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April 2, 2024

**ELECTRONIC FILING**

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

Re: Docket 20240026-EI; Petition for Rate Increase by Tampa Electric Company

Dear Mr. Teitzman:

Attached for filing on behalf of Tampa Electric Company in the above-referenced docket is the Direct Testimony of Chip Whitworth and Exhibit No. CW-1.

Thank you for your assistance in connection with this matter.

(Document 7 of 32)

Sincerely,

A handwritten signature in blue ink that reads 'J. Jeffrey Wahlen'.

J. Jeffrey Wahlen

cc: All parties

JJW/ne  
Attachment



**BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION**

**DOCKET NO. 20240026-EI  
IN RE: PETITION FOR RATE INCREASE  
BY TAMPA ELECTRIC COMPANY**

**PREPARED DIRECT TESTIMONY AND EXHIBIT  
OF  
CHIP WHITWORTH**

**TABLE OF CONTENTS**  
**PREPARED DIRECT TESTIMONY AND EXHIBIT**  
**OF**  
**CHIP WHITWORTH**

TRANSMISSION AND DISTRIBUTION SYSTEM OVERVIEW..... 6  
PROGRESS SINCE TAMPA ELECTRIC'S LAST BASE RATE PROCEEDING... 10  
FUTURE PLANS FOR TRANSMISSION AND DISTRIBUTION SYSTEM..... 21  
ELECTRIC DELIVERY AND OUR REQUEST FOR RATE RELIEF..... 30  
2025 TRANSMISSION AND DISTRIBUTION O&M EXPENSES..... 37  
SUMMARY..... 45  
EXHIBIT..... 48

1                                   **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2                                   **PREPARED DIRECT TESTIMONY**

3                                   **OF**

4                                   **CHIP WHITWORTH**

5  
6   **Q.**   Please state your name, address, occupation, and employer.

7  
8   **A.**   My name is Chip Whitworth. My business address is 702 N.  
9           Franklin Street, Tampa, Florida 33602. I am employed by  
10          Tampa Electric Company ("Tampa Electric" or the  
11          "company"), and I am the Vice President of Electric  
12          Delivery.

13  
14   **Q.**   Please describe your duties and responsibilities in that  
15          position.

16  
17   **A.**   I have responsibility for all aspects of Electric Delivery  
18          which include Safety; Environmental Compliance; Customer  
19          Reliability; Transmission and Distribution Grid and  
20          Energy Control Center; Transmission, Substation, and  
21          Distribution Engineering and Construction; Storm  
22          Protection Plan ("SPP"); Asset Management; Meter  
23          Operations; Operational Technology and Strategy; Lighting  
24          Operations; Telecommunications; and Fleet Operations. I  
25          provide direct leadership to all the company's Electric

1 Delivery Directors and lead a team of approximately 1,050  
2 team members.

3  
4 My duties and responsibilities include the oversight of  
5 all functions within Tampa Electric's Electric Delivery  
6 Department including the planning, engineering,  
7 operation, maintenance, and restoration of the  
8 transmission, distribution, and substation systems;  
9 operation of the distribution and energy control centers;  
10 administration of tariffs and compliance; execution of  
11 the company's Transmission and Distribution ("T&D")  
12 strategic solutions including advanced metering  
13 infrastructure ("AMI"), outdoor and streetlight light-  
14 emitting diode ("LED") conversion project, and Advanced  
15 Distribution Management System ("ADMS"); line clearance  
16 activities; and fleet and equipment. In addition, I am  
17 responsible for the safe, timely, and efficient  
18 implementation of Tampa Electric's storm restoration  
19 plan.

20  
21 **Q.** Have you previously testified before the Florida Public  
22 Service Commission ("Commission")?

23  
24 **A.** Yes. I filed direct testimony in Docket No. 20230019-EI,  
25 Tampa Electric's Petition for recovery of costs associated

1 with named tropical systems during the 2018-2022 hurricane  
2 season and replenishment of storm reserve. I also provided  
3 testimony for two Transmission Line Siting Act ("TLSA")  
4 projects; Willow Oak,- Wheeler,- Davis and Lake Agnes to  
5 Gifford were the two projects.

6

7 **Q.** Please provide a brief outline of your educational  
8 background and business experience.

9

10 **A.** I graduated from The University of South Florida with a  
11 Bachelor of Science in Civil/Structural Engineering  
12 ("BSCE") and a Master of Business Administration ("MBA").  
13 I have more than 27 years of experience in the energy  
14 industry, all of which has been at Tampa Electric. Prior  
15 to becoming Vice President of Electric Delivery at Tampa  
16 Electric in 2022, I held the position of Vice President  
17 of Safety beginning in 2021. Prior to taking that role,  
18 my work experience included approximately 24 years in  
19 Electric Delivery and Energy Supply where I worked as an  
20 engineer and held various engineering and operations  
21 leadership positions.

22

23 **Q.** What are the purposes of your direct testimony?

24

25 **A.** The purposes of my direct testimony are to (1) describe

1 the company's T&D system; (2) describe the changes to the  
2 T&D system since the company's last base rate case; (3)  
3 describe the company's future plans for its T&D system and  
4 our grid modernization strategy; (4) demonstrate that the  
5 company's T&D plant (*i.e.*, electric delivery) construction  
6 program and capital budget for 2025 is reasonable and  
7 prudent; and (5) show that the company's proposed level of  
8 operations and maintenance expense ("O&M") for Electric  
9 Delivery in the 2025 test year is reasonable and prudent.  
10 The T&D related capital and O&M spending discussed in my  
11 direct testimony does not include any capital or O&M  
12 associated with the SPP.

13  
14 **Q.** Have you prepared an exhibit to support your direct  
15 testimony?

16  
17 **A.** Yes. Exhibit No. CW-1, entitled "Exhibit of Chip Whitworth"  
18 was prepared under my direction and supervision. The  
19 contents of my exhibit were derived from the business  
20 records of the company and are true and correct to the best  
21 of my information and belief. The exhibit consists of eight  
22 documents, as follows:

23 Document No. 1 List of Minimum Filing Requirement  
24 Schedules Sponsored or Co-Sponsored by  
25 Chip Whitworth

- 1 Document No. 2 FPSC Adjusted Reliability Trends
- 2 Document No. 3 Service Area Customer Demand - Growth
- 3 Document No. 4 Electric Delivery Capital Summary
- 4 2022 - 2025
- 5 Document No. 5 DOE ICE Calculator Results
- 6 Document No. 6 Line Loss Reduction
- 7 Document No. 7 Grid Reliability and Resilience
- 8 Project Schedule
- 9 Document No. 8 Service Territory Map

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**Q.** Are you sponsoring any sections of Tampa Electric's Minimum Filing Requirement ("MFR") Schedules?

**A.** Yes. I am sponsoring or co-sponsoring the MFR Schedules listed in Document No. 1 of my exhibit. The data and information on these schedules were taken from the business records of the company and are true and correct to the best of my information and belief.

**Q.** Do the rate base and O&M amounts for the 2025 test year and otherwise discussed in your direct testimony include amounts related to the company's SPP?

**A.** No. The rate base and O&M amounts for the 2025 test year do not include SPP O&M.



1 **TRANSMISSION AND DISTRIBUTION SYSTEM OVERVIEW**

2 **Q.** Please describe the company's current T&D system.

3  
4 **A.** Tampa Electric's service territory covers approximately  
5 2,000 square miles in West Central Florida, including  
6 nearly all of Hillsborough County and parts of Polk, Pasco,  
7 and Pinellas Counties. The company has divided its service  
8 territory into seven "service areas" for operational and  
9 administrative purposes. Please refer to Document No. 8 of  
10 my exhibit entitled: "Service Territory Map".

11  
12 Tampa Electric's transmission system consists of nearly  
13 1,332 circuit miles of overhead facilities, including  
14 approximately 25,296 transmission poles and structures.  
15 The company's transmission system also includes  
16 approximately ten circuit miles of underground facilities.

17  
18 The company's distribution system consists of  
19 approximately 6,137 distribution circuit miles of overhead  
20 facilities, and approximately 266,773 poles. The  
21 distribution system also includes approximately 6,475  
22 circuit miles of underground facilities.

23  
24 The company currently has 238 T&D substations.  
25

1 Q. What role does safety play in Electric Delivery?  
2

3 A. Safety is the top priority, a core value at Tampa Electric,  
4 and is integral to the work that we perform. Electric  
5 Delivery is committed to the belief that all injuries are  
6 preventable. In 2018, Electric Delivery implemented a  
7 Safety Management System ("SMS") designed to ensure  
8 compliance with Occupational Safety and Health  
9 Administration ("OSHA") regulations and to follow OSHA  
10 recommended practices. The SMS consists of 10 elements  
11 including: Safety Leadership; Risk Management; Programs,  
12 Procedures, and Practices; Communication, Training, and  
13 Awareness; Culture and Behavior; Contractor Safety; Asset  
14 Integrity; Measuring and Reporting; Incident Management  
15 and Investigation; and Auditing and Compliance.

16  
17 Through 2021 and 2022 Tampa Electric Company worked over 6  
18 million work hours without a lost-time injury. Through  
19 December 2023, Tampa Electric's lost-time injury rate is  
20 16 percent better than the company's five-year average.

21  
22 Additionally, Electric Delivery is focusing on  
23 preventative measures such as high energy identification,  
24 hazard recognition, and mitigation through new job risk  
25 briefing tools and training sessions. These tools teach

1 workers to identify high energy sources present and to not  
2 proceed with work until barriers are installed. Industry  
3 trends show that most Serious Injuries and Fatalities  
4 ("SIF") are the result of unmitigated high energy exposure  
5 contacting a worker.

6  
7 Electric Delivery has a robust community-outreach safety  
8 program where we communicate in-person with first  
9 responders, educators, and community leaders about  
10 electrical facilities and how that relates to public  
11 safety.

12  
13 **Q.** What is Asset Management and how has the company integrated  
14 Asset Management techniques into its planning and  
15 operations for Electric Delivery?

16  
17 **A.** Asset Management is a disciplined way of thinking and  
18 managing that aligns engineering, operations, maintenance,  
19 other technical and financial decisions, and processes for  
20 the purpose of optimizing the value of our assets  
21 throughout their lifecycles.

22  
23 Tampa Electric seeks to achieve its asset optimization  
24 goals by focusing on three Asset Management objectives, as  
25 described below.

