effort. Key personnel will be designated as the media liaison and will ensure that communications regarding the status of the restoration activities are available on a scheduled basis.

3.0 Compliance with NESC Overhead Requirements

3.1 Distribution

FPUC distribution facilities have been installed in accordance with NESC requirements in effect at the time of installation. Specifications have been developed that will allow for all future installations to meet NESC extreme wind loading standards.

3.2 Transmission

FPUC transmission facilities have been installed in accordance with NESC requirements in effect at the time of installation. This plan includes a provision that all remaining wood transmission poles will be replaced with concrete poles that will meet or exceed the NESC extreme wind loading standards. This requires that when it becomes necessary to replace a wood pole due to construction requirements or concerns with the integrity of the pole, a concrete pole meeting the current NESC requirements will be utilized.

3.3 Substation

FPUC substation facilities have been installed in accordance with NESC requirements in effect at the time of installation. Work has been completed around certain substations that will reduce the possibility of wind blown debris impacting the substation facilities. Any new structures and equipment installed in substations will be designed to extreme wind loading requirements. Efforts will continue to address these situations as practical.

3.4 Extreme Wind Loading for Distribution Facilities

As required by commission order, FPUC has incorporated extreme wind loading as specified in rule 250C and in Figure 250-2(d) of the 2017 NESC code. These standards will be used when new construction and major planned projects are designed.

The primary focus for determining which feeders are storm hardened are distribution facilities along major highways and providing service to critical infrastructure such as hospitals, storm shelters, water plants, sewer treatment plants, etc..

The following is a list of projects planned for the 2019 -2021 time period.

2019	Division	Critical Load	Feeder	Miles	Estimated Cost
	NW	Kelson Ave.	9992	0.3	$250,000
	Feeds Health Facilities and Wastewater Lift Stations				
	NW	Wastewater Plant	9992	0.1	$210,000
	Critical Water Treatment Plant in Marianna				
	NE	South Fletcher Ph. 2	215	1.1	$750,000
	Distribution line on Amelia Island along a highly populated area immediately adjacent to the Atlantic Ocean that experiences salt spray which causes corrosion on line hardware				
	NE	69 KV Rp Poles	Various	N/A	$500,000
	Wood to Concrete pole replacement				

2020	Division	Critical Load	Feeder	Miles	Estimated Cost
	NW	Industrial Park BU	9982	1.5	$200,000
	Backup feed to critical loads including new school (storm shelter), airport, Health department and fire station in Marianna				
	NW	Cottondale	9866	7.2	$840,000
	Serves critical loads including police station, city offices, high school and fire station in Cottondale				
	NE	69 KV Rp Poles	Various	N/A	$200,000
	Wood to Concrete pole replacement				

2021	Division	Critical Load	Feeder	Miles	Estimated Cost
	NW	Hospital	9872	0.8	$200,000
	Backup feeder for Jackson Hospital in Marianna				
	NW	Baptist Hospital	312	1.0	$215,000
	Storm harden backup feeder to Baptist Hospital in Fernandina Beach				
	NE	69 KV Rp Poles	Various	N/A	$200,000
	Wood to Concrete pole replacement				

4.0 Mitigation of Damage Due to Storm Surge and Flooding

Transmission facilities are located only in the Northeast Florida Division. The transmission lines are constructed near and across coastal waterways and were originally designed to meet NESC requirements for these applications. Where necessary, foundations and casings were used to stabilize the structures due to soil conditions.

Overhead distribution lines in both divisions could be subject to storm surges and flooding. Lines located near the coast or inland rivers that are subject to storm surges or flooding will be evaluated and additional supporting mechanisms placed on them if needed and practical. This may include storm guys or pole bracing where necessary. The storms guys or bracing will be placed so that additional support is achieved perpendicular the distribution line. Should the affected lines include reclosers, capacitors or regulators that require electronic controls, the controls shall be mounted above maximum surge or flood levels.

Underground distribution lines that could be subject to storm surges and flooding are mainly located in the Northeast Florida Division. Based upon the significant amount of underground infrastructure in place, it is impractical to make a significant impact on what is installed. Current specifications include the use of pads that are placed approximately two feet into the ground that provide additional stability to the installation. Equipment can then be securely attached to the pad. At this time, underground distribution lines are placed in conduit but are not typically encased in concrete. Future installations of underground distribution feeders will be evaluated based on the location. Should a possibility exist that storm surges may impact these facilities, the installation will be evaluated and may be encased in concrete ducts if necessary.

