PO Box 301 | Sumterville, Florida 33585-0301 | 352.793.3801

February 27, 2020

Ms. Penelope Buys
Engineering Specialist
Division of Engineering
Florida Public Service Commission
2540 Shumard Oaks Blvd.
Tallahassee, FL 32399-0850

VIA: Electronic Filing

RE: SECO Energy Report to the Florida Public Service Commission Pursuant to Rule 25-6.0343, F.A.C. Calendar Year 2019

Dear Ms. Buys:

The attached report is being submitted by SECO Energy, pursuant to the Florida Public Service Commission Rule 25-6.0343, FAC for calendar year 2019.

The report details our storm hardening initiatives as they relate to construction standards, inspection cycles, and vegetation management for calendar year 2019.

SECO Energy places a high degree of emphasis on these programs and realizes the positive impact that they make on the reliability of our electric system.

Sincerely,

Ben Brickhouse
Vice President of Engineering
(352)-569-9550

John LaSelva
Vice President of Operations
(352)-569-9530

SECO Energy Report to the Florida Public Service Commission Pursuant to Rule 25-6.0343, F.A.C. Calendar Year 2019

1. Introduction

SECO Energy
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2. Number of meters served in calendar year 2019

210,815 active meters were served by SECO Energy in calendar year 2019, as of December 31, 2019.

3. Standards of Construction

Distribution Facilities

SECO Energy promotes the installation of underground distribution facilities when providing service to residential and commercial customers. In addition, in areas with a history of vegetation related outages and reliability issues due to significant storm activities, SECO evaluates its existing overhead facilities and performs underground facilities conversion on a case-by-case basis. In 2019, SECO Energy added 221 miles to its distribution system, of which 95% was underground construction. SECO Energy has joined with all of Florida's electric utilities in retaining the Public Utility Research Center (PURC) to coordinate research efforts on electric infrastructure hardening and will continue to participate with other state utilities in evaluating the hardening of electric facilities.

National Electric Safety Code Compliance

SECO Energy's (SECO) design and construction standards, policies, and procedures comply with Rural Utilities Service (RUS) guidelines and the National Electrical Safety Code (ANSI C-2) (NESC). Electrical facilities constructed prior to August 1, 2016 are governed by the edition of the NESC that was in effect at the time of the facility's initial construction. However, for electrical facilities constructed on or after August 1, 2016, the 2017 NESC applies.

Extreme Wind Loading Standards

SECO's transmission facility design is guided by extreme-loading standards on a system-wide basis, and distribution facilities are designed to withstand 110 mph winds, in accordance with the NESC. The system is evaluated continuously for immediate storm hardening and system upgrade needs.

Flooding and Storm Surges

Although SECO serves a coastal county (Citrus), the closest facility to the coastline is 14 miles inland; therefore, storm surge is not a concern. SECO began a voluntary eight-year inspection of underground facilities in 2007. For the 2019 cycle, SECO used Transformer Maintenance Services (TMS) to inspect its underground facilities. TMS inspected 8.1% of SECO's underground facilities, equating to 4,928 pieces of equipment. As a result of this inspection, 296 underground facilities were replaced or retired, including 124 pad-mounted transformers, 27 switching cabinets, and 145 secondary enclosures. In addition, maintenance was performed at 428 locations, including items such as the replacement of lightning arresters, secondary covers, and leveling around equipment.

Safe and Efficient Access of New and Replacement Distribution Facilities

Electrical construction standards and SECO policies dictate the placement of distribution facilities to allow for the safest and most efficient access during installation and maintenance. SECO installs electrical facilities on the front of lots, except in cases where prohibited by land covenants. Wherever new facilities are placed (i.e. front, back or side of property), they are installed for accessibility by crews and vehicles to ensure proper maintenance/repair is performed as safely and expeditiously as possible. If it is determined that facilities need to be relocated, they will be placed in the safest, most accessible area available.

Attachments by Others

SECO has developed a standardized process to manage requests from companies who express interest in attaching to SECO poles. Following a formal application review and a thorough field investigation, SECO enters into a binding contractual agreement with the requestor. Submission of a permit application from an attachment company is required in order to attach to a SECO pole. This permit application is reviewed by SECO personnel and then verified in the field to ensure that code requirements are met prior to attachment. SECO expedites the transfer of attachments and the removal of old poles so that they are

completed in a timely manner; all pole replacements and code violations are logged and tracked in a database, which is monitored each month.

