

# AUSLEY McMULLEN

ATTORNEYS AND COUNSELORS AT LAW

123 SOUTH CALHOUN STREET  
P.O. BOX 391 (ZIP 32302)  
TALLAHASSEE, FLORIDA 32301  
(850) 224-9115 FAX (850) 222-7560

February 19, 2018

**VIA: ELECTRONIC FILING**

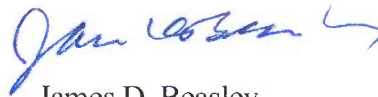
Ms. Carlotta S. Stauffer  
Commission Clerk  
Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee, Florida 32399-0850

Re: Docket No. 20170215-EU – Review of electric utility hurricane preparedness and restoration actions

Dear Ms. Stauffer:

Attached for filing in the above docket are Tampa Electric Company's Answers to Staff's Third Data Request (Nos.1-11) dated January 19, 2018.

Sincerely,



James D. Beasley

JDB/pp  
Attachment

cc: Wesley Taylor (w/attachment)

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 1  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

1. Please refer to question no. 11 of TECO's responses to staff's first data request, document no. 10643-2017. Please provide the number of customers that were still without power on the dates indicated and the amount of time it took to restore those customers.
  - A. The dates given on the response to Tampa Electric's First Data Request No. 11 were the dates and times associated with the restoration of outages related to Hurricanes Hermine, Matthew and Irma. There were no more customers still without power due to those named storm events after the provided dates.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 2  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

- 2.** Please refer to TECO's responses to question no. 12. Has TECO storm hardened its facilities serving the local community critical infrastructure facilities that experienced outages? If yes, please describe the hardening efforts. If not, please explain why not.
  - A.** Tampa Electric has storm hardened facilities that include those that serve the local community's critical infrastructure. These hardening efforts have included inspections and replacement of poles that failed strength requirements and trussing of overloaded poles to restore or exceed its original strength. These storm hardening efforts will continue until all the company's facilities, including those utilized to serve the critical infrastructure, have been storm hardened.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 3  
PAGE 1 OF 2  
FILED: FEBRUARY 19, 2018**

3. Please refer to TECO's responses to question no. 12.
  - a. For Hurricanes Hermine, Matthew, and Irma, TECO reported peak number of customers out for Pinellas County; however, zero customers were served. Please provide an explanation for the peak number of outages exceeding the number of customers served.
  - b. Based on the State Emergency Operations Center's (EOC) outage data for Hurricanes Matthew and Irma, the number of Peak Customers Out reported to the EOC does not match the number of Peak Customers Out provided in TECO's response to question 12. Please provide an explanation for this discrepancy.
  
- A.
  - a. There were transposition errors within Tampa Electric's Response to Staff's First Data Request No. 12. Below is the table with the correct customer counts:

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 3  
PAGE 2 OF 2  
FILED: FEBRUARY 19, 2018**

<b>Hurricane Hermine</b>		
	<b>Total Customers<sup>1</sup></b>	<b>Peak Customers Out</b>
<b>Tampa Electric System</b>	724,911	30,973
<b>Hillsborough County</b>	612,016	29,862
<b>Pasco County</b>	22,067	69
<b>Pinellas County</b>	18,263	929
<b>Polk County</b>	72,565	113
<b>Hurricane Matthew</b>		
	<b>Total Customers<sup>1</sup></b>	<b>Peak Customers Out</b>
<b>Tampa Electric System</b>	724,911	3,838
<b>Hillsborough County</b>	612,016	138
<b>Pasco County</b>	22,067	6
<b>Pinellas County</b>	18,263	1
<b>Polk County</b>	72,565	3,666
<b>Hurricane Irma</b>		
	<b>Total Customers<sup>2</sup></b>	<b>Peak Customers Out</b>
<b>Tampa Electric System</b>	736,819	>328,000
<b>Hillsborough County</b>	622,069	263,790
<b>Pasco County</b>	22,430	15,731
<b>Pinellas County</b>	18,563	770
<b>Polk County</b>	73,757	52,513
Note 1: as of January 1, 2016, Note 2: as of January 1, 2017		

- b. The data submitted to the Emergency Operating Centers (“EOC”) were hourly snapshots and did not necessarily reflect peak data from the total duration of the specific named storm.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 4  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

- 4.** Please refer to TECO's responses to question no. 36. In its response, TECO stated that it is "very pleased with the performance of the underground facilities during Hurricanes Hermine, Irma and Matthew." However, TECO stated it does not have outage data for Hurricane Irma at this time. Please provide any analysis or records used to assess the performance of underground facilities for Hurricane Irma.
  