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The first objective is the integration of asset monitoring; health and risk assessment; work planning and scheduling; capital planning; outage planning; risk management; and other supporting asset management processes into continuous business processes.

The second objective is the broader engagement of team members and subject matter experts in these continuous improvement processes, the establishment of asset management responsibilities throughout the organization, and ensuring team members are empowered with industry best practices through awareness, training, and implementing these best practices.

Finally, we sustain the integrated processes and engagement of our teams through documentation and standardization of technical and business processes and the implementation of supporting operational and operations technology systems.

Applying Asset Management principles gives us a comprehensive understanding of the condition of our assets and the risks associated with them and allows us to better identify and prioritize the work that needs to be done.

This level of understanding enables us to improve our

1 planning and scheduling of work, lowers the costs and risks  
2 of operating our system, ensures full utilization of assets  
3 and often life extensions of assets, and improves  
4 efficiency and reliability - all of which promote a good  
5 customer experience.

6  
7 **PROGRESS SINCE TAMPA ELECTRIC'S LAST BASE RATE PROCEEDING**

8 **Q.** How has the company's T&D system continued to evolve since  
9 the company's last base rate proceeding in 2021?

10  
11 **A.** Since 2021, Tampa Electric's Electric Delivery department  
12 has continued to ensure that we can provide resilient,  
13 safe, and reliable power to our current and future  
14 customers.

15  
16 One of the ways that the T&D system has evolved is through  
17 system expansion. We expanded our overhead transmission  
18 system by approximately 18 circuit miles and expanded our  
19 underground distribution system by approximately 760  
20 circuit miles. Additionally, the company placed 15 new  
21 substations in service and added approximately 670 single  
22 and three phase reclosing devices on the distribution  
23 system.

24  
25 Another way the T&D system changed is through a shift to

1 primarily providing distribution service through  
2 underground equipment, which is more reliable and resilient  
3 in extreme weather conditions. Since 2021, we have reduced  
4 our overhead distribution system by approximately 109 miles  
5 even as the overall mileage of the distribution system has  
6 grown. In 2023, Electric Delivery transitioned to a  
7 primarily underground distribution system, with more  
8 installed underground circuit miles than overhead. The  
9 ratio of underground to overhead circuit miles will  
10 continue to increase as the SPP lateral undergrounding  
11 program matures and as new single family housing  
12 developments continue to propagate.

13  
14 These capital investments since the last base rate case  
15 were required to support the substantial increase in  
16 customer demand and support the economic development in  
17 Tampa Electric's service territory. For example, since  
18 2016, customer system demand in terms of Mega Volt Ampere  
19 ("MVA") has cumulatively increased by 9.7 percent.

20  
21 This growth in demand is directly correlated to our  
22 customer growth rate. Since 2016, Tampa Electric has had  
23 an overall average annual customer growth rate of 2.1  
24 percent. The cumulative overall growth has been 17.7  
25 percent. However, this does not reflect the rapid growth

1 and expansion within areas of Tampa Electric's service  
2 territory. For example, the South Hillsborough, Winter  
3 Haven, and Dade City service areas have seen cumulative  
4 customer increases of 53.3 percent, 22.8 percent, and 17.8  
5 percent respectively. Please see Document No. 3 of my  
6 exhibit entitled: "Service Area Customer Demand".  
7

8 The customer demand growth analysis shows that a  
9 significant influx of new customers are moving to formerly  
10 rural areas within our service territory requiring electric  
11 system expansion, *i.e.*, new substations, transmission  
12 lines, upgraded distribution services, and relocations of  
13 existing facilities to accommodate roadway improvements.  
14

15 **Q.** Please describe the indicators the company uses to monitor  
16 reliability and how they relate to what customers  
17 experience.  
18

19 **A.** The reliability of our service has the most impact on our  
20 customer experience. We track a variety of industry  
21 recognized reliability metrics that reflect how our  
22 Electric Delivery system performs from a customer's  
23 perspective.  
24

25 The company focuses primarily on System Average

1 Interruption Duration Index ("SAIDI") and Momentary  
2 Average Interruption Event Frequency Index ("MAIFIE").

3  
4 SAIDI indicates the total minutes of interruption time the  
5 average customer experiences in a year. It is the most  
6 relevant and best overall reliability indicator because it  
7 encompasses two other standard performance metrics for  
8 overall reliability - the System Average Interruption  
9 Frequency Index ("SAIFI") and the Customer Average  
10 Interruption Duration Index ("CAIDI").

11  
12 MAIFIE reflects the overall impact of momentary  
13 interruptions on a circuit and is defined as the average  
14 number of times a customer experiences a momentary  
15 interruption event each year.

16  
17 Tampa Electric sets reliability goals for both SAIDI and  
18 MAIFIE annually and reports these results to the Commission  
19 in compliance with Rule 25-6.0455, Florida Administrative  
20 Code, which requires investor-owned utilities ("IOU") to  
21 file distribution reliability reports.

22  
23 The company also tracks and sets goals around a measurement  
24 known as Customers Experiencing Multiple Interruptions  
25 ("CEMI-5"). CEMI-5 indicates the percentage of customers



1 who experience six or more sustained outages annually.  
2 CEMI-5 yearly results are consistently improving each year,  
3 as shown later in my testimony.  
4

5 **Q.** Has the company's delivery system reliability improved  
6 since 2021?  
7

8 **A.** Yes, the company's T&D reliability has steadily improved  
9 since 2021. Our SAIDI improved from a high of 84.5 in 2021  
10 to a low of 57.27 in 2023, and MAIFIE improved from a high  
11 of 6.5 in 2021 to a low of 6.44 in 2023. CEMI-5 improved  
12 from 9,744 in 2021 to 1,022 in 2023. These results are  
13 reflected in Document No. 2 of my exhibit entitled: "FPSC  
14 Adjusted Reliability Trends".  
15

16 **Q.** How did the company achieve these improvements in Electric  
17 delivery system reliability?  
18

19 **A.** Tampa Electric attributes these improvements to work  
20 performed in four major areas: the Asset Management  
21 Program, our Annual Distribution Reliability Plan,  
22 operational changes, and the SPP.  
23

24 **Q.** Please describe the company's achievements through the  
25 Asset Management Program since 2021.

1 **A.** Tampa Electric completed several activities under the Asset  
2 Management Program that improved system reliability. For  
3 example, Tampa Electric inspected 2,691 of the company's  
4 3,099 distribution switchgears. This inspection showed  
5 that some of these switchgears are at the end of life,  
6 while for others replacement can be deferred. Based on  
7 these findings, the company moved from a time-based  
8 replacement prioritization to a risk-based prioritization.  
9 This change will prioritize replacement of switchgear that  
10 are at their end of useful life, instead of simply  
11 prioritizing the oldest equipment, and will maximize the  
12 use of switchgear that has remaining life. Through this  
13 effort, Tampa Electric has replaced 444 of these  
14 switchgears since 2019.

15  
16 As another example, the company used Asset Management  
17 analysis to prioritize proactive replacement and  
18 maintenance of medium power transformers, 69 kV oil circuit  
19 breakers, and 13 kV distribution circuit breakers. This  
20 proactive replacement and maintenance prioritization  
21 prevents potential customer outages, maximizes the useful  
22 life of installed assets, and mitigates risks associated  
23 with equipment failures. Our Asset Management processes  
24 also consider the impact of equipment failures to the  
25 community in the prioritization of maintenance. In 2022

1 and 2023, Tampa Electric proactively replaced 28 of our 13  
2 kV distribution circuit breakers, including all breakers  
3 that feed one of the most critical facilities to our  
4 customers, Tampa International Airport.

5  
6 **Q.** Please describe the annual distribution reliability plan  
7 and how it is prepared.

8  
9 **A.** We prepare our distribution reliability plan by evaluating  
10 the reliability of each distribution circuit on an annual  
11 basis. The company uses the SAIDI, MAIFIE, SAIFI, and CEMI-  
12 5 results to determine which circuits to target for  
13 reliability improvement. We also evaluate circuit outages  
14 over a five-year period to determine the most frequent  
15 outage locations as well as the most frequent root causes.  
16 This allows us to effectively deploy capital to the  
17 circuits that have below average performance.

18  
19 The results of these evaluations are used to identify the  
20 type of equipment needed to improve reliability, such as  
21 automatic feeder and lateral reclosers, and fault  
22 detectors, and to install that equipment in places that  
23 will optimize reliability improvements. The company has  
24 achieved significant reliability improvements through this  
25 targeted approach of research and field device

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installation.

**Q.** What operational changes has the company made to improve reliability?

**A.** The company made operational changes within the control room to dispatch resources more effectively for outages. For example, Tampa Electric has line crews available during the night that can instantly mobilize to an outage. This avoids mobilizing line workers from their homes, which adds considerable time to restoration.

From an engineering perspective, Tampa Electric has utilized a relay and protection scheme known as "sequence coordination" between circuit breakers and lateral reclosers to better sectionalize momentary interruption impacts, leading to significant MAIFIE improvements.

**Q.** Please briefly describe the company's progress under the SPP program over the last several years.

**A.** Section 366.96(3), Florida Statutes, requires each public utility to file a T&D SPP that covers the immediate 10-year planning period, and to explain the systematic approach the utility will follow to achieve the objectives

1 of reducing restoration costs and outage times associated  
2 with extreme weather events and enhancing reliability.  
3 Tampa Electric submitted its first SPP to the Commission  
4 in April 2020 and it was approved later that year in Docket  
5 No. 20200067-EI. The Commission approved the company's  
6 second SPP in December of 2022, through Order PSC-2020-  
7 0293-AS-EI, which was issued on August 28, 2020.

8  
9 Between April 2020 and the end of 2023, Tampa Electric  
10 completed the following SPP activities:

- 11 • 27 Feeder Hardening projects.
- 12 • 239 Lateral Undergrounding projects.
- 13 • 355 circuits (2,180 miles) trimmed under the  
14 Supplemental Vegetation Management program.
- 15 • 270 circuits (1,440 miles inspected, 3,680 spans trimmed  
16 and 1,917 hazard trees removed) under the Mid-Cycle  
17 Vegetation Management program.

18  
19 **Q.** Can you please provide an update on how the SPP Program  
20 has impacted the reliability of the system during storms?