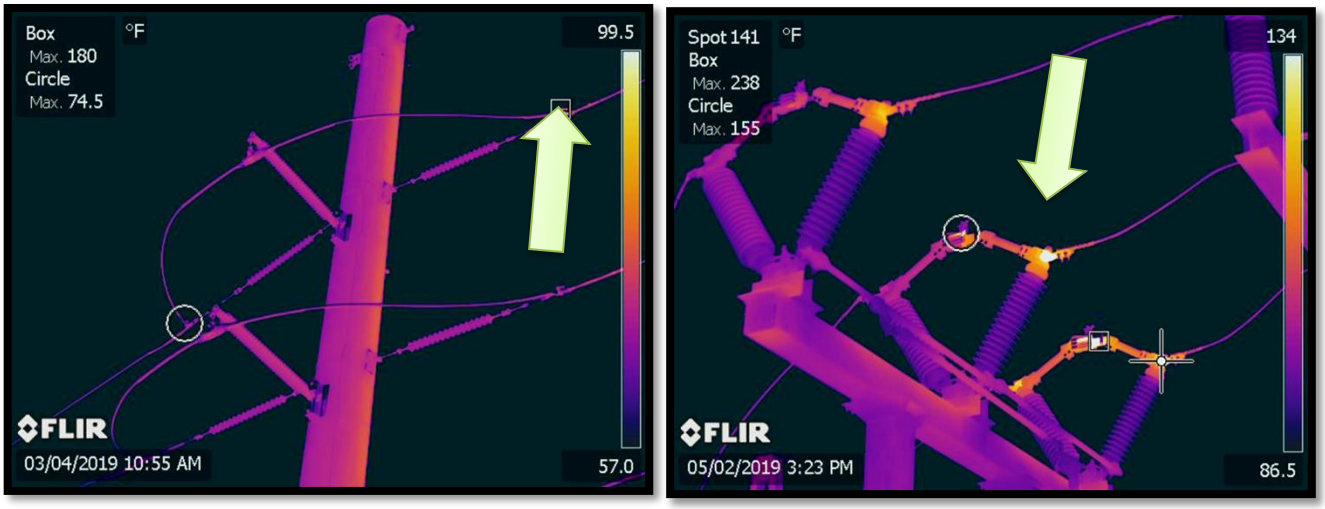
4. Facility Inspections

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 the pole selection process.

SECO inspects its transmission facilities, substation facilities, and distribution facilities on regular cycles in order to maintain a safe and reliable electrical system. The transmission facilities are of utmost importance because they serve the majority of members per line. In 2010, SECO implemented a policy to complete ground-line and visual inspections of all transmission facilities on a five-year cycle. In 2015, SECO completed the final year of the 5-year ground-line inspection cycle and implemented a policy to replace all wood transmission poles with spun-concrete. In 2019, there were 16 wood transmission poles which were replaced with spun-concrete poles.

SECO performs annual visual and infrared inspections for SECO and Seminole Electric Cooperative (SECI) owned transmission lines. SECO conducts visual and thermographic inspections at every substation monthly. This method helps to quickly diagnose and resolve issues, thereby preventing potential substation outages to thousands of members.

As illustrated by the following infrared photos of a transmission pole connection (left) and a substation switch (right), this proactive approach allows SECO to detect even the slightest of hotspots and identify devices before they fail in order to minimize service interruptions to its members.



In 2007, SECO began performing ground-line and visual inspections of all distribution poles on an 8-year cycle. The ground-line inspection includes sounding and boring tests, as well as

the excavation of all poles for treatment per RUS Bulletin 1730B-121. SECO inspects all Chromated Copper Arsenate (CCA) poles in excess of 27 years of age, as well as all non-CCA poles on an eight-year cycle. SECO selectively bores and excavates CCA-preserved poles under the age of 28 years. This is in accordance with PSC Docket 140082-EI and is similar to the CCA inspection process followed by Duke Energy Florida, Inc. (DEF) and Florida Power & Light, Inc. (FPL).

For the 2019 inspection cycle, SECO used Osmose Utilities Services, Inc. (Osmose) to perform ground-line inspections of its overhead distribution facilities. In accordance with the ground-line inspection criteria described above, Osmose inspected 9,450 distribution poles and treated 3,995. Visual inspections were performed by both Osmose and SECO personnel on 14,231 distribution poles, representing 10.4 % of the distribution poles on the SECO electrical system. During the visual inspection process, 1,707 distribution poles were identified for remediation or replacement. This represented a failure rate of approximately 12%. In addition, the inspection process also identified maintenance would be needed at 1,932 locations, including items such as the replacement of cross-arms and pole bonds.

