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

February 27, 2019

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 2018

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 2018.

The report details our storm hardening initiatives as they relate to construction standards, inspection cycles, and vegetation management for calendar year 2018.

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 2018

1. Introduction

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2. Number of meters served in calendar year 2018

205,644 active meters were served by SECO Energy in calendar year 2018, as of December 31, 2018.

3. Standards of Construction

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 2018 cycle, SECO used Transformer Maintenance Services (TMS) to inspect its underground facilities. TMS inspected 12.8% of SECO's underground facilities, equating to 7,783 pieces of equipment. As a result of this inspection, 694 underground facilities were replaced or retired, including 414 pad-mounted transformers, 56 switching cabinets, and 224 secondary enclosures. In addition, maintenance was performed at 190 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

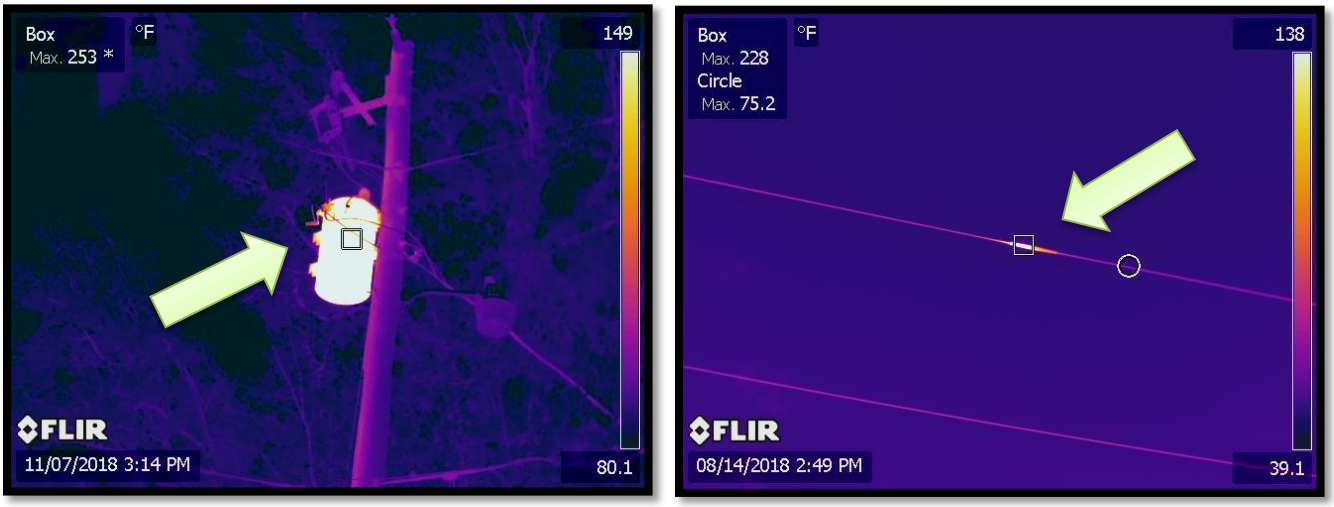
a. Describe the utility's policies, guidelines, practices, and procedures for inspecting transmission and distribution lines, poles, and structures including, but not limited to, pole inspection cycles and the pole selection process.

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 plans to replace all wooden transmission poles with

spun concrete by 2020. In 2018, there were 34 wooden transmission poles planned for remediation. These 34 wooden transmission poles 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 an overhead transformer (left) and an overhead splice (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 2018 inspection cycle, SECO used Osmose Utilities Services, Inc. (Osmose) to perform a ground-line inspection of its overhead distribution facilities. In accordance with the ground-line inspection criteria described above, Osmose inspected 8,099 distribution poles and treated 7,880. SECO personnel performed visual inspections on 17,555 distribution poles, representing 12.8% of the distribution poles on the SECO electrical system. During the inspection process, 2,385 distribution poles were identified for remediation or replacement. This represented a failure rate of approximately 13.6%. In addition, the inspection process also identified maintenance would be needed at 2,094 locations, including items such as the replacement of cross-arms and pole bonds.

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 as of December 31, 2018, remediation has not been completed for 999 poles.

b. Describe the number and percentage of transmission and distribution inspections planned and completed for 2018.

Year	System	# of Structures – Planned Inspections	% of Total Structures	# of Structures – Actual Inspected	% Complete vs. Planned
2018	Transmission	106	9.7	106	100%
2018	Distribution Overhead	17,555	12.8	17,555	100%
2018	Distribution Underground	7,783	12.8	7,783	100%

c. Describe the number and percentage of transmission poles and structures and distribution poles failing inspection in 2018 and the reason for the failure.

Year	System	# Failed	% Failed	Cause
2018	Transmission	*0	0%	Ground Rot
2018	Transmission	*0	0%	Top Deterioration
2018	Distribution	31	.18%	Ground Rot
2018	Distribution	2354	13.4%	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 2018, including a description of the remediation taken.

SECO replaces all wooden transmission poles with spun-concrete poles. This allows for longer span length and requires fewer poles. While remediation occurred on 34 transmission poles, they were not necessarily replaced on a one-for-one basis. SECO completed 100% of the transmission pole remediation by February 15, 2019.