21  
22 **A.** Our SPP activities have resulted in significant improvement  
23 in system performance during and after extreme weather  
24 events, which improves the customer experience. This  
25 improvement is best illustrated by comparing system

1 performance during Hurricane Irma, which predated the first  
2 SPP, and Hurricane Ian in September of 2022. During  
3 Hurricane Ian, wind speeds remained above 40 miles per hour  
4 for 8.5 hours, as compared to only 1.5 hours during  
5 Hurricane Irma. Despite these more severe weather  
6 conditions, the company saw significantly improved  
7 performance in several areas, including:

- 8
- 9 • A 57 percent reduction in the number of outages on the  
10 18 circuits that were hardened under the Feeder  
11 Hardening Program, and zero pole or feeder wire failures  
12 on those circuits. There were four pole failures on non-  
13 hardened feeders within 1,000 feet of hardened feeders,  
14 which indicates that there would have been more pole  
15 failures but for the company's hardening efforts.
- 16 • None of the laterals that were undergrounded before  
17 Hurricane Ian experienced an outage during Ian. The  
18 company examined areas within 1,000 feet of each  
19 underground conversion project and identified four pole  
20 failures, indicating that weather conditions in those  
21 areas could have caused damage to overhead lateral  
22 equipment if it had been present.
- 23 • Circuits that received Supplemental Vegetation  
24 Management had a 20 percent reduction in the number of  
25 outages.

- 1 • Circuits that received Mid-Cycle Vegetation Management
- 2 had a five percent reduction in the number of outages.
- 3 • Circuits that received both Supplemental and Mid-Cycle
- 4 Vegetation Management had a 43 percent reduction in
- 5 outages.

6

7 **Q.** Have the improvements made to the company's system

8 performance and reliability since 2021 improved Tampa

9 Electric's customer experience?

10

11 **A.** Yes. In 2023, Tampa Electric scored better than the

12 industry average for every residential customer

13 satisfaction criterion (as measured by J.D. Power),

14 including Power Quality and Reliability, which is ranked

15 at the top of the second quartile nationally (40<sup>th</sup> out of

16 149 brands). In the South Large segment, Tampa Electric is

17 ranked third out of 12 brands, which is the highest ranked

18 Florida brand in our segment for Power Quality and

19 Reliability. On the business side, Tampa Electric also

20 scored better than the industry average and is ranked in

21 the second quartile nationally (37<sup>th</sup> out of 77 brands) for

22 Power Quality and Reliability. Between 2022 and 2023, when

23 most other satisfaction criterion scores decreased, Tampa

24 Electric's Power Quality and Reliability score increased

25 by three points.

1 **FUTURE PLANS FOR TRANSMISSION AND DISTRIBUTION SYSTEM**

2 **Q.** Will the company need to continue investing in its T&D  
3 system?  
4

5 **A.** Yes. Tampa Electric witnesses Archie Collins, Karen  
6 Sparkman, Carlos Aldazabal, Chris Heck, and David Lukcic  
7 describe how the expectations of our customers and the  
8 electric industry are changing. To meet the challenge,  
9 Tampa Electric must make long term investments in our T&D  
10 system to ensure that it will be safe, resilient, secure,  
11 reliable, compatible with distributed generation and  
12 energy storage, and will provide the data customers want  
13 for managing their electric service. Accordingly, our long-  
14 term plans include significant investments for grid  
15 resilience and reliability. These investments support  
16 digitalizing the grid which will increase our visibility  
17 into grid operations and make data available for more  
18 efficient and effective grid operations; improve  
19 reliability; reduce restoration times; increase  
20 resiliency; improve grid planning; allow new customer  
21 programs and new rate designs; and provide data directly  
22 to customers so they can better manage their electric  
23 service. Tampa Electric will implement a group of projects,  
24 known collectively as the Grid Reliability and Resilience  
25 Projects, including a Grid Communication Network Project,



1 to meet these needs.

2

3 **Q.** What are the Grid Reliability and Resilience Projects?

4

5 **A.** The Grid Reliability and Resilience Projects are components  
6 of a comprehensive program that builds on Tampa Electric's  
7 existing grid modernization strategy. The program includes  
8 more than 40 interdependent projects across the six primary  
9 domains of the electric system including: (1)  
10 telecommunications; (2) control center operational  
11 technology; (3) back-office information technology; (4)  
12 distributed energy resources ("DER") infrastructure; (5)  
13 field devices; and (6) substations. When completed, these  
14 changes to the grid will create a "system of systems" with  
15 many benefits for Tampa Electric's customers. Tampa  
16 Electric's goal is to complete all component projects by  
17 the end of 2030.

18

19 Mr. Lukcic provides greater detail regarding the Grid  
20 Reliability and Resilience Projects planned for the next  
21 several years in his direct testimony.

22

23 **Q.** Why is Tampa Electric aggregating the Grid Reliability and  
24 Resilience Projects?

25

1 **A.** Aggregating these projects results in more efficient  
2 capital spending and unlocks enhanced functionality as  
3 system elements are deployed. Pursuing these activities as  
4 individual projects would hinder the integration of the  
5 program and increase the risk of project delays, rework,  
6 and scope changes.

7

8 **Q.** What do you mean when you describe these projects as  
9 interdependent?

10

11 **A.** Through the Grid Reliability and Resilience Projects, Tampa  
12 Electric will deploy infrastructure in a coordinated  
13 program that will enable the company to exchange  
14 electricity and information across the six grid domains,  
15 and to exchange information from the grid edge to the  
16 company's control and information technology ("IT") and  
17 operations technology systems.

18

19 For example, sensors on lines and substations in the field  
20 device domain can continuously monitor circuits for faults  
21 or anomalies. Monitoring data from these field devices is  
22 relayed through the telecommunications domain to the  
23 control system operational technology domain. These  
24 control systems can then take appropriate corrective  
25 actions by sending signals back to the field devices.

1 Q. Why are the Grid Reliability and Resilience Projects  
2 necessary?

3

4 A. These projects are necessary to replace obsolete systems  
5 and equipment that have reached end of life as well as  
6 meeting customer demands for greater reliability, greater  
7 access to data, and to adapt to changes in how our customers  
8 consume energy.

9

10 Reliable and resilient electric service underpins  
11 everything Tampa Electric does. Our customers are  
12 increasingly demanding an "always-on" experience. As shown  
13 elsewhere in my testimony, our reliability metrics have  
14 significantly improved in recent years. The Grid  
15 Reliability and Resilience Projects are the next step in  
16 the journey to world-class reliability to help meet  
17 customer expectations.

18

19 The Grid Reliability and Resilience Projects will result  
20 in a better integration of back-office systems with field  
21 operations, which will lead to better in-service timelines  
22 and a simpler, more streamlined interaction with Tampa  
23 Electric for customers. This will allow customers access  
24 to more data to help them make informed decisions about  
25 energy usage and provide better visibility into the status

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25

of work we are performing for them.

These projects are also necessary to respond to changes in how energy is consumed and produced, including the rapid growth of electric vehicle ("EV") adoption and the proliferation of customer owned distributed energy resources ("DER"), and to replace obsolete and unsupported operating systems. Tampa Electric forecasts that by 2030, there will be over 200,000 EV charging on the company's grid, consuming approximately 944 gigawatt-hours ("GWh") of energy and adding up to 282 megawatts ("MW") of peak demand. Some of these vehicles may also have vehicle-to-grid capability, meaning they can inject power back into the grid. The company also forecasts that by 2030, the number of customer-owned DER on Tampa Electric's system will triple from the current count of 25,000 to approximately 75,000. This level of DER is equivalent to a nameplate generating capacity of 770 MW resulting in 1,212 GWh of energy going back into homes/businesses with excess energy going back into the company's distribution grid.

**Q.** What effect will the increasing adoption of EV and customer owned DER have on Tampa Electric's distribution system?

**A.** Tampa Electric's distribution system is designed for a

1 centralized generation model under which power is generated  
2 at large, centralized power plants and transmitted and  
3 distributed over long distances to end users. With the  
4 proliferation of EV and DER, the grid will now experience  
5 two-way power flows. Through our AMI, Tampa Electric has  
6 begun to detect areas of elevated reverse loading due to  
7 concentrated DER installations. Unmanaged and undetected  
8 two-way power flows can back feed protective equipment,  
9 cause service disruptions, distort power quality, and  
10 create voltage instability causing negative customer  
11 impacts and reducing reliability.

12  
13 **Q.** How will customers benefit from the Grid Reliability and  
14 Resilience Projects?

15  
16 **A.** The Grid Reliability and Resilience Projects will result  
17 in quantifiable benefits in terms of reliability and  
18 avoided capital and O&M expense.

19  
20 In terms of reliability, Tampa Electric forecasts that the  
21 combination of these projects and the company's ongoing SPP  
22 activities will reduce SAIDI to approximately 30 minutes per  
23 year, reduce MAIFIE to near zero, avoid 30 million customer  
24 minutes of interruption, and reduce the CEMI-4 and CEMI-5  
25 metrics to near 0 by 2031.

1 Improving reliability has significant benefits for  
2 customers. The Department of Energy ("DOE") has developed  
3 an Interruption Cost Estimator - or ICE calculator - to  
4 measure the cost of electric service interruptions to  
5 different customer segments. The ICE calculator translates  
6 reliability metric improvement into avoided costs for  
7 customers based on the economic costs to customers resulting  
8 from service interruptions. The ICE calculator model is  
9 state-specific and based on the residential and non-  
10 residential customer mix. Using the ICE calculator, Tampa  
11 Electric estimates that by 2043, the total benefit of the  
12 reliability improvements from these projects is a Net  
13 Present Value ("NPV") of \$2.88 billion. Please see Document  
14 5 of my exhibit entitled: "DOE ICE Calculator Results".  
15 Driving down the frequency of outages and enabling more  
16 targeted field responses will also reduce the need to deploy  
17 utility vehicles to assess reported issues, resulting in  
18 cost savings and reduced vehicle emissions.

19  
20 The Grid Reliability and Resilience Projects are also  
21 expected to avoid capital and O&M expenses. As DER  
22 proliferate and Tampa Electric develops the capability to  
23 manage decentralized circuits through a mix of field  
24 devices, substation devices, and management systems, the  
25 company forecasts that line losses will substantially

1 decrease. An analysis at one company substation with a high  
2 percentage of DER experienced a reduction in line losses  
3 of five percent during system peak and as high as 30 percent  
4 during off-peak conditions. When scaled across the  
5 company's entire system, these avoided line losses result  
6 in reduced energy needs. The company calculated the  
7 estimated load reduction from the Grid Reliability and  
8 Resilience Projects and ran that figure through the  
9 company's production cost models. This analysis showed  
10 savings in the forms of avoided fuel costs, avoided  
11 variable O&M expense, and avoided startup costs. In total,  
12 this equals \$134.1 million in avoided costs based on the  
13 company's current weighted average cost of capital. Please  
14 see Document No. 6 of my exhibit entitled: "Line Loss  
15 Reduction".