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

Year	System	# of Structures – Planned Inspections	% of Total Structures	# of Structures – Actual Inspected	% Complete vs. Planned
2019	Transmission	138	12.7	138	100%
2019	Distribution Overhead	14,231	12%	14,231	100%
2019	Distribution Underground	4,928	8.1%	4,928	100%

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

Year	System	# Failed	% Failed	Cause
2019	Transmission	*0	0%	Ground Rot
2019	Transmission	*0	0%	Top Deterioration
2019	Distribution	27	.19%	Ground Rot
2019	Distribution	1,680	11.8%	Top Deterioration

** (0) transmission poles failed inspections*

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.

SECO replaces all wood transmission poles with spun-concrete poles. This allows for longer span length and requires fewer poles. While remediation occurred on 16 transmission poles,

they were not necessarily replaced on a one-for-one basis. SECO completed 100% of the transmission pole remediation by December 31, 2019.

Transmission Poles			
Pole Type and Class	**# Failed**	**# Replaced**	**% Remediation Complete (as of 12/31/2019)**
40-3	0	1	100%
45-2	0	1	100%
70-1	0	8	100%
75-1	0	2	100%
80-1	0	4	100%
Total	**0**	**16**	**100%**

In 2018, significant SECO construction resources were displaced to assist with storm restoration activities after Hurricane Florence, Hurricane Michael, and the 2018 December winter storm. The displacement of resources created sufficient construction delays such that the remediation for 999 poles was not completed by December 31, 2018. SECO completed 100% of identified 2018 distribution pole replacements and remediation as of December 31, 2019 as shown in categorical data table below.

Distribution Poles - 2018			
Pole Type and Class	**# Failed**	**# Replaced**	**% Remediation Complete (as of 12/31/2019)**
25-7	1	1	100%
30-6	694	694	100%
35-4	2	2	100%
35-5	21	21	100%
35-6	984	984	100%
40-4	11	11	100%
40-5	613	613	100%
40-6	4	4	100%
45-3	5	5	100%
45-4	36	36	100%
45-5	10	10	100%
50-4	3	3	100%
55-3	1	1	100%
Total	**2,385**	**2,385**	**100%**

In 2019, significant SECO construction resources were displaced to assist with storm restoration activities after Hurricane Barry and the Texas tornadoes of October 2019. The displacement of resources created sufficient construction delays such that as of December 31, 2019 remediation has not been completed for 225 poles. SECO completed 86.8% of the distribution pole replacements and remediation as of December 31, 2019.

Distribution Poles - 2019			
Pole Type and Class	**# Failed**	**# Replaced**	**% Remediation Complete (as of 12/31/2019)**
25-7	1	1	100.0%
30-5	1	1	100.0%
30-6	392	320	81.3%
35-4	1	1	100.0%
35-5	51	50	97.8%
35-6	657	646	98.3%
40-1	1	0	0.0%
40-4	10	5	50.0%
40-5	533	413	76.1%
40-6	1	0	0.0%
45-3	20	16	71.4%
45-4	25	15	60.0%
45-5	11	11	100.0%
50-2	1	1	100.0%
50-4	1	1	100.0%
55-1	1	1	100.0%
Total	**1707**	**1482**	**86.8%**

5. Vegetation Management

Program Summary

SECO's Vegetation Management program has a two-pronged approach to trimming and removing trees: cycle maintenance and non-cycle maintenance. SECO's cycle maintenance strategy is to be on a three (3) year trimming and tree removal cycle while providing a minimum 10-foot clearance with a desired clearance of 15-feet from distribution conductor. For transmission conductor, the specification is 30-feet clearance.

SECO's non-cycle maintenance tree trimming and removal is reactive in nature. Electrical system expansion, electrical system improvements, problematic danger trees, and member requests generate tree trimming / removal work.

SECO strives to maintain a balance of preserving the urban forest while providing safe and reliable electric service to members. This is accomplished through cycle and non-cycle maintenance trimming and removals. SECO requires all vegetation management contractors to follow ISA Best Management Practices and ANSI A300 Pruning Standards, utilizing directional trimming and proper pruning cuts to encourage regrowth away from the conductors. Adherence to these standards allows trees to remain healthy after pruning, while reducing crown failures that can cause storm-related reliability issues. This attention to protecting the environment is evidenced by SECO being designated as a "Tree Line USA" utility by the Arbor Day Foundation for the thirteenth year in a row.