Transmission Poles			
Pole Type and Class	**# Failed**	**# Replaced**	**% Remediation Complete (as of 2/15/2019)**
65-1	0	7	100%
70-1	0	23	100%
75-1	0	2	100%
80-1	0	2	100%
Total	**0**	**34**	**100%**

SECO completed 58.1% of the distribution pole replacements and remediation as of December 31, 2018.

Distribution Poles-2018			
Pole Type and Class	**# Failed**	**# Replaced**	**% Remediation Complete (as of 12/31/2018)**
25-7	1		
30-6	694		
35-4	2		
35-5	21		
35-6	984		
40-4	11		
40-5	613		
40-6	4		
45-3	5		
45-4	36		
45-5	10		
50-4	3		
55-3	1		
Total	**2,385**	**1,386**	**58.1%**

Due to the remediation delays described in Section 4 (a). The categorical data reported in this table is incomplete at this time and will be reported in the calendar year 2019 report. SECO completed 58.11% of the distribution pole replacements and remediation as of December 31, 2018.

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 twelfth year in a row.

Policies, Guidelines, Practices, and Procedures

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 2018, SECO trimmed 492 total circuit miles and removed 25,168 trees from circuit easements, representing 44% of the total 57,530 trees that were addressed for line-clearance issues. The following table is a summary of the vegetation management work completed in 2018:

Description	Measurement
Distribution & Transmission line miles "Cycle Trimmed"	492 miles
Distribution line miles "Non-Cycle Trimmed" for system improvement projects	36 miles
Transmission line miles "Non-Cycle Trimmed" for system improvement projects and routine maintenance	5 miles
Total miles trimmed in 2018 (Distribution & Transmission)	533 miles
Total trees removed in "Cycle Trimming" process	25,168 trees

SECO was unable to complete 1,500 miles in 2018. In late 2017, SECO performed a 100 percent audit of unit contract work being performed and determined that the quality was extremely low.

SECO found 14,000 units that failed to meet specifications. The trimming contractor spent the first three (3) months of 2018 correcting the work quality issues from 2017 at no cost to SECO.

The contractor's work quality issues from 2017, combined with their inability to provide the necessary personnel to meet the 2018 cycle maintenance targets caused SECO to seek assistance from additional line-clearing contractors. In April 2018, SECO entered into a short-term agreement with a second trimming contractor to assist with reaching its cycle maintenance targets. This second contractor initially committed to providing sufficient labor to meet revised 2018 targets. Within one month of the second contractor being on SECO property, they found it impossible to increase their staffing levels to meet their commitments. The shortage of available labor experienced by both primary and secondary contractors negatively impacted SECO's ability to meet unit and mileage completion targets. SECO completed 492 total miles of circuit trimming by year-end.

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 500-600 miles.

Based on work completed in 2016, 2017 and 2018, SECO is currently on a four (4) to five (5) year maintenance cycle. Over the past three (3) 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 three (3) years:

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

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 2018. From January 1, 2018 through June 30, 2018, 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, 2018. 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 2018, SECO purchased 447 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 2018, SECO received this designation for the twelfth 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 2018. 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 2018, SECO faced many obstacles affecting its ability to carry out the plan, the most significant of which were cost and the contractor's ability to perform. SECO strives to maintain a three (3) year cycle; however, at present, this effort is cost-prohibitive. Cycle trimming, danger tree patrols, and non-cycle work processes have served to contain 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 2018

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 Project Sponsors) 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). The third extension of this MOU was approved last year by the Research Collaboration Partners and now extends through December 31, 2018.

PURC manages the work flow and communications, develops work plans, serves as a subject matter expert, conducts research, facilitates the hiring of experts, coordinates with research vendors, advises the Project Sponsors, and provides reports for Project activities. 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 2017.

II. Steering Committee Workshop

On December 5, the Steering Committee organized a web-based workshop for over 40 participants from the Project Sponsors hosted by the University of Florida. The workshop was

held to orient new members on the model of the costs and benefits of storm hardening strategies and to discuss the integration of data from recent storm activities.

The presenter for the workshop was Ted Kury. He first described the model and the overall flow of the simulation element. He then described the 115 different inputs to the model and demonstrated where to find them. Next, he demonstrated a test run of 50 hurricane years for the state and demonstrated how the model illustrates the shift in the probability distribution of the outcome variables. Finally, he demonstrated the model's ability to simulate single hurricanes, both historical and hypothetical.

Following the demonstration, the members discussed strategies for adding data from recent storm experiences to the model.

III. 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 was again contacted by researchers at the Argonne National Laboratory who expressed interest in modeling the effects of storm damage. The researchers developed a deterministic model, rather than a probabilistic one, but did use many of the factors that the Collaborative have attempted to quantify. They are currently working to incorporate stochastic elements into their model and have consulted PURC for guidance. Every researcher that contacts PURC cites the model as the only non-proprietary model of its kind.

The research discussed in previous years' reports on the relationship between wind speed and rainfall is still under review by the engineering press. Further results of this and related research can likely be used to further refine the model.

IV. 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.

V. Public Outreach

In last year's report we discussed the impact of increasingly severe storms 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 Connecticut, New York, and New Jersey, Pennsylvania, and regulators in Jamaica, Grenada, Curacao, Samoa, and the Philippines. 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. PURC researchers also engaged with the popular media in preparation for, and in the wake of, Hurricane Irma.

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.