16  
17 Customers will also benefit from operational savings  
18 through automated line restoration and quicker  
19 troubleshooting due to automated, self-healing grid  
20 technologies installed through the Grid Reliability and  
21 Resilience Projects.

22  
23 **Q.** When does the company plan to begin the Grid Reliability  
24 and Resilience Projects and when does it expect those  
25 projects will go into service?

1 **A.** The company plans to begin the Grid Reliability and  
2 Resiliency Projects in 2024 and conclude in 2023. I provide  
3 a schedule in Document No. 7 of my exhibit entitled: "Grid  
4 Reliability and Resilience Project Schedule", which shows  
5 the company's plans for in service dates and completing  
6 the Grid Reliability and Resilience Projects.

7

8 **Q.** What is the Grid Communication Network Project?

9

10 **A.** The Grid Communication Network Project is a component of  
11 the Grid Reliability and Resilience Projects. This project  
12 is the installation of a private Long Term Evolution  
13 cellular network that will allow the company to communicate  
14 with its existing field devices and the future field  
15 devices planned under the Grid Reliability and Resilience  
16 Projects. This project is instrumental in enabling near  
17 real-time, two-way communication and control of field  
18 devices where we will eliminate the need for field device  
19 communication through our radio system that is slow and  
20 unsecured. The ability to gather data from field devices  
21 and issue remote controls with low latency has a large  
22 impact in making the system safer and increasing customer  
23 reliability. This project is explained in greater detail  
24 in the testimony of Mr. Lukcic.

25



1 **ELECTRIC DELIVERY AND OUR REQUEST FOR RATE RELIEF**

2 **Q.** How does Tampa Electric determine the construction program  
3 and capital budget for additional T&D facilities?  
4

5 **A.** The Electric Delivery department examines and balances many  
6 items including load growth, resilience, reliability,  
7 technology improvements, investments across all of Tampa  
8 Electric, customer demands and desires, and impacts to  
9 customer bills when determining the need for capital  
10 investments.  
11

12 Tampa Electric determines its construction program and  
13 capital budget for major T&D facilities through an annual  
14 system and capital planning process. This process makes  
15 management aware of future capital needs to complete  
16 projects necessary to serve customer load, maintain  
17 reliability, and ensure resiliency in storms. The system  
18 and capital planning process prioritizes capital spending  
19 on the right projects to achieve the maximum benefit for  
20 customers in addition to balancing out financial  
21 requirements for smaller T&D additions, maintenance,  
22 restoration, and other T&D needs.  
23

24 **Q.** How does the company plan and manage its major T&D capital  
25 improvement projects?

1 **A.** The company plans to meet the future requirements of all  
2 customers served through its T&D systems using established  
3 industry T&D planning requirements, standards, and  
4 criteria, and by using standard industry models and tools.  
5 These models and criteria ensure that Tampa Electric  
6 identifies the most cost-effective projects. Transmission  
7 projects are identified and planned through regional models  
8 and industry standards, and distribution projects are  
9 planned using local models and industry standards.

10  
11 Tampa Electric's Project Management team is responsible  
12 for execution of these projects through engineering and  
13 operations and ensuring that project schedules and  
14 budgets are maintained through construction until the  
15 project is completed.

16  
17 **Q.** How much capital did Tampa Electric invest in Electric  
18 Delivery during the three-year term of the 2021  
19 Stipulation and Settlement Agreement from 2022 through  
20 2024?

21  
22 **A.** For the period 2022 through 2024, the company invested  
23 approximately \$1.590 billion in capital projects for the  
24 Electric Delivery area, of which \$994.2 million will be  
25 recovered through base rates. The remainder consists of

1 investments that are recovered through the SPP Cost  
2 Recovery Clause, AFUDC, and below the line non-utility  
3 projects.

4  
5 **Q.** How much capital does Tampa Electric expect to invest in  
6 Electric Delivery in 2025?

7  
8 **A.** In 2025, the company expects to invest approximately \$716.0  
9 million in capital projects for the Electric Delivery area,  
10 of which \$380.8 million will be recovered through base  
11 rates. The remainder consists of investments that are  
12 recovered through the SPP Cost Recovery Clause, AFUDC, and  
13 below the line non-utility projects.

14  
15 **Q.** What portion of the total projected capital for the years  
16 2022 through 2025 is comprised of projects described in  
17 the direct testimony of Mr. Lukcic?

18  
19 **A.** Our total rate base capital for Electric Delivery for the  
20 years 2022 through 2025 is projected to be \$1.375 billion.  
21 Of the \$1.375 billion, \$357.7 million of the investment is  
22 comprised of Operations Technology and Strategy projects  
23 described in the direct testimony of Mr. Lukcic.

24  
25 **Q.** Please explain which major projects make up the rate base

1 capital total investment in Electric Delivery, why they  
2 are needed, and how they will benefit customers.

3  
4 **A.** Major projects for 2022 through 2025, and the associated  
5 customer benefits are described below.

6  
7 • The company expects to invest \$471.0 million from 2022  
8 through 2024 and \$135.9 million in 2025 for blanket  
9 capital.

10 o Preventive maintenance activities on the  
11 distribution system including wood pole changeouts,  
12 underground cable replacements, transformer  
13 replacements, switchgear replacements, and  
14 capacitor bank maintenance. Replacing these units  
15 proactively ensures that the work is done more  
16 cost-effectively (scheduled weekday) compared to  
17 reactive maintenance that may be done on nights and  
18 weekends. It can also reduce customer outages.

19 o Corrective maintenance activities on the  
20 distribution system, such as replacing failed  
21 overhead and underground equipment and restoration  
22 activities following typical storm events.

23 o New lighting installations to satisfy customer  
24 requests.

25 o Substation preventive maintenance activities,

1 including circuit breaker, relay, and switch  
2 upgrades, and spare transformer purchases. These  
3 investments were identified as part of our Asset  
4 Management Program and will significantly reduce  
5 the chances of large and sustained outages,  
6 improving reliability and service to our customers.  
7

- 8 • The company expects to invest \$224.9 million from 2022  
9 through 2024 and \$71.3 million in 2025 for specific  
10 capital, as follows.

- 11 ○ Distribution system expansion to reliably serve new  
12 customers.
- 13 ○ New transmission lines and upgrading existing  
14 transmission facilities to meet capacity and  
15 regulatory requirements;
- 16 ○ Relocating existing T&D facilities located in  
17 public rights-of-way in conjunction with road  
18 improvement projects;
- 19 ○ New substation construction and expansion of  
20 existing substation facilities to meet the required  
21 capacity and to provide reliable electrical service  
22 to residential and commercial customers; and
- 23 ○ New fiber installation and the Grid Communication  
24 Network Project.

25

1           • The company expects to invest \$69.4 million from 2022  
2           through 2024 and \$44.8 million in 2025 to support  
3           facilities construction, investments in land, and other  
4           non-clause SPP related activities. Please refer to  
5           Document No.4 of my exhibit entitled: "Electric Delivery  
6           Capital Expense Summary 2022 - 2025".  
7

8   **Q.**   What major factors caused the projected increase in 2025  
9           capital investment over 2022?  
10

11   **A.**   There are several major factors that contributed to the  
12           increase in total capital spending in Electric Delivery.  
13           They include the following items:

- 14           1. Contracted labor cost increases.
- 15           2. Internal labor cost increases.
- 16           3. Material cost increases.
- 17           4. Customer growth.
- 18           5. Greater demand for utility worker labor.

19  
20           For example, material cost increases for key components  
21           have increased substantially. From 2021 to present, the  
22           company experienced price increases for the equipment it  
23           buys to provide electric service as follows.

- 24           • Transformer prices increased 49 percent.
- 25           • The price of poles increased 34 percent.

- 1 • Outdoor lighting equipment prices increased 25 percent.
- 2 • Switchgear prices increased 21 percent.
- 3 • Substation equipment prices increased 36 percent.

4

5 **Q.** What steps is the company taking to make sure these  
6 projects are completed at the lowest reasonable cost?

7

8 **A.** Tampa Electric utilizes industry standards,  
9 specifications, and codes as the basis for system planning,  
10 engineering, and design to ensure our project designs are  
11 as efficient as possible while maintaining reliability and  
12 safety. Additionally, the company continuously tests the  
13 market for pricing regarding material and labor. By  
14 following the company's Request for Proposal ("RFP")  
15 policies, Electric Delivery ensures material and labor  
16 rates are fair and competitive and the selected service  
17 providers are qualified.

18

19 **Q.** What are Tampa Electric's projected capital investments  
20 in 2026 and 2027 for Electric Delivery and what projects  
21 are included in this total for the subsequent year  
22 adjustments ("SYA")?

23

24 **A.** The Grid Reliability and Resilience Projects, including  
25 the Grid Communication Network Project, are included in

1 the company's request for SYA. These are described in the  
2 direct testimony of Mr. Lukcic.

3

4 **Q.** Is there any property being held for future T&D use?

5

6 **A.** Yes. As reflected in MFR Schedule B-15, the company is  
7 holding property for future T&D use. One example is the  
8 River to South Hillsborough corridor, which was certified  
9 under the TLISA and could be used for future 230 kV  
10 facilities necessary to reliably serve existing and  
11 future load and to meet existing North American Electric  
12 Reliability Company ("NERC") Operations and Planning  
13 Reliability Standards. Tampa Electric also has several  
14 locations, sized from one to two acres, in areas of  
15 expected growth for future load-serving substations  
16 throughout Hillsborough County. Finally, the company owns  
17 property adjacent to the existing Big Bend Power Station  
18 at the intersection of Big Bend Road and U.S. 41 that  
19 could be used for a future substation, site expansion, or  
20 a renewable generation project.

21

22 **2025 TRANSMISSION AND DISTRIBUTION O&M EXPENSES**

23 **Q.** How have the Electric Delivery department's T&D operating  
24 expenditures changed since its last rate case?