Cycle Maintenance

SECO's objective is be on a three (3) year trimming and tree removal cycle. This means that SECO aims to clear approximately 1,500 miles of overhead lines per year. This includes the pruning or removal of all incompatible (tall growing) species of trees within the utility right-of-way. For all primary distribution pole structures, the minimum clearance specification is 10-feet, while the desired clearance specification is 15-feet. For transmission pole structures, the minimum clearance specification is 30-feet.

SECO uses ISA certified utility arborists to perform all work planning, auditing and customer notification. SECO issues the work plans to a line-clearing contractor whose work procedures and training certification meet all federal OSHA, ANSI Z133 standards (2015 or later), and State of Florida Safety requirements. SECO's cycle maintenance trimming contractors are compensated on a "per-unit" basis to perform all overhead line clearance work on the SECO system. A unit is defined as a single trimming or removal operation (i.e., a side trim on a tree or a removal; each count as one unit). Unit-based compensation allows SECO to accurately track the type of units and costs associated with the work being performed.

SECO prioritizes its order of cut annually based on four weighted factors: SECO's pole inspection cycle, the date last trimmed, the number of members served by each circuit, and the total tree-related outages on each circuit. SECO coordinates its vegetation management program with its pole inspection cycle in order to improve the overall reliability of circuits and minimize the impact to customers (since tree-trimming, pole inspection and pole replacement all occur within the same 12-month period).

In 2019, SECO trimmed 470 total circuit miles and removed 44,753 trees from circuit easements, representing 61% of the total 73,636 trees that were addressed for line-clearance issues. The following table is a summary of the vegetation management work completed in 2019:

Description	Measurement
Distribution & Transmission line miles "Cycle Trimmed"	470 miles
Distribution line miles "Non-Cycle Trimmed" for system improvement projects	6 miles
Transmission line miles "Non-Cycle Trimmed" for system improvement projects and routine maintenance	16 miles
Total miles trimmed in 2019 (Distribution & Transmission)	492 miles
Total trees removed in "Cycle Trimming" process	44,753 trees

SECO was unable to complete 1,500 miles in 2019. In 2018, SECO experienced a shortage of available contract labor, which negatively impacted SECO's ability to meet unit and mileage completion targets. In late 2018, SECO solicited bids to perform 2019 cycle maintenance trimming; very few contractors supplied a valid bid. Had the bids received been accepted, a

significant increase in costs to our member owners would have been required. All bidders cited labor shortages as the reason for their higher than expected prices. Additionally, none of bidders would commit to performing all the work necessary to meet the required mileage for a 3-year cycle. For these reasons, SECO had to reduce its 2019 cycle maintenance mileage target from 1,500 miles to 550 miles.

SECO did not meet its 2019 target due to several factors. In late 2018, clarifications were made to SECO's desired clearance specification that increased the number of units per mile by 30%. This shift represented a 120% increase over the units per mile trimmed during the 10 years prior (2008-2017 average). Removals in 2019 increased by 78% over the previous year and by 108% over removals that occurred during the preceding 10 years (2008-2017 average). While tree removals are a one-time cost that dramatically improve electrical system reliability, this substantial increase in 2019 slowed down the progression of cycle maintenance and financially constrained SECO's ability to achieve its desired mileage target.

Over the past four (4) years, SECO's inability to maintain a three (3) year cycle was primarily affected by hurricane support and disaster recovery efforts, financial constraints, and a lack of contractor resources. The following table contains a breakdown of target versus actual miles for the past four (4) years:

Year	Target Miles	Actual Miles
2016	1,500	1,354
2017	1,500	966
2018	1,500	492
2019	550	470

In 2020, SECO will be making a change to its maintenance cycle approach. Rather than aim for a "system-wide" three (3) year trimming and tree removal cycle, SECO will target a three (3) year cycle for distribution on overhead feeder lines and a five (5) year cycle for distribution on laterals. SECO's total cycle maintenance mileage goal for 2020 will be 767 miles.

Non-Cycle Maintenance

As stated above, SECO trims and removes trees that are not being addressed by the scheduled maintenance cycle. This is reactive work that supports and augments the cycle maintenance program. Non-cycle tree trimming and tree removal work is used to provide the necessary clearance for system improvement projects, electrical system expansion projects and where new lines are to be constructed. The intent is to storm-harden the line by removing overhang and vegetation that would present a hazard during inclement weather.