- A.** Tampa Electric is very pleased with the performance of the company's underground facilities during Hurricanes Hermine, Irma and Matthew. Given the large number of overall outages caused by Hurricane Irma and the urgency placed on the company to restore all affected customers as quickly, efficiently and as safely as possible, the company did not delay restoration efforts to stop and collect data on overhead versus underground outages. Given the fact that underground outages will take considerably longer to restore as compared to overhead outages, the company would not have been able to complete restoration efforts to all the customers that were impacted by Hurricane Irma in as short a timeframe if the company's underground system had not performed well.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 5  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

5. For Hillsborough, Pasco, Pinellas, and Polk counties in TECO's service territory, please respond to the following questions for Hurricane Irma.
  - a. Identify and describe the areas in each county that sustained the most damage.
  - b. When was the last time tree trimming was performed in those high damage areas? How many miles were trimmed during that time?
  - c. Were there any preventive measures that could have been taken before Hurricane Irma impacted those high damage areas?
  
- A.
  - a. Hurricane Irma was a very large storm with estimates in size approximating Texas. Given this large size and the relatively small size of the company's service area in comparison, all of Tampa Electric's service area was affected with no particular area sustaining more severe damage than any other.
  
  - b. Tampa Electric continually trims across all service areas throughout the year and was actively trimming days prior to Hurricane Irma landfall. Miles trimmed were not recorded for Hurricane Irma.
  
  - c. Tampa Electric has procedures to follow to reduce or prevent the severity of damage from large weather events if certain aspects happen such as flooding or storm surge. Hurricane Irma did not require any preventative measures to be initiated to prevent more severe damage. In addition, Tampa Electric does not believe, with the outages and damages caused by Hurricane Irma, there are any new additional procedures or preventative measures necessary to be added to prevent damage.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 6  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

- 6.** Please provide the following information for an instance where storm hardened structures incurred damage and required repair or replacement due to Hurricane Irma.
- a. A description of the damage incurred (i.e. broken pole, displaced underground vault, etc.).
  - b. A description of the repair process, including a description of any temporary repairs that required a follow-up trip.
  - c. A description of the repair process if the facilities had not been hardened.
- A.**
- a. For Hurricane Irma, the typical damage affecting the distribution system included broken poles, leaning poles and conductor breakage. The majority of damage was caused by vegetation or other debris either flying into or falling onto the power lines. Damage to the underground system was negligible mainly due to the lack of a storm surge.
  - b. The repair process included damage assessment teams patrolling the electrical system and identifying areas requiring repair. Concurrently, line personnel worked to identify and repair system damage to restore locked out feeders/circuits and restore power to critical customers. Locations found in need of repair were communicated to the line crews to complete the necessary repairs.  
  
Temporary repairs were not required due to sufficient number of line personnel and materials on hand to effectively respond to damage created by Hurricane Irma.
  - c. The repair process for facilities that had not been hardened were the same as those that were hardened.



**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 7  
PAGE 1 OF 3  
FILED: FEBRUARY 19, 2018**

7. In Order No. PSC-06-0351-PAA-EI, the Commission ordered Florida's investor-owned utilities to file plans for Ten Storm Preparedness Initiatives. The Ten Initiatives are:
- Three-Year Vegetation Management Cycle for Distribution Circuits
  - Audit of Joint-Use Agreements
  - Six-Year Transmission Inspections
  - Hardening of Existing Transmission Structures
  - Transmission and Distribution Geographic Information System
  - Post-Storm Data Collection and Forensic Analysis
  - Collection of Detailed Outage Data Differentiating Between the Reliability Performance of Overhead and Underground Systems
  - Increased Utility Coordination with Local Governments
  - Collaborative Research on Effects of Hurricane Winds and Storm Surge
  - A Natural Disaster Preparedness and Recovery Program

Please provide suggested improvements, if any, to the Ten Initiatives, including modifications to existing initiatives and/or possible alternatives, based on lessons learned.