5.0 Placement of New and Replacement Facilities

FPUC agrees to having facilities located in areas that are easily accessible and pursuant to Rule 25-6.0341, F.A.C. Facilities will be placed along public rights of way or located on private easements that are readily accessible from public streets. These requirements are necessary in order to efficiently and safely perform all necessary installation and maintenance on those facilities. Placement of facilities along rear lot lines will be avoided and will be constructed only as a "last resort".

6.0 Deployment Strategy

6.1 Description of Facilities Affected

During the deployment of storm hardening strategy, many changes were instituted that have an impact on future storm restoration activities.

The significant areas of implementation are as follows:

1. Wood poles are inspected so that all poles are inspected at least every eight years.
2. Vegetation management activities are scheduled in order to trim main feeders every three years, laterals every six years.
3. Joint use audits have been conducted in an effort to identify pole loading issues. These audits will be conducted once every five years. Additional detailed inspection of pole loading will be completed in conjunction with this audit.
4. Detailed climbing/drone inspections on all transmission facilities will be conducted so all poles are inspected at least once every six years.
5. The company continues to replace wood transmission structures with concrete based on inspection results or business needs.
6. A plan has been developed to begin rebuilding distribution lines to critical infrastructure incorporating extreme wind loading criteria into the design of these systems. The projects currently budgeted are listed in section 3.4 of this document.
7. Consideration will be given to techniques that will mitigate damage for storm surges and floods.
8. FPUC will continue the current practice of attempting to place facilities on public rights of way and will ensure private easements are secured if this is not possible.

6.2 Communities and Areas Affected by Electric Infrastructure Improvements

The majority of the items listed in 6.1, Description of Facilities Affected, will affect all areas of the FPUC service territory. The transmission line inspections and transmission pole replacements will only affect the Northeast Florida Division since there are no company owned transmission facilities in the Northwest Florida Division. The distribution line rebuilding to comply with the NESC extreme wind loading standards will equally benefit both divisions.

6.3 Upgrading of Joint Use Facilities

FPUC plans to upgrade joint use facilities to comply with audit results. FPUC plans to upgrade many facilities to critical infrastructure within the 2019 – 2021 time period. Therefore, it is anticipated that a significant portion of the poles upgraded will have one or more joint use attachments. These projects are listed in section 3.4 of this document.

During the design phase of these projects, extreme wind loading, as specified in NESC rule 250C and figure 250-2(d), will be applied to all poles to be installed and will include all joint use attachments. Current contract language for the joint use attachers involved will be used as a guide for this rebuilding process.

6.4 Estimated Cost and Benefits

Below are shown the items and the associated budgeted costs for the 2019 – 2021 time period. Each item has a positive impact on our reliability and restoration time after storms. We have not had sufficient outage data available at this time along with storm damage assements to perform a meaningful cost benefit analysis until recently. We intend to begin the analysis of our data and have some useful results during the 2019 to 2021 period.

Item	Description	2019	2020	2021	Comments
1.0	Pole Inspections	$130,000	$135,000	$140,000	3800 poles/year
2.1	Vegetation Management	$1,062,686	$1,094,567	$1,127,404	
2.2	Joint Use Audits	$0	$0	$0	No Audits Scheduled
2.3	Transmission Inspections	$17,000	$17,000	$17,000	
2.4	Trans. Storm Hardening	$700,000	$730,000	$140,000	2018 Inspection
2.5	GIS	$40,000	$40,000	$40,000	
2.6	Post Storm Forensics	TBD	TBD	TBD	Dependant on Storm
2.7	OH/UG Data	N/A	N/A	N/A	No Incremental Cost
2.8	Coordination Local Govt.	$0	$0	$0	
2.9	Collaborative Research	$1,000	$1,000	$1,000	
2.10	Disaster Preparedness	N/A	N/A	N/A	No Incremental Cost
3.4	Extreme Wind Loading	$300,000	$300,000	$300,000	Distribution Upgrade

7.0 Joint Use Impacts

7.1 Wood Pole Inspections

During the wood pole inspection process, FPUC will inspect company owned poles in accordance with this plan while all third party poles should be inspected by the owner of their poles. The wood pole inspection process will evaluate the structural soundness of existing poles and perform strength and load test. Documentation will be developed on poles that do not meet the current requirements and corrective actions scheduled.

It is anticipated that up to approximately 100 joint use poles will be identified for replacement annually. Although it is possible to consider additional bracing for certain poles; however, FPUC has elected to replace all poles failing inspection. As this occurs, the current contacts with the joint use parties will be utilized to develop the procedures for the replacement and transfer of necessary attachments.

7.2 Joint Use Audits

A Joint use audit was completed in 2016. All joint users were included in order to determine attachment amounts and to identify possible loading issues that need to be addressed. We encourage all parties be available for participation in the audit in accordance with the joint use agreements.