25



1 **A.** The department's transmission expenditures decreased by  
2 \$1.8 million, or 10 percent, from \$18.1 million in the last  
3 rate case to \$16.3 million in the test year. \$1.2 million  
4 of the decrease is attributed to rate base expenditures.  
5 Distribution expenditures increased by \$7.3 million, or 16  
6 percent, from \$65.3 million in the last rate case to \$72.6  
7 million in the test year. \$7.6 million of the increase is  
8 attributed to rate base expenditures.

9  
10 **Q.** What major factors caused the projected increase in 2025  
11 O&M expenses over 2022?

12  
13 **A.** There are several major factors that contributed to the  
14 increase in total O&M spending in Electric Delivery:

- 15 1. Contracted labor cost increases.
- 16 2. Internal labor cost increases.
- 17 3. Material cost increases.
- 18 4. Increased material lead times leading to higher  
19 inventory needs.
- 20 5. Customer growth.
- 21 6. Greater demand for utility worker labor.
- 22 7. Increased focus on restoration speed.
- 23 8. Increased focus on reactive tree trimming to benefit  
24 reliability and better meet customer expectations.
- 25 9. Technology upgrades and process changes within

- 1 distribution and transmission control rooms.
- 2 10. Staffing for a Renewable Control Center.
- 3 11. Staffing for a Diagnostics and Drone Center.
- 4 12. Deployment of distribution equipment that improves
- 5 reliability.
- 6 13. Annual software service agreements.
- 7

8 Increased labor rates continue to be a major factor in

9 upward pressure on O&M expenses. For example, the rates of

10 our primary restoration distribution line contractors have

11 gone up 45 percent since 2021. Higher fuel costs and a tight

12 labor market nationwide for skilled line workers has driven

13 up equipment rates and wages resulting in increased costs

14 to Electric Delivery.

15

16 **Q.** What is the forecasted amount for 2025 O&M expense, and is

17 the amount reasonable?

18

19 **A.** Yes. In 2025, the company plans to spend approximately

20 \$88.9 million in O&M expenses for the Electric Delivery

21 department, of which \$65.7 million is base rate

22 expenditures. The proposed O&M expenses for 2025 are

23 reasonable and support the activities required for system

24 operations and restoration, inspection programs,

25 maintenance of equipment and computer systems, meter

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services, and required compliance activities.

Tampa Electric mitigated the need to increase O&M expenditures through the company's culture of continuous improvement, which has generated many initiatives and cost control measures that have been implemented since 2021. They helped mitigate cost pressures in several areas, including the higher labor rates and contractor costs, and material inflation due to market conditions, increased demand, and a limited supply of utility workers.

**Q.** Were any adjustments made to O&M expenses, and if so, how much?

**A.** Yes. To obtain an "apples to apples" comparison, an adjustment was made for the SPP related activities. We adjusted the test year by \$23.2 million and the base year by \$216,000. The SPP adjustments for the test year are shown in MFR Schedule C-38, and the adjustments for the base year are shown in MFR Schedule C-39. The adjusted T&D O&M benchmark calculations are shown in MFR Schedule C-41.

**Q.** What is the company's performance against the O&M benchmark of the company's T&D functional expenses?

1 **A.** MFR Schedule C-41 reports transmission and distribution  
2 expenses and benchmarks separately, and each is below the  
3 respective benchmark. Transmission O&M expenses budgeted  
4 for 2025 are \$4.6 million less than the transmission  
5 benchmark. Distribution O&M expenses are \$13.3 million less  
6 than the distribution benchmark. These variances compared  
7 to the benchmarks are due to the company's O&M expense  
8 reduction measures taken in the T&D areas, as I describe  
9 in my testimony.

10

11 **Q.** What steps has the company taken to manage Electric  
12 Delivery O&M expenses?

13

14 **A.** Electric Delivery continuously takes action to ensure O&M  
15 expenses are tracked and managed. These actions include  
16 managing overtime, seeking skilled labor rates through a  
17 fair RFP process, and ensuring team members' time is  
18 charged appropriately.

19

20 Our Asset Management Program has also played a critical  
21 role in controlling Electric Delivery O&M expenses by  
22 ensuring that the right assets are maintained, repaired,  
23 or replaced at the right time to eliminate outages,  
24 customer impacts and expensive unplanned maintenance  
25 activities.

1 Tampa Electric's technology use also helped control O&M  
2 costs. For example, our installation of circuit reclosers  
3 not only minimizes total customers out during an outage,  
4 but also reduces the time it takes troubleshooters to  
5 patrol the circuit to find the damage. Control room  
6 technology, like our ADMS system, helps identify outage  
7 causes and helps troubleshooters respond more quickly.  
8 Since 2013, our customer count has gone up by over 150,000  
9 customers, but our troubleshooting employee count has  
10 remained flat, mostly due to the efficient use of  
11 technology on our distribution grid allowing for faster  
12 troubleshooting.

13  
14 Tampa Electric has also invested in the replacement of all  
15 streetlights and area lights with smart LED technology  
16 throughout our service areas. This innovative technology  
17 provides a higher-quality light and lasts longer than  
18 traditional streetlights, reducing needed maintenance. We  
19 have sent 85 percent fewer trucks to repair lighting since  
20 the start of the LED conversion, which saves labor and fuel  
21 costs.

22  
23 **Q.** How has development of the company's SPP and implementation  
24 of the related SPP cost recovery clause affected the amount  
25 of T&D O&M expense to be recovered through base rates?

1 **A.** As part of the SPP, the company shifted several legacy  
2 storm hardening activities into SPP programs. Cost recovery  
3 of the O&M expenses associated with these activities was  
4 also shifted from base rates to the SPP cost recovery  
5 clause. These activities and costs included vegetation  
6 management, pole inspections, and transmission structure  
7 inspections.

8

9 **Q.** What safety initiatives are reflected in T&D O&M expenses  
10 for the 2025 test year and why are those initiatives  
11 beneficial for customers?

12

13 **A.** Abiding by the SMS described earlier in my direct testimony  
14 is one of the cornerstones of Electric Delivery's  
15 operations. The SMS is designed to ensure compliance with  
16 OSHA regulations and is aligned with OSHA recommended  
17 practices. The requirements and programs of each element  
18 are embedded in the operating costs of the business. By  
19 implementing an SMS, the company is not only promoting the  
20 safety of its team members, but also its customers and the  
21 public.

22

23 **Q.** What was the employee count for Electric Delivery in 2022  
24 and 2023?

25

1 **A.** There were 1,013 team members within the Electric Delivery  
2 department in 2022 and 1,028 in 2023.

3

4 **Q.** How many employees are projected in the 2025 test year for  
5 the Electric Delivery department?

6

7 **A.** The Electric Delivery department expects to employ 1,081  
8 team members in 2025.

9

10 **Q.** What factors are causing the need to add personnel in the  
11 Electric Delivery area?

12

13 **A.** The Electric Delivery team has the largest increase in team  
14 members among all areas within the company moving from 197  
15 employees in 2022 to 243 in the test year. These additional  
16 employees are needed to complete implementation of Grid  
17 Reliability and Resilience Projects and new technologies  
18 to further integrate DER, improve restoration times, and  
19 collect data from field devices, as mentioned elsewhere in  
20 this testimony and as explained in the testimony of Mr.  
21 Lukcic.

22

23 The balance of new employees is comprised of craft labor  
24 and support staff that support operational functions within  
25 Electric Delivery, primarily positions within the Energy

1 Control Center, Substation, Transmission and Distribution  
2 operations.

3

4 **Q.** What metrics did your team use to identify the need for  
5 additional employees, contractors, service providers, when  
6 to add them, and how many to add?

7

8 **A.** Tampa Electric looks at several factors when considering  
9 adding incremental employees to the business. Project  
10 growth and changes in operational practices are evaluated  
11 to increase or decrease employee count. In certain areas,  
12 employee count is increased to moderate overtime and manage  
13 safety in the field. Anticipated attrition and the average  
14 time to replace employees is also considered when adding  
15 employees. Lastly, peaks and valleys in work that are  
16 transient are assessed and generally managed with  
17 contractors. Tampa Electric evaluated these factors in  
18 determining the need to add the employee count I described  
19 earlier in my testimony.

20

21 **SUMMARY**

22 **Q.** Please summarize your direct testimony.

23

24 **A.** Tampa Electric forecasts that it will invest \$380.8 million  
25 in Electric Delivery capital and incur \$65.7 million in



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Electric Delivery O&M expenses for the 2025 test year.

Electric Delivery's capital budget includes investments for the transmission, distribution, and substation expansion and upgrades needed to support customer growth, maintain system reliability, resiliency, replace aging infrastructure, improve our customers' experience, and meet governmental and regulatory requirements. Our 2025 forecasted O&M amounts will support the activities required for system operations and restoration, inspections, maintenance of equipment and computer systems, meter services, and required compliance activities.

Electric Delivery's historical cost control measures and practices have resulted in O&M spending below the benchmark despite increased interest rates, inflationary material and equipment rates, and increasing wage rates.

Tampa Electric has significantly improved its system reliability since the company's last base rate case. The company's reliability improvements can be attributed in part to the company's robust Asset Management Program and by putting the right systems and personnel in place to minimize outage times when outages do occur.

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The company's Grid Reliability and Resilience efforts described in my direct testimony are reasonable and prudent and are necessary to meet the future demands of our customers and to keep pace with electric industry changes. All these projects will provide real benefits to our customers.

Overall, Tampa Electric's proposed T&D capital and O&M budgets for 2025 represent a strategic and balanced approach that will provide the modern grid required to meet our customers' increasing expectations at a reasonable cost and should be approved.