- A. The company's suggested improvements, potential modifications or alternatives are contained below under each point of the "Ten Initiatives":
- Four-Year Vegetation Management Cycle for Distribution Circuits:  
Tampa Electric received Commission approval within Docket No. 20120038-EI on June 12, 2012 to switch from a three-year to a four-year trim cycle for vegetation management. At this time, the company has no suggested improvements for this section of the ten-point plan.
  - Audit of Joint-Use Agreements:  
Tampa Electric evaluates all joint use and third-party agreements to ensure they have provisions that allow for periodic inspections and/or audits of all joint use attachments to the company's facilities. Tampa Electric believes this program does not require any needed modifications and will start the next full-system attachment audit in 2018.
  - Eight-Year Transmission Inspections:  
Tampa Electric believes there is one suggested modification that would enhance the existing transmission inspection processes.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 7  
PAGE 2 OF 3  
FILED: FEBRUARY 19, 2018**

This enhancement would eliminate the Above Ground Inspection as a separate inspection program. The same critical inspection data that is captured during the Above Ground Inspection from a manned helicopter, is also captured during the company's annual Ground Patrol of the entire Transmission system, hence duplicating efforts. Additionally, advances in technology have allowed the company to incorporate unmanned aerial vehicles (drones) that utilize high-resolution cameras for a more comprehensive Ground Patrol inspection. Not only is using a drone a less expensive alternative, it is also much safer than having a manned helicopter flying near the energized lines.

The company is not proposing any suggested improvements to the other transmission inspections: Aerial Infrared Patrol, Ground Line Inspections or Substation Inspections.

- **Hardening of Existing Transmission Structures:**  
At this time, the company has no suggested improvements for this section of the ten-point plan.
- **Transmission and Distribution Geographic Information System:**  
Tampa Electric has continued to improve the company's Geographic Information System ("GIS") each year since its implementation. The company's GIS in the future will continue to serve as the foundational database for the company's transmission and distribution system. At this time, the company has no suggested improvements for this section of the ten-point plan.
- **Post-Storm Data Collection and Forensic Analysis:**  
Tampa Electric successfully initiated and completed the post-storm collection and forensic analysis for Hurricane Irma. The company is evaluating this forensic analysis and may initiate some changes with this process after the review is complete. At this time, the company has no suggested improvements or modifications for this section of the ten-point plan.
- **Collection of Detailed Outage Data Differentiating Between the Reliability Performance of Overhead and Underground Systems:**  
At this time the company has no suggested improvements to the company's Collection of Detailed Outage Data Differentiating

Between the Reliability Performance of Overhead and Underground Systems.

- **Increased Utility Coordination with Local Governments:**  
Tampa Electric works actively with local communities year-round to identify and address issues of common concern. Personnel from its Community Relations and Account Management Departments are assigned to each of the local governments served by Tampa Electric. These representatives engage in ongoing discussions with local officials regarding critical issues such as storm restoration, underground conversions, and vegetation management. Both before, during and after Hurricane Irma, communications often centered on critical infrastructure and return to service prioritization. These conversations helped guide Tampa Electric's restoration crews to the most critical facilities (e.g., water treatment, lift stations, traffic signalization, etc.). The conversations have continued post storm and have developed a more detailed understanding of how to best respond to our local government partners. In addition, Tampa Electric is able to provide feedback on additional measures the local governments can take to protect their critical functions and structures. Continuing these detailed conversations to capture and address lessons learned would enhance the current local government coordination efforts.
- **Collaborative Research on Effects of Hurricane Winds and Storm Surge:**  
At this time the company has no suggested improvements to the company's collaborative research on effects of hurricane winds and storm surge.
- **A Natural Disaster Preparedness and Recovery Program:**  
Tampa Electric's Emergency Contingency Response and Business Continuity ("ECRP-BC") Plan continues to emphasize continuity of business in support of tactical response during storms. Based on lessons learned, the company plans to improve logistical support capabilities by making enhancements to its existing business resilience software application for purposes of automating and streamlining the request process. These enhancements should allow for better tracking, coordination, consolidation and reporting of logistics support.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 8  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

- 8.** Please provide suggested improvements, if any, to the 8-year wooden pole inspection program, including modifications to the existing program and/or possible alternatives, based on lessons learned.
  