7.3 Attachment Standards and Procedures

FPUC currently has contracts with each third party attacher. These contracts have been renegotiated and continue to govern attachment standards and procedures. If and when additional specifications are developed, third party attachers will have the ability to provide input into the new specifications. Attached to this document are the current Joint Use Attachment Specifications. Please see file labled "Appendix A - Joint Use Specifications.pdf".

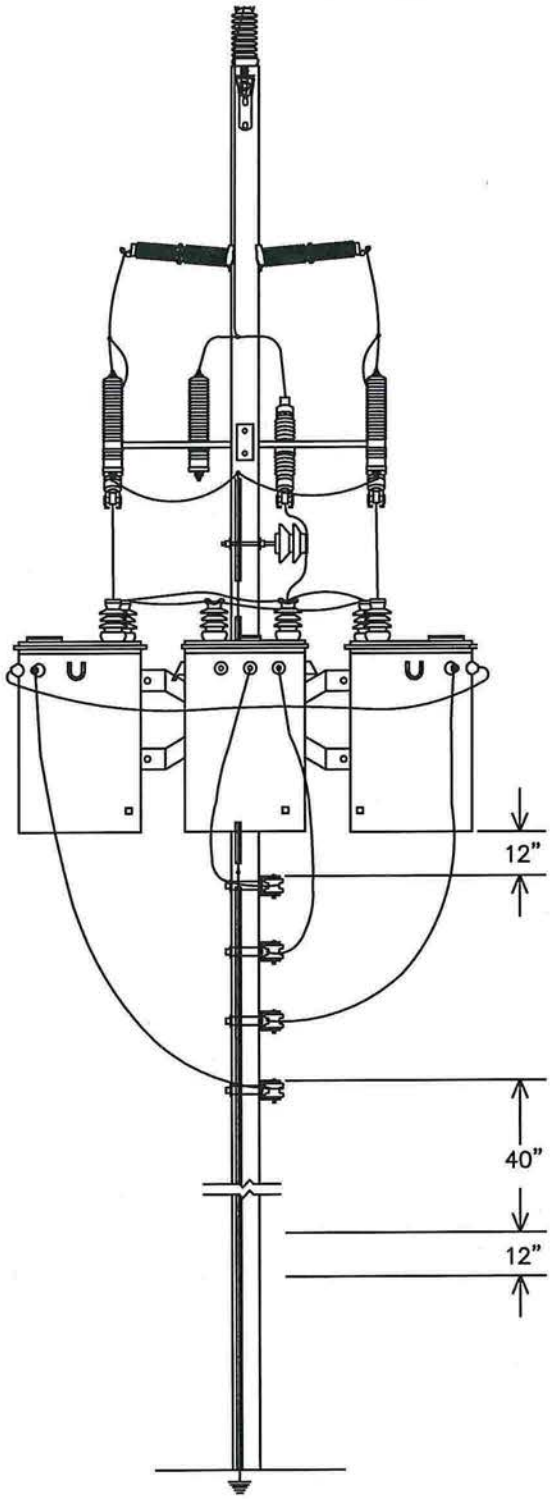
7.4 Soliciting Input from Third Party Attachers

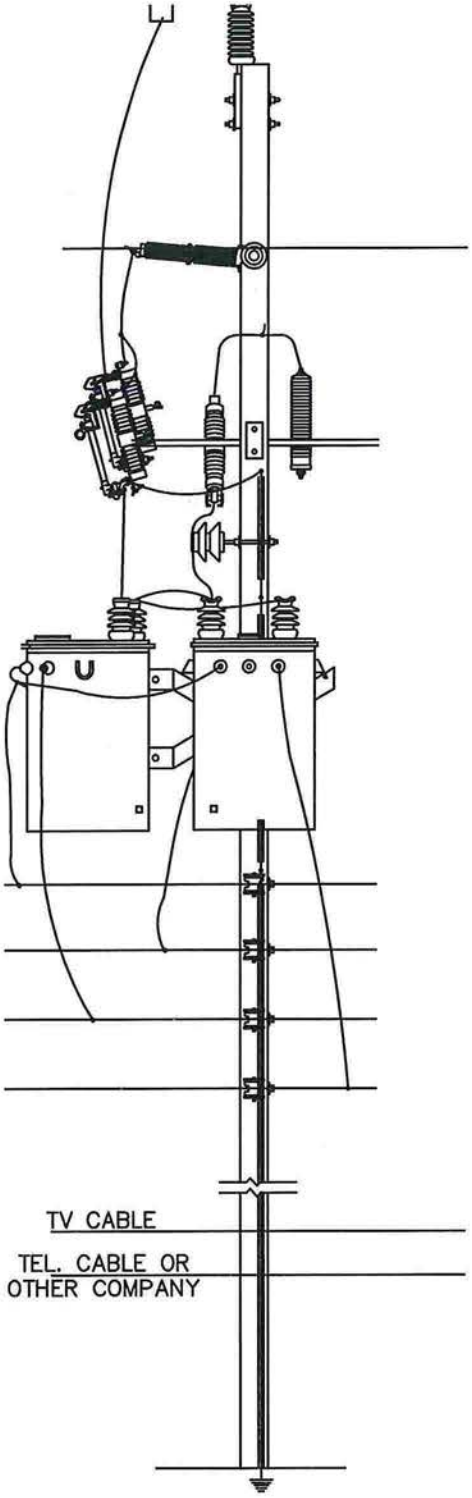
We will be sharing this updated plan to all third party attachers after this filing with the Commission. The following is the list of the attachers that will be notified:

- Florida Cable Telecommunications Association (FCTA)
- Spectra Networks
- Comcast
- Bellsouth / AT&T
- Century Link
- Fairpoint Communications
- Southern Light
- Crown Castle

7.5 Estimate of Costs and Benefits from Third Party Attachers

Consistent with Rule 25-6.0342(6), Florida Administrative Code, FPUC will be providing third-party attachers on its electric poles the opportunity to review the updated Storm Hardening Plan and identify any concerns they may have. FPUC plans to send the 2019-2021 Storm Hardening Plan to its third-party attachers on March 6, 2019. FPUC will request that third-party attachers identify any concerns they may have by April 10, 2019. FPUC will also request that the attachers provide to FPUC by that same date, in accordance with Rule 25-6.0342 (4)(e), information regarding the estimated costs and benefits associated with the updates to the Plan, which will be promptly forwarded to the Commission for review.





NOTES:

1. THERE MUST NOT BE LESS THAN 12" VERTICAL CLEARANCE BETWEEN ATTACHMENTS OF DIFFERNT COMPANIES.
2. THE DIMENTIONS OF THIS PLATE DO NOT SUPERSEDE ANY APPLICABLE NATIONAL SAFETY CODE REQUIREMENTS.
3. THIS IS A TYPICAL ATTACHMENT AND MAY NOT APPLY IN ALL CASES.

7/13/16

FLORIDA PUBLIC UTILITES

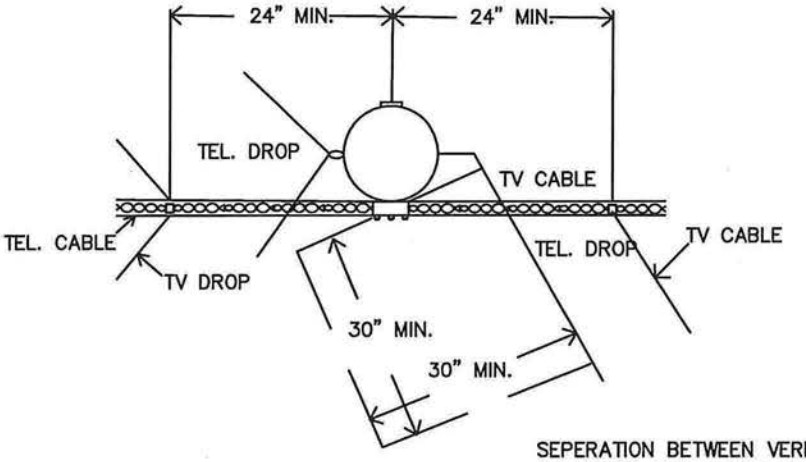
JOINT USE

DWG. No.