**Q.** Does this conclude your direct testimony?

**A.** Yes, it does.

TAMPA ELECTRIC COMPANY  
DOCKET NO. 20240026-EI  
WITNESS: WHITWORTH

EXHIBIT

OF

CHIP WHITWORTH

**Table of Contents**

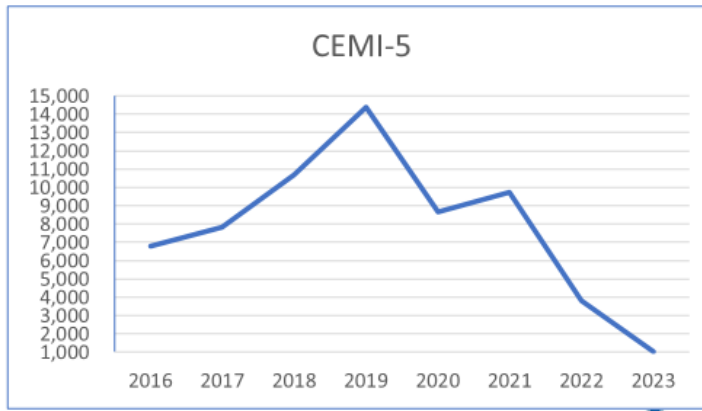
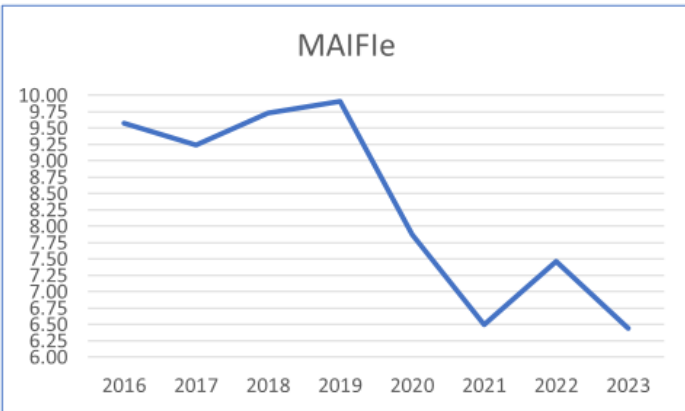
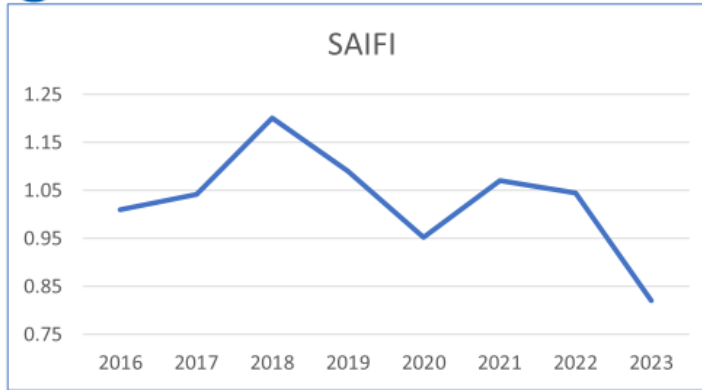
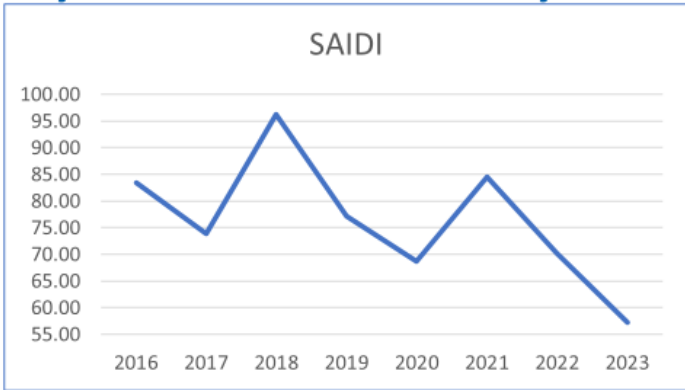
<b>DOCUMENT NO.</b>	<b>TITLE</b>	<b>PAGE</b>
1	List of Minimum Filing Requirement Schedules Sponsored or Co-Sponsored by Chip Whitworth	50
2	FPSC Adjusted Reliability Trends	52
3	Service Area Customer Demand - Growth	53
4	Electric Delivery Capital Expense Summary 2022 - 2025	55
5	DOE ICE Calculator Results	56
6	Line Loss Reduction	57
7	Grid Reliability and Resilience Project Schedule	58
8	Service Territory Map	59

LIST OF MINIMUM FILING REQUIREMENT SCHEDULES  
SPONSORED OR CO-SPONSORED BY CHIP WHITWORTH

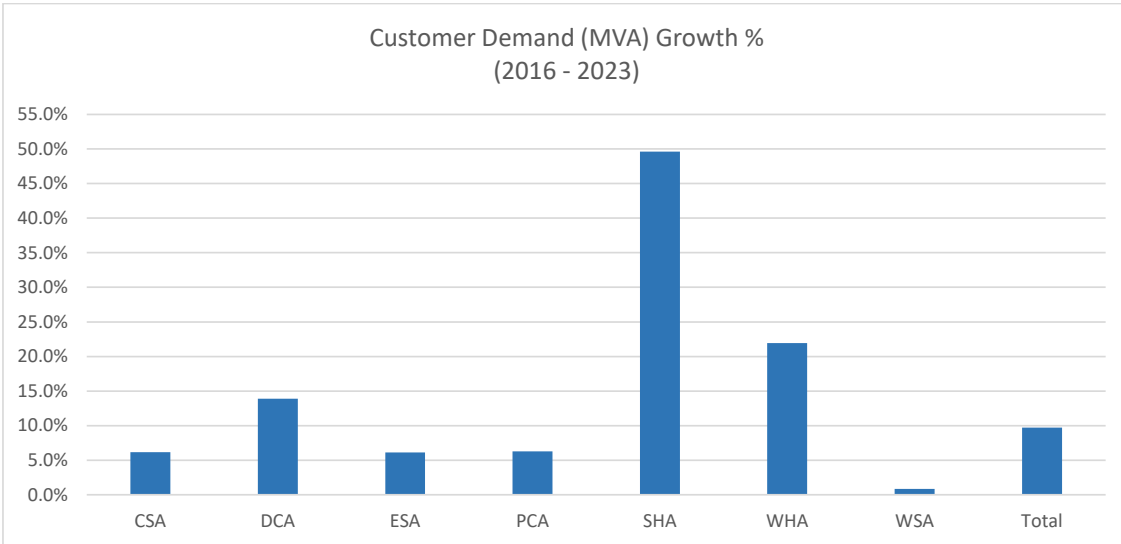
MFR Schedule	TITLE
B-06	Jurisdictional Separation Factors-Rate Base
B-07	Plant Balances by Account and Sub-Account
B-08	Monthly Plant Balances Test Year-13 Months
B-09	Depreciation Reserve Balances by Account and Sub-Account
B-10	Monthly Reserve Balances Test Year-13 Months
B-11	Capital Additions and Retirements
B-13	Construction Work in Progress
B-15	Property Held for Future Use-13 Month Average
B-21	Accumulated Provision Accounts-228.1 228.2 And 228.4
B-24	Leasing Arrangements
C-04	Jurisdictional Separation Factors-Net Operating Income

C-06	Budgeted Versus Actual Operating Revenues and Expenses
C-08	Detail of Changes in Expenses
C-09	Five Year Analysis-Change in Cost
C-16	Outside Professional Services
C-33	Performance Indices
C-34	Statistical Information
C-37	O&M Benchmark Comparison by Function
C-38	O&M Adjustments by Function
C-39	Benchmark Year Recoverable O&M Expenses by Function
C-41	O&M Benchmark Variance by Function
C-43	Security Costs
F-05	Forecasting Models
F-08	Assumptions

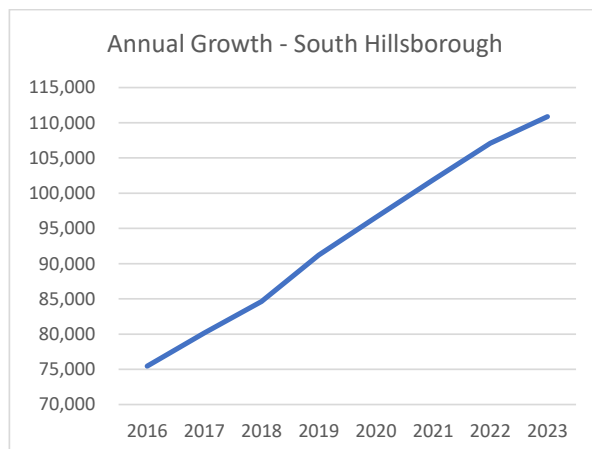
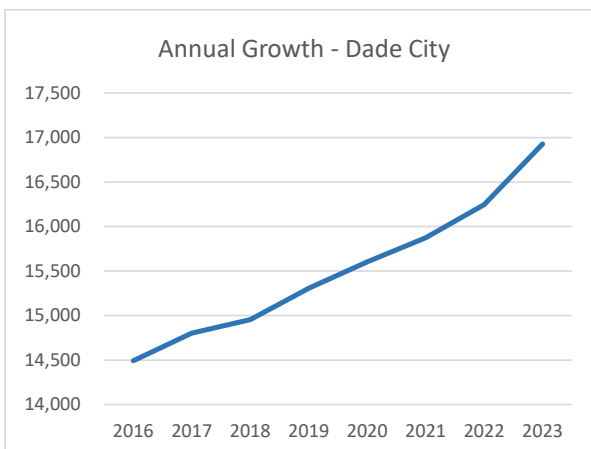
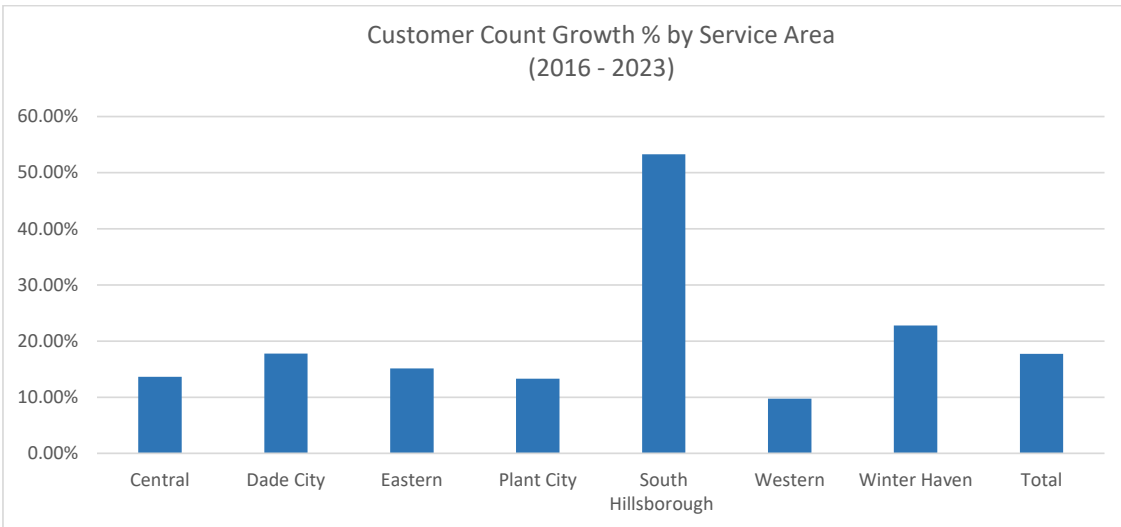
# System Reliability – Long Term Trends