Another important component of the non-cycle maintenance program is "danger tree" removal. A danger or problem tree is defined as a tree inside or outside the normal trim zone that may cause an outage if left untrimmed or is not removed until the next scheduled cycle. SECO continued its danger / hazard tree removal program in 2019. From January 1, 2019 through June 30, 2019, qualified line personnel patrolled every three (3) phase circuit on

SECO's distribution system in order to identify all diseased, dying or dead trees that could potentially fall into an energized conductor. SECO removed those trees on a priority basis based on imminent failure capability. All danger trees were removed prior to December 31, 2019. Line personnel also submitted requests for "spot" trimming at locations where they felt that trees would likely cause an outage. This tree trimming work was performed within 90-days of identification.

The third and final component of non-cycle maintenance trimming is response to member-owner tree trimming / removal requests. When a member-owner notifies SECO that there is a potential vegetation encroachment condition, SECO sends an arborist to check on the location and determine if tree trimming and/or tree removal is needed. If it is, the work is scheduled and targeted for completion within 90-days of identification.

Easements

SECO has two types of easements – descriptive and prescriptive. When SECO plans the work on property with a descriptive easement, SECO enforces all conditions contained in the easement, trimming and removing trees within 15-feet for distribution and 30-feet for transmission. SECO uses its bylaws and state regulations to maintain a 10-foot clearance for its prescriptive easements. Furthermore, SECO works with city, county, and state authorities to provide a 15-foot clearance for its utility lines that exist within the road right-of-way.

Tree Replacement

SECO's tree replacement program provides "utility-friendly" trees to customers who allow for the removal of vegetation growing in close proximity to its conductors. In 2019, SECO purchased 649 trees for members in exchange for these strategic removals.

Environmental Focus

By encouraging healthy growing areas for trees, shrubs, and ground cover, SECO seeks to maintain a favorable balance between urban forest conservation needs and the safety / reliability demands of its electrical system. SECO provides proper tree selection and planting guidelines to member owners and the general public through its website, newsletters, and public events. Each year SECO applies to be recognized as a "Tree Line USA" utility by the Arbor Day Foundation. In 2019, SECO received this designation for the thirteenth consecutive year. This recognition is a by-product of SECO's continued commitment to being environmentally responsible.

In keeping with SECO's commitment to environmental sensitivity, SECO did not use a broadcast application of herbicide on its system in 2019. Herbicide was only applied to brush stems and tree stumps within 30 minutes of their removal. All applied stump spray contained dye material for ease in identification of treated stumps. The application of herbicide was performed in accordance with local, state, and federal laws, statutes, and regulations. Additionally, SECO maintains an active list of members who do not wish for herbicide to be

used on their property due to livestock and/or personal considerations. SECO willingly complies with all of these requests.

Program Sufficiency

SECO's Vegetation Management program is evaluated on three (3) factors: trimming and removal specifications, capability of the plan to meet those specifications, and execution of the plan to trim and remove trees according to specifications. Based on ISA Best Management Practices and ANSI A300 Pruning Standards, SECO's trimming clearance and removal specifications are world-class. SECO's plan to follow those specifications is also first-rate. With certified utility arborists planning and auditing the work, a dual-core emphasis on cycle and non-cycle maintenance strategies, and an environmentally sensitive focus, SECO's plan is fully capable of adhering to its specifications.

In 2019, SECO faced many obstacles affecting its ability to carry out the plan, the most significant of which were financial constraints and increased vegetation density due to a clarification in program specifications. In 2020, SECO will endeavor to achieve a three (3) year cycle for distribution on overhead feeder lines and a five (5) year cycle for distribution on laterals. Cycle trimming, danger tree patrols, and non-cycle work processes all serve to reduce SECO's tree-caused outages while providing safe and reliable electric service to its member-owners.