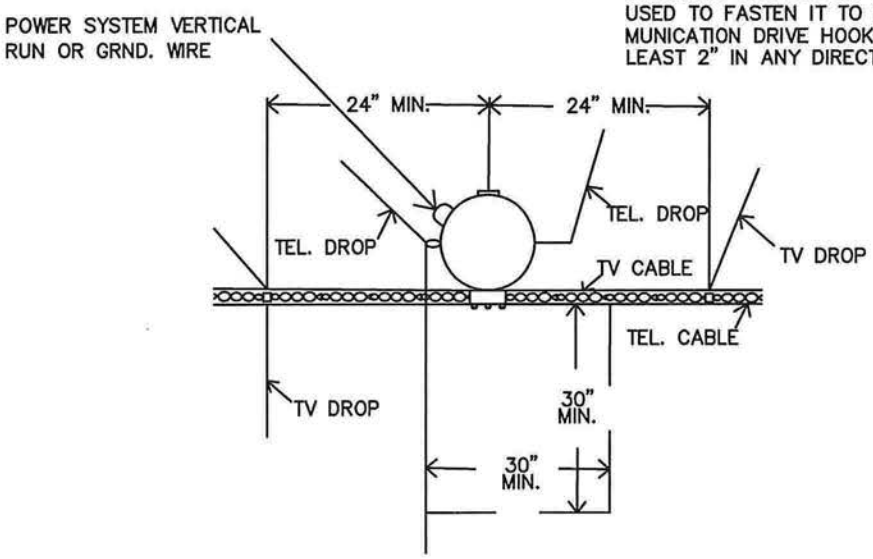
JU–1

DATE	REVISION	DATE	REVISION

TYPICAL COMPANY ATTACHMENT TO FPU POLE



SEPERATION BETWEEN VERITICAL RUN, INCLUDING STAPLES OR OTHER DEVICES USED TO FASTEN IT TO POLE & COM-MUNICATION DRIVE HOOK SHALL BE AT LEAST 2" IN ANY DIRECTION



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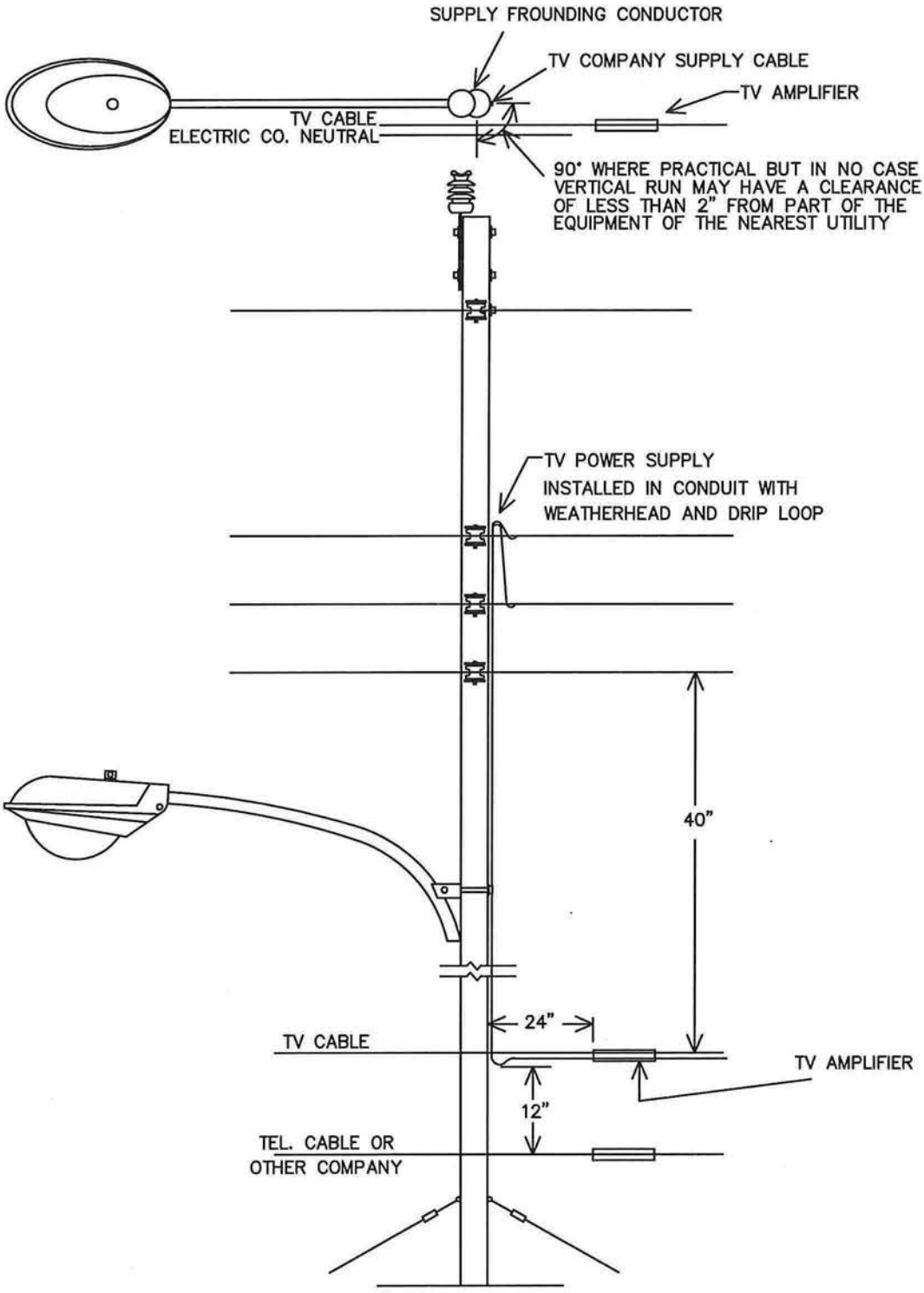
FLORIDA PUBLIC UTILITES

JOINT USE

DWG. No.