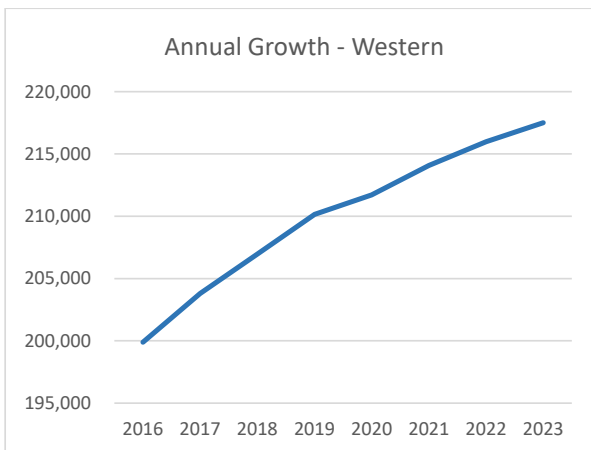
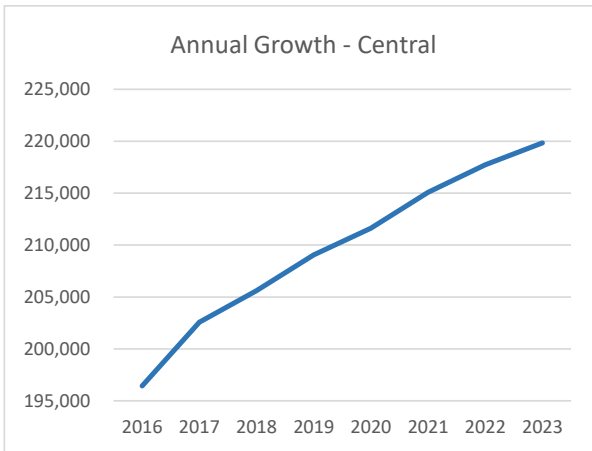
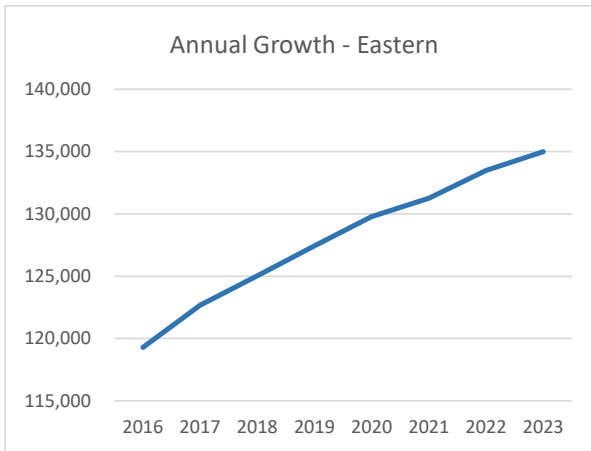
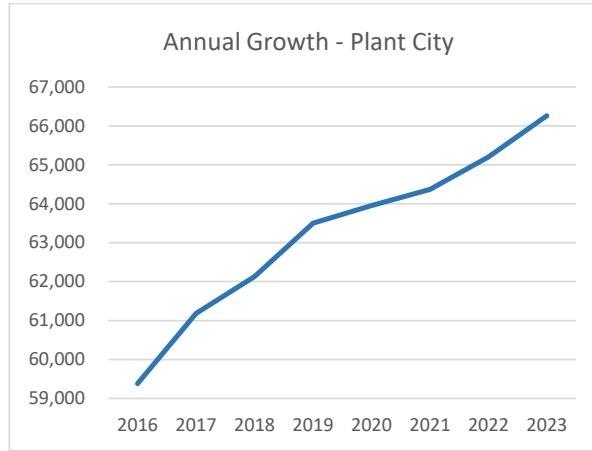
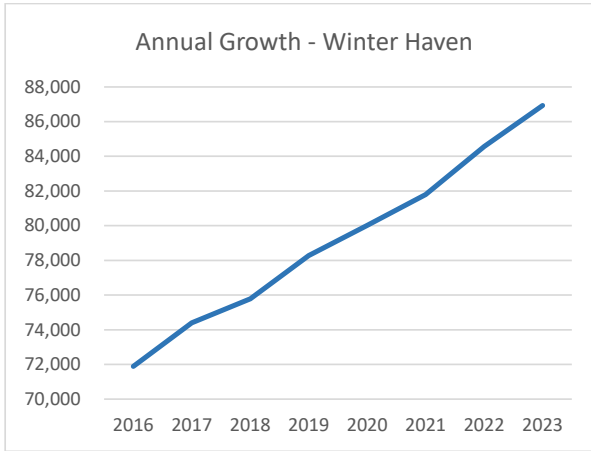
Customer Demand