- A.** At this time, the company has no suggested improvements to the company's eight-year wooden pole inspection program. Over the past two years, Tampa Electric has been exploring an alternative non-destructive inspection technology that may potentially be used to analyze poles for rot. This could speed up the inspection process and would eliminate the potential introduction of wood pole decaying agents.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 9  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

- 9.** Please provide suggested improvements, if any, to the electric infrastructure storm hardening plan filed pursuant to Rule 25-6.0342, F.A.C., including modifications to the existing rule and/or possible alternatives, based on lessons learned.
  - A.** Since the inception of the requirement to file electric infrastructure storm hardening plans, Tampa Electric has gained valuable lessons learned from the construction, maintenance and restoration of the company's electrical system and from providing mutual assistance to other utilities with the restoration of their electrical system. These lessons learned ideas are vetted and where possible and practical have been adopted by Tampa Electric as operating best practices to either reduce the total number of outages, reduce the overall outage time or to reduce the overall cost of restoration. Tampa Electric is still evaluating the lessons learned and final forensic analysis that was performed for Hurricane Irma. At this time, Tampa Electric has no suggested improvements to the electric infrastructure storm hardening plan filed pursuant to Rule 25-6.0342, F.A.C., including modifications to the existing rule and/or possible alternatives, based on lessons learned.

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 10  
PAGE 1 OF 2  
FILED: FEBRUARY 19, 2018**

- 10.** Assuming TECO decreased its feeder vegetation cycle from its current 4 year cycle to a 3 year cycle, please provide the following:
- a. Additional cost per year.
  - b. Incremental benefits (e.g. reduced number of outages)
- A.** Tampa Electric trims the entire circuit for both feeder and lateral distribution circuits.
- a. Tampa Electric received Commission approval within Docket No. 20120038-EI on June 12, 2012 to switch from a three-year to a four-year trim cycle for vegetation management. As part of that Docket, the company had an independent consultant conduct a study of alternative vegetation management programs as part of the company's storm hardening program. The company believes the analysis that was performed to support the change in trim cycle is still relevant. The tables below show the projected additional cost that Tampa Electric would incur if it switched back to a three-year trim cycle at that time.

Projected Trim Budget for change in Trim Cycle (millions)			
Year	Three Year Cycle	Four Year Cycle	Change to switch to Three Year Cycle (Increase in Costs)
2012	\$10.24	\$7.93	\$2.31
2013	\$10.91	\$7.93	\$2.98
2014	\$10.62	\$8.55	\$2.07
2015	\$11.58	\$10.01	\$1.58
2016	\$10.43	\$9.84	\$0.59
2017	\$12.13	\$10.93	\$1.19
2018	\$11.20	\$10.20	\$1.00
2019	\$12.35	\$9.92	\$2.43
2020	\$11.53	\$10.36	\$1.17
2021	\$13.29	\$11.37	\$1.92

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 10  
PAGE 2 OF 2  
FILED: FEBRUARY 19, 2018**

Cumulative Vegetation Management ("VM") Costs (2012 -2021) (in millions)					
Scenarios	VM Trim Budget	Normal Restoration Costs from Tree Outages	VM Storm Restoration Costs	Corrective Maintenance Cost	Total VM Program Costs
Three Year Cycle	\$81.64	\$27.98	\$12.39	\$3.96	\$125.97
Four Year Cycle	\$68.70	\$34.23	\$14.87	\$4.98	\$122.78
Difference	\$12.93	\$(-6.25)	\$(-2.48)	\$(-1.02)	\$3.18
Change%	16%	-22%	-20%	-26%	3%

- b. The table below shows the projected change in reliability if Tampa Electric switched back to a three-year trim cycle.

Projected SAIDI for change in Trim Cycle (minutes/year)			
Year	Three Year Cycle	Four Year Cycle	Change to switch to Three Year Cycle (Improvement in Reliability)
2012	22.71	22.71	0.00
2013	21.09	21.96	0.87
2014	20.95	23.02	2.07
2015	20.98	24.19	3.21
2016	20.74	24.56	3.82
2017	20.71	24.78	4.07
2018	20.53	23.95	3.42
2019	20.55	23.46	2.91
2020	20.53	23.43	2.90
2021	20.72	24.18	3.46

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20170215-EU  
STAFF'S THIRD DATA REQUEST  
REQUEST NO. 11  
PAGE 1 OF 1  
FILED: FEBRUARY 19, 2018**

- 11.** Assuming TECO decreased its lateral vegetation cycle from its current 4 year cycle to a 3 year cycle, please provide the following:
- a. Additional cost per year.
  - b. Incremental benefits (e.g. reduced number of outages)
- A.**
- a. See Response No. 10a this set
  - b. See Response No. 10b this set