JU-2

DATE	REVISION	DATE	REVISION
7/13/16			



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FLORIDA PUBLIC UTILITES

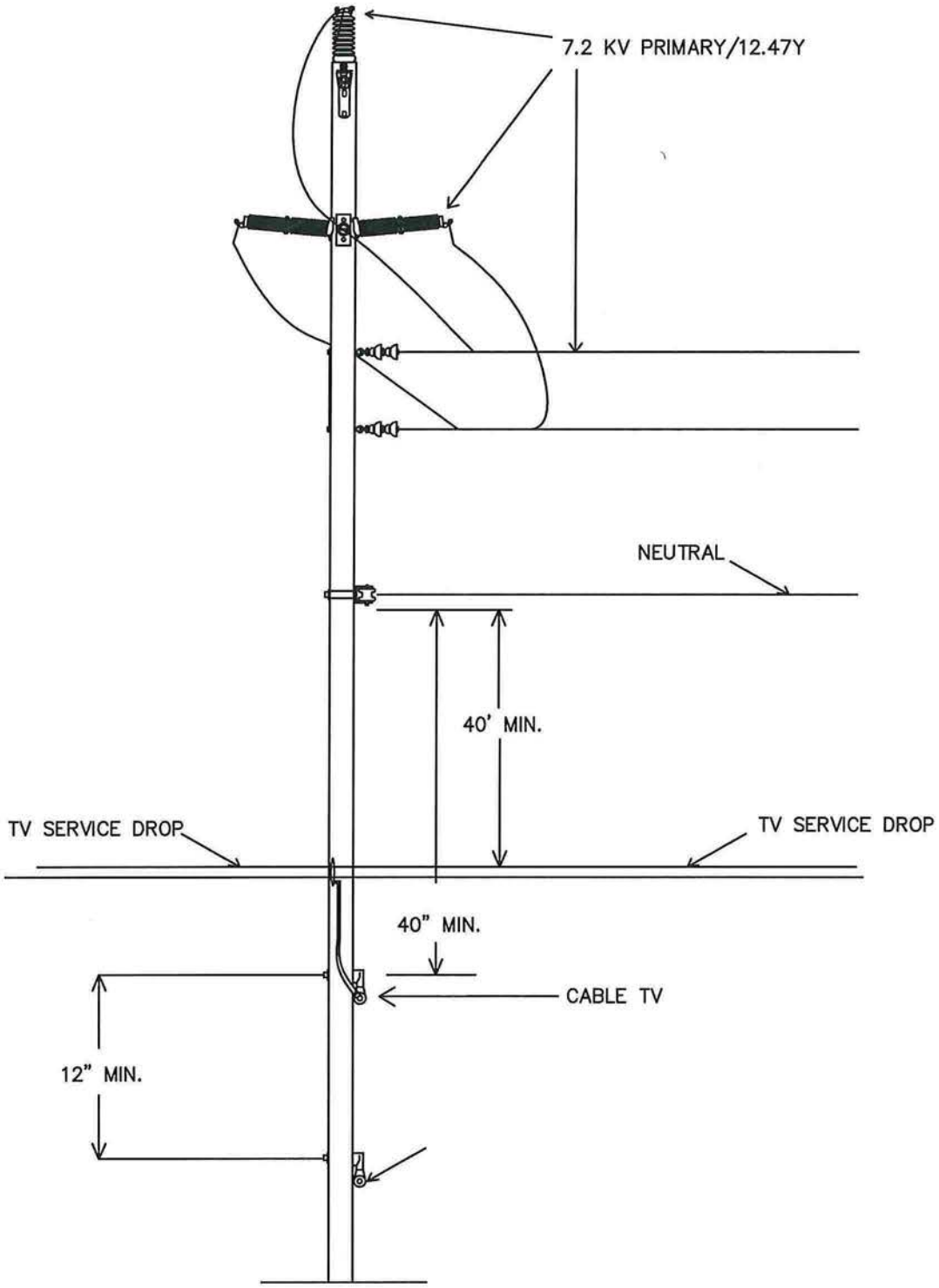
JOINT USE

DWG. No.