Report on Collaborative Research for Hurricane Hardening

Provided by

The Public Utility Research Center

University of Florida

To the

Utility Sponsor Steering Committee

Final Report dated February 2020

I. Introduction

The Florida Public Service Commission (FPSC) issued Order No. PSC-06-00351-PAA-EI on April 25, 2006 (Order 06-0351) directing each investor-owned electric utility (IOU) to establish a plan that increases collaborative research to further the development of storm resilient electric utility infrastructure and technologies that reduce storm restoration costs and outages to customers. This order directed IOUs to solicit participation from municipal electric utilities and rural electric cooperatives in addition to available educational and research organizations. As a means of accomplishing this task, the IOUs joined with the municipal electric utilities and rural electric cooperatives in the state (collectively referred to as the Research Collaboration Partners) to form a Steering Committee of representatives from each utility and entered into a Memorandum of Understanding (MOU) with the University of Florida's Public Utility Research Center (PURC). In 2018 the Research Collaboration MOU was renewed for an initial term of two years, effective January 1, 2019, and will be automatically extended for successive two-year terms.

PURC performs the administration function for research collaboration, including financial management, logistics, production and distribution of documents, and preparation of reports. PURC also coordinates and performs research as agreed upon with the Steering Committee by facilitating the exchange of information from the Research Collaboration Partners with individuals conducting research projects and facilitating the progress of each research project. The collaborative research has focused on undergrounding, vegetation management, hurricane-wind speeds at granular levels, and improved materials for distribution facilities.

This report provides an update on the activities of the Steering Committee since the previous report dated February 2019.

II. Undergrounding

The collaborative research on undergrounding has been focused on understanding the existing research on the economics and effects of hardening strategies, including undergrounding, so that informed decisions can be made about undergrounding policies and specific undergrounding projects.

The collaborative has refined the computer model developed by Quanta Technologies and there has been a collective effort to learn more about the function and functionality of the computer code. PURC and the Project Sponsors have worked to fill information gaps for model inputs and significant efforts have been invested in the area of forensics data collection.

In addition, PURC has worked with doctoral and master's candidates in the University of Florida Department of Civil and Coastal Engineering to assess some of the inter-relationships between wind speed and other environmental factors on utility equipment damage. PURC has also been contacted by engineering researchers at the University of Wisconsin and North Carolina State University with an interest in the model, though no additional relationships have been established. In addition to universities, PURC has been in contact with stakeholders in Puerto Rico in light of PURC Director Mark Jamison's appointment to the Southern States Energy Board Blue Ribbon Task Force on the future of Puerto Rico's energy system. The stakeholders, government and task force are concerned with strategies to make Puerto Rico's system more resilient and are interested in the role that the model could play. Finally, PURC has been contacted by California stakeholders interested in applying the principles of the model to the mitigation of the interactions between the electricity grid and the surrounding vegetation, potentially reducing the risk of wildfires. Despite the outside interest, there are no concrete plans to expand the scope of the model at this time. Every researcher that contacts PURC cites the model as the only non-proprietary model of its kind.

III. Wind Data Collection

The Project Sponsors entered into a wind monitoring agreement with WeatherFlow, Inc., in 2007. Under the agreement, Florida Sponsors agreed to provide WeatherFlow with access to their properties and to allow WeatherFlow to install, maintain and operate portions of their wind monitoring network facilities on utility-owned properties under certain conditions in exchange for access to wind monitoring data generated by WeatherFlow's wind monitoring network in Florida. WeatherFlow's Florida wind monitoring network includes 50 permanent wind monitoring stations around the coast of Florida, including one or more stations located on utility-owned property. The wind monitoring agreement expired in early 2012; however, it was renewed in April 2017 and will renew automatically annually on the effective date for an additional one year period, unless terminated by the parties to the agreement.

IV. Public Outreach

We have previously discussed the impact of increasingly severe storms and the increased

population and utility infrastructure along the coast on greater interest in storm preparedness. PURC researchers continue to discuss the collaborative effort in Florida with the engineering departments of the state regulators in New York, New Jersey, and Pennsylvania, and regulators in Jamaica, Grenada, Curacao, St. Lucia, the Bahamas, Samoa, and the Philippines. In 2019, stakeholders in Puerto Rico and California also showed interest in the collaborative's efforts. While all of the regulators and policymakers showed great interest in the genesis of the collaborative effort, and the results of that effort, they have not, at this point, shown further interest in participating in the research effort. In 2019, there continued to be considerable interest in Florida's hardening efforts from the popular media in California, in light of continued wildfire problems in the state and their aftermath.

VI. Conclusion

In response to the FPSC's Order 06-0351, IOUs, municipal electric utilities, and rural electric cooperatives joined together and retained PURC to coordinate research on electric infrastructure hardening. The steering committee has taken steps to extend the research collaboration MOU so that the industry will be in a position to focus its research efforts on undergrounding research, granular wind research and vegetation management when significant storm activity affects the state.