Customer Count Growth



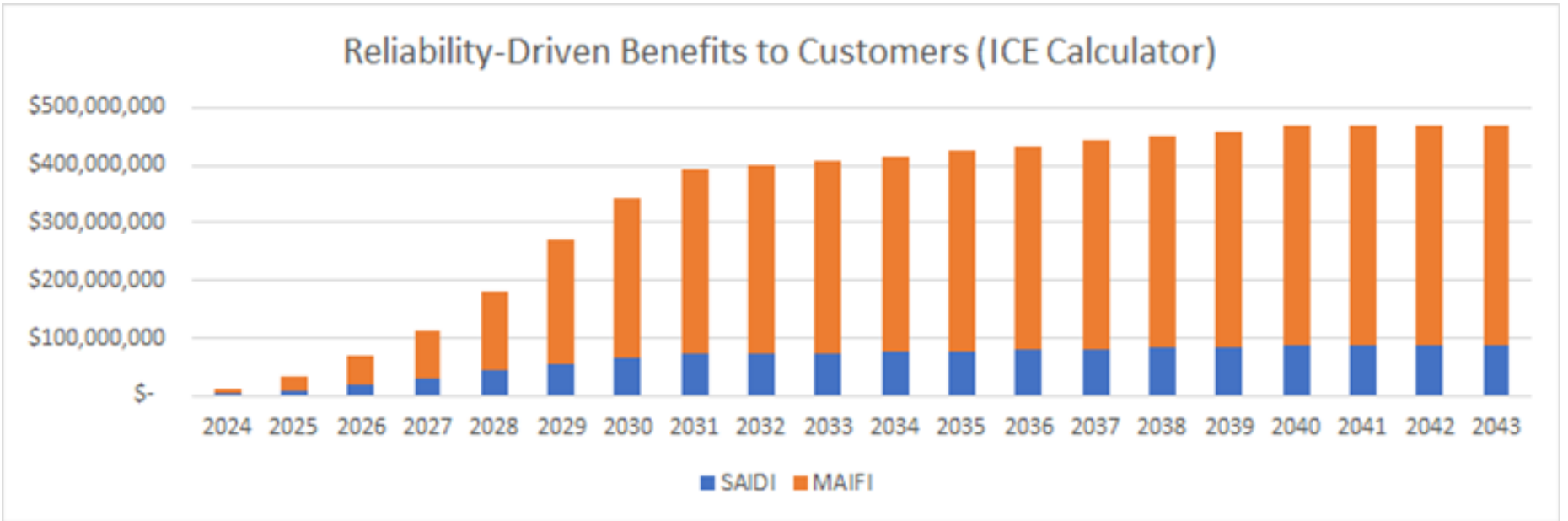


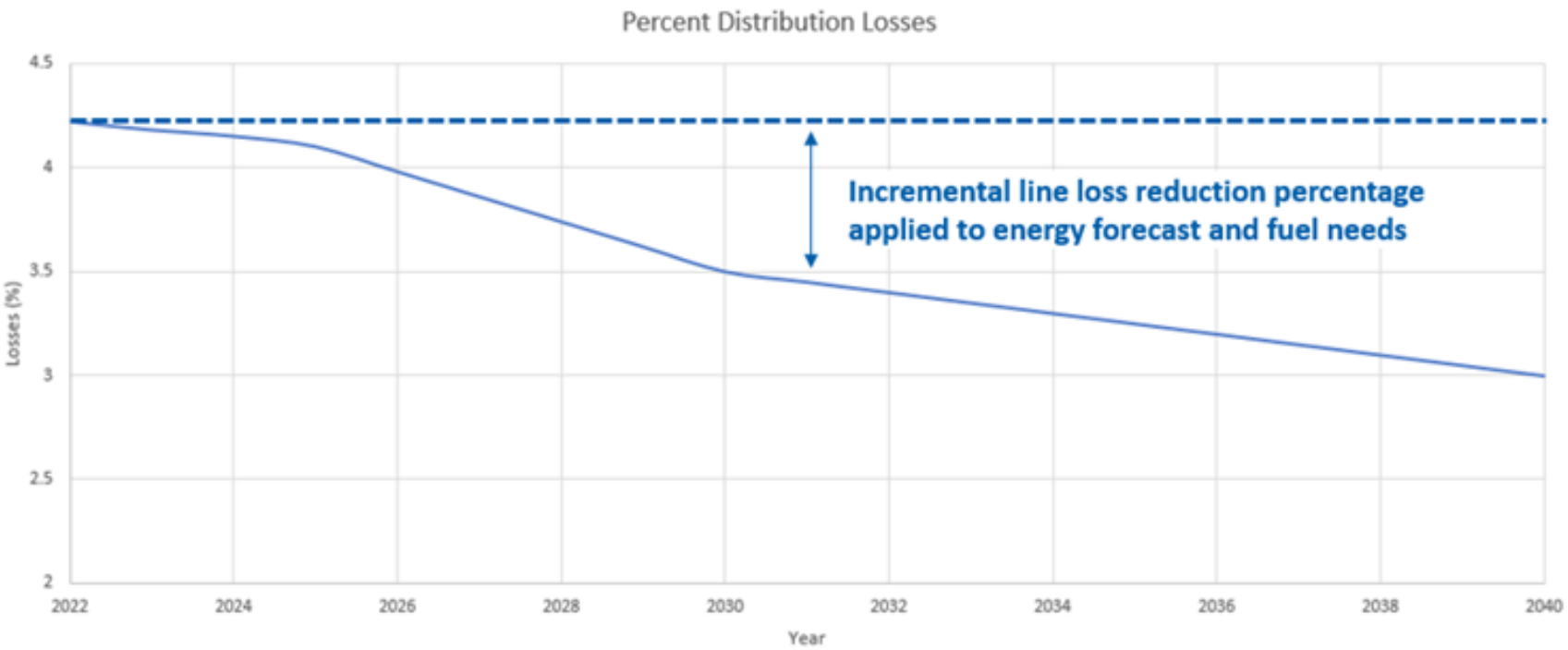


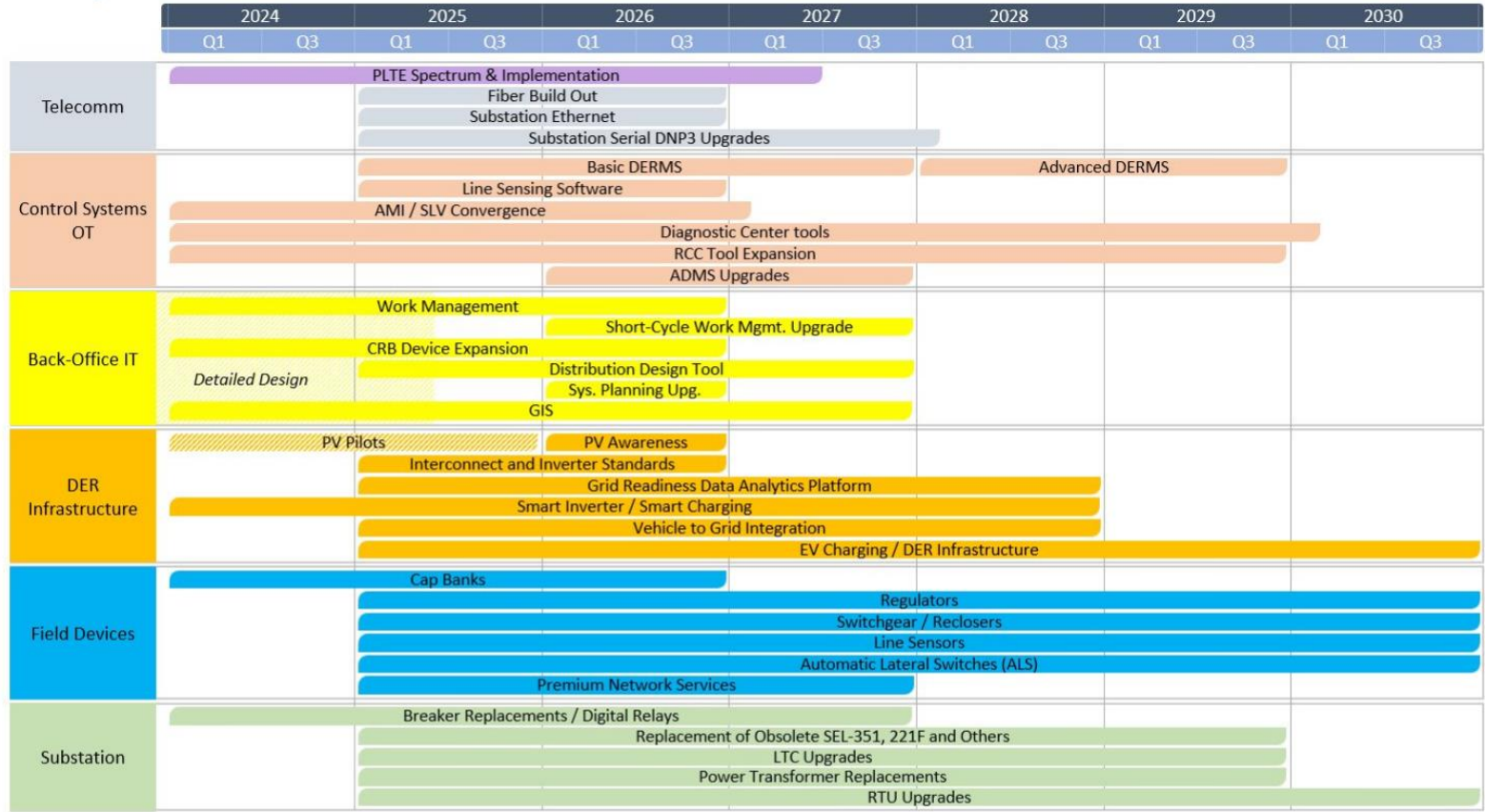
**Tampa Electric**  
**ELECTRIC DELIVERY**

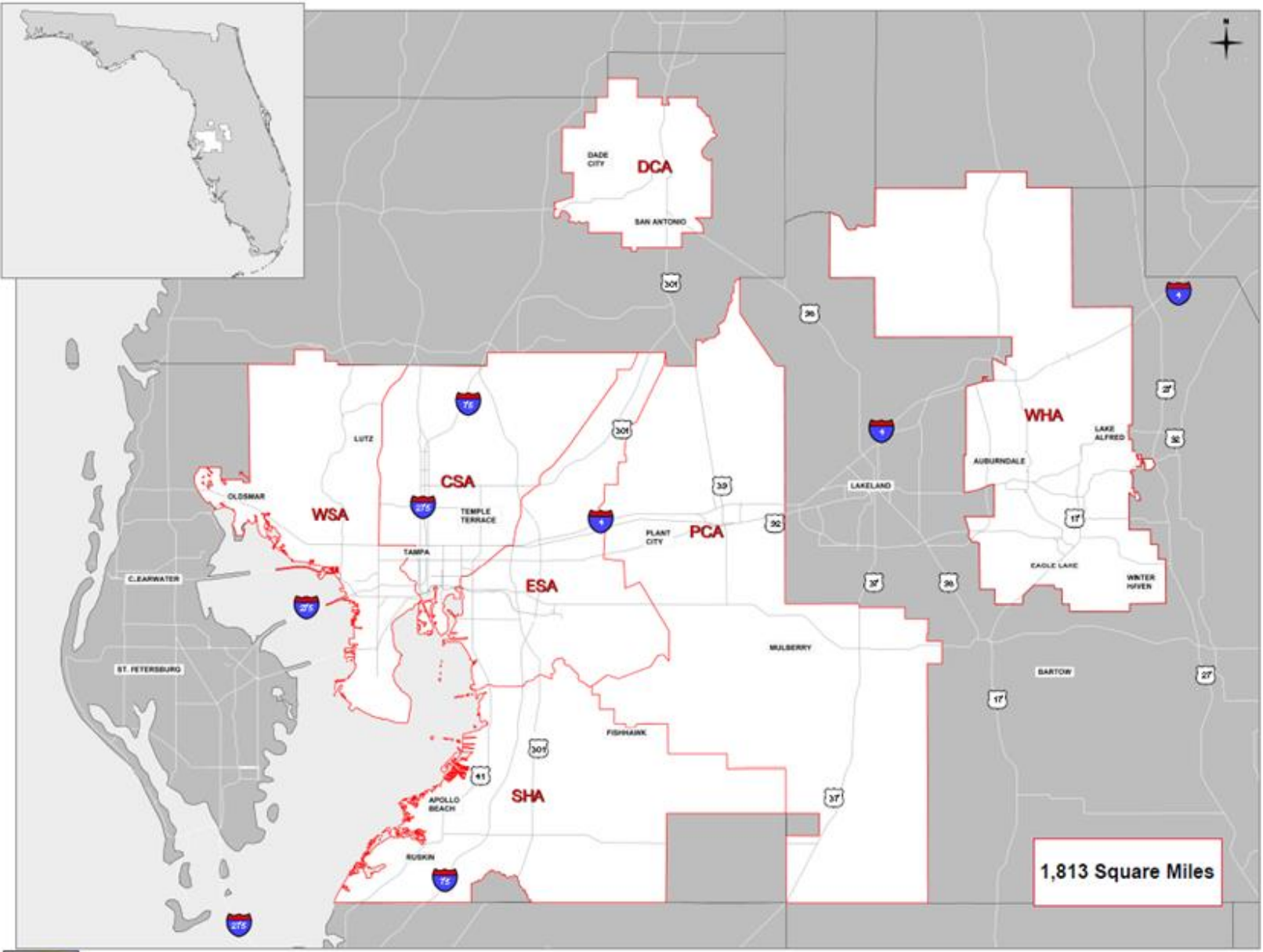
	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>Total 2022-2024</b>	<b>2025</b>	<b>Total 2022-2025</b>
<b>Total Capital</b>	520,149,582	550,714,553	519,057,011	<b>1,589,921,146</b>	716,003,431	<b>2,305,924,577</b>
SPP	(173,742,540)	(173,533,849)	(170,983,384)	<b>(518,259,773)</b>	(170,000,000)	<b>(688,259,773)</b>
AFUDC	(7,004,787)	(12,516,491)	(54,767,519)	<b>(74,288,797)</b>	(165,182,177)	<b>(239,470,974)</b>
BTL	(913,538)	535,321	(2,788,000)	<b>(3,166,217)</b>	-	<b>(3,166,217)</b>
<b>Rate Base</b>	<b>338,488,717</b>	<b>365,199,533</b>	<b>290,518,109</b>	<b>994,206,359</b>	<b>380,821,254</b>	<b>1,375,027,613</b>
<u>Rate Base Projects</u>						
OPERATIONAL TECHNOLOGY	69,260,066	89,586,570	70,017,062	<b>228,863,698</b>	128,855,509	<b>357,719,207</b>
BLANKETS	164,944,818	173,702,751	132,355,072	<b>471,002,641</b>	135,895,958	<b>606,898,599</b>
SPECIFICS	77,070,644	88,967,077	58,864,794	<b>224,902,515</b>	71,312,681	<b>296,215,196</b>
OTHER	27,213,189	12,943,135	29,281,181	<b>69,437,506</b>	44,757,105	<b>114,194,611</b>
<b>TOTAL</b>	<b>338,488,717</b>	<b>365,199,533</b>	<b>290,518,109</b>	<b>994,206,359</b>	<b>380,821,254</b>	<b>1,375,027,613</b>

TAMPA ELECTRIC COMPANY  
DOCKET NO. 20240026-EI  
EXHIBIT NO. CW-1  
WITNESS: WHITWORTH  
DOCUMENT NO. 4  
PAGE 1 OF 1  
FILED: 04/02/2024









TAMPA ELECTRIC COMPANY SERVICE AREAS

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PAGE 1 OF 1  
FILED: 04/02/2024