JU-3

DATE	REVISION	DATE	REVISION

7/13/16



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FLORIDA PUBLIC UTILITES

JOINT USE

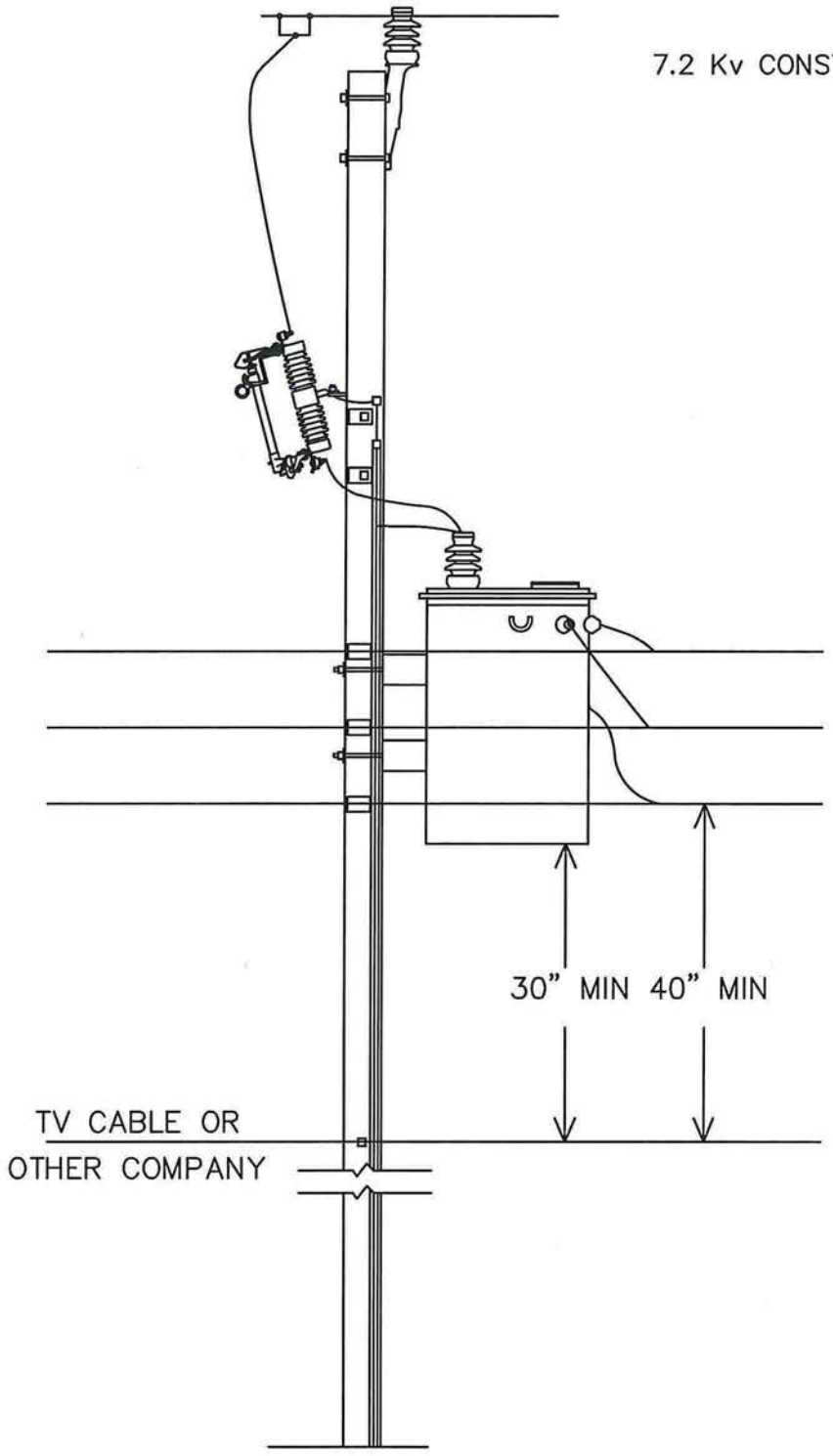
DWG. No.

JU-4

DATE	REVISION	DATE	REVISION

7/13/16

7.2 Kv CONSTRUCTION



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FLORIDA PUBLIC UTILITES

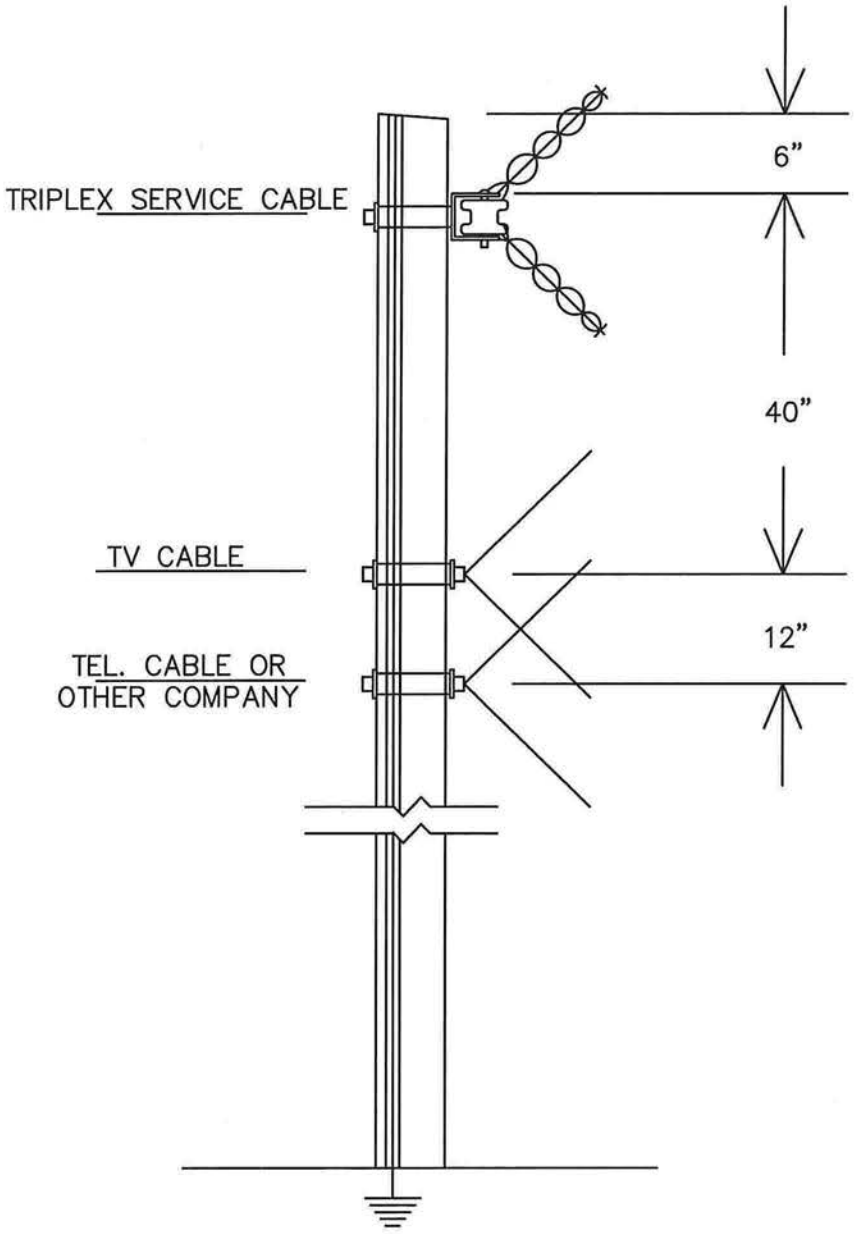
JOINT USE

DWG. No.

JU-5

DATE	REVISION	DATE	REVISION

7/13/16



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FLORIDA PUBLIC UTILITES

JOINT USE

DWG. No.

JU-6

DATE	REVISION	DATE	REVISION

7/13/16

ATTACHMENT OF TV DISTRIBUTION SYSTEM TO POLES

ADDITIONAL REQUIREMENTS

1. CLEARANCE TO GROUND AS PER NATIONAL ELECTRIC SAFETY CODE:
   18' MINIMUM OVER STREETS OR ALLEYS
   27' MINIMUM OVER RAILROAD TRACKS

2. ATTACHMENT OF TELEPHONE AND TELEVISION FACILITIES TO BE ON SAME SIDE OF POLE.

3. METAL CASE ON AMPLIFIER AND TERMINAL BOXES AND METAL CASE OF SERVICE SWITCH TO BE EFFECTIVELY GROUNDED.

4. NO AMPLIFIERS, DISTRIBUTION TERMINALS AND/OR FUSED DISCONNECT SWITCHES MAY BE MOUNTED DIRECTLY TO POLE, BUT SHALL BE INSTALLED UPON A SUITABLE CROSSARM IN APPROVED MANNER.

5. TELEPHONE AND TELEVISION CONTACTS SHALL MAINTAIN SAME RELATIVE POSTITION ON POLE.

6. UNDERGROUND CABLE RISERS SHALL BE INSTALLED ON ROAD QUARTER OF POLE BUT SHALL NOT CONFLICT WTIH TELEPHONE ATTACHMENTS.

7. NO AMPLIFIFER, DISTRIBUTION TERMINAL OR FUSED DISCONNECT SWITCH TO BE INSTALLED UPON TRANSFORMER POLES.

EXIBIT V

NOTES:	FLORIDA PUBLIC UTILITES				
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3. THIS IS A TYPICAL ATTACHMENT AND MAY NOT APPLY IN ALL CASES.					JU-7
	DATE	REVISION	DATE	REVISION	
7/13/16					