Review of

Tampa Electric Company's Storm Protection Plan Program Internal Controls

February 2024

BY AUTHORITY OF

The Florida Public Service Commission
Office of Auditing and Performance Analysis

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Jerry Hallenstein
Senior Analyst
Project Manager

Vic Cordiano
Public Utility Analyst IV

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1.0 Executive Summary

1.1 Purpose and Objectives

The Office of Auditing and Performance Analysis initiated this operational audit at the request of the Florida Public Service Commission's (FPSC or Commission's) Office of Industry Development & Market Analysis.

The primary objectives of this audit were to review, document, and assess the adequacy of Tampa Electric Company's (TECO's) internal controls governing the cost, scheduling, and project execution of its Storm Protection Plan (SPP) programs and procedures for:

- Workflow planning and project implementation
- Scheduling and tracking project status
- Cost control, budget adherence, and identification of variances
- Ongoing self-assessment of compliance with its SPP and FPSC rules

Commission audit staff also documented and assessed TECO's SPP process improvements and resulting impacts.

1.2 Scope

As authorized by Subsection 350.117(2) and (3), Florida Statutes (F.S.), management and operation audits are conducted by staff to assess utility performance and the adequacy of operations and controls:

> (2) The Commission may perform management and operation audits of any regulated company. The Commission may consider the results of such audits in establishing rates; however, the company shall not be denied due process as a result of the use of any such management or operation audit.
>
> (3) As used in this section, "management and operation audit" means an appraisal, by a public accountant or other professional person, of management performance, including a testing of adherence to governing policy and profit capability; adequacy of operating controls and operating procedures; and relations with employees, customers, the trade, and the public generally.

Given the audit objectives, Commission audit staff's review focused on assessing TECO's implementation and management of each SPP program and associated projects. Audit staff reviewed and performed assessments of TECO's SPP program-related internal controls in the following key areas:

- Management oversight
- Staffing organizational structures
- Procurement of contracted resources
- Risk assessments and potential impact
- Program planning and execution
- Program project prioritization
- Estimation and revision of project timelines
- Automated scheduling and tracking systems
- Cost-tracking system software
- Inventory control practices
- Internal audits and use of consultants
- Quality assurance and control reviews
- Contractor performance evaluations
- Performance metrics and accountability tools

This review places primary importance on internal controls as referenced in the Institute of Internal Auditors' *Standards for the Professional Practice of Internal Auditing* and in the *Internal Control - Integrated Framework* developed by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. The assessment of internal controls focuses on the five key elements of the COSO framework of internal control: control environment, risk assessment, control activities, information and communication, and monitoring. Commission audit staff seeks to comply with the Institute of Internal Auditors' Performance Standards 2000 through 2500.

1.3 Methodology

The information in this audit report was gathered through responses to document requests, on-site interviews, and conference calls with key TECO personnel accountable for implementing and managing the company's SPP program-project activities. Commission audit staff also reviewed applicable Florida Statutes and FPSC rules.

1.4. Audit Staff Observations

Subsection 2.4 in Chapter 2.0 of this report highlights improvements TECO has implemented to its SPP programs since inception in 2020. Based on its analysis, Commission audit staff presents these observations and recommendations:

- **TECO should consider developing methods of demonstrating achieved annual non-extreme weather benefits that accrue from its SPP programs and projects such as blue or gray-sky day reductions in CMI, CAIDI, SAIDI, and SAIFI.**

- **TECO should consider developing methods of demonstrating achieved annual extreme-weather restoration cost savings and reliability benefits from its SPP**

programs and projects such as making use of the Department of Energy's Interruption Cost Estimate (ICE) Calculator.

- **TECO should identify in its SPP Annual Status Report to the Commission the number of initiated and completed engineering and construction projects in a given year that were carried over from previous years.** The company's reported data combines the carryover projects from previous years with those of the current year. This hinders the ability to determine the number of projects that were initiated and completed in the same year and track the completion status of projects carried over from a previous year.

- **TECO should report projects/activities planned and completed using the same units of measure in its SPP Annual Status Report to the Commission to facilitate comparison and meaningful conclusions.** The company's trending and analysis of estimated versus actual completed projects/activities should be based on equivalent units of measure (e.g., circuit counts, equipment installs, and pole counts) which would aid in determining whether or not projects are being completed in a timely manner in accordance with projections and performance goals.

- **TECO should formalize SPP project variance reports to assist in managing projections against actuals and to identify needed corrective actions.**

- **TECO should finalize policies and procedures for all SPP programs to clearly define operational processes, including procedures to closeout projects within 90 days after construction.** The company states it frequently encounters backlogs of reconciliations, causing project closeouts to take longer than anticipated. As a result of lagging invoices, accrual reversals, and reconciliation adjustments, some completed projects were reporting additional costs assigned or removed in a subsequent year as the material reconciliation is performed.

- **TECO should develop and implement SPP-specific program process improvements for project documentation and records retention, corrective action controls for non-compliance issues, change management, and incorporation of best practices.**

- **TECO should separately identify and align SPP and non-SPP completed work orders and associated costs reported to the Commission with those in the company's work order system.** Pursuant to FPSC Rule 25-6.0346, F.A.C., electric utilities are required to quarterly report completed work orders and associated costs relating to construction and maintenance of transmission and distribution facilities. While the rule does not require the categorization of SPP and non-SPP work orders, the total number of reported work orders and associated costs differs from the completed number of work orders in TECO's work order system.

- **TECO should standardize the way in which it records completed SPP program projects in its work management system.** The company has developed a method of identifying each completed Transmission Asset Upgrades program project with a

uniquely-coded closeout work order and should consider using this method for its other SPP programs.

- **TECO should finalize the implementation of project quality assurance audits for its SPP programs.** The audit schedule will measure contractor compliance to procedures for the scope of work.

2.0 Background and Perspective

TECO's service area extends over 2,000 square miles in West Central Florida, including all of Hillsborough County and parts of Pasco, Pinellas, and Polk Counties. The company's operating territory is divided into seven service areas providing service to over 824,000 retail electric customers. The SPP program mandates utilities to implement projects in a cost-effective manner to further protect and strengthen electric infrastructure to reduce restoration costs and outage times associated with extreme weather conditions.

2.1 History of Storm Hardening

Prior to creation of the Storm Protection Plan Cost Recovery Clause (SPPCRC), transmission and distribution infrastructure hardening plans were ordered by the Commission in Order No. PSC-06-0351-PAA-EI, issued April 25, 2006, in Docket No. 20060198-EI. Updated plans were filed and reviewed at least every year thereafter. The intent of the plans was to mitigate restoration costs and outage times associated with extreme weather events and enhance reliability.

On June 27, 2019, the Florida Legislature enacted Section 366.96, Florida Statutes (F.S.), entitled "Storm protection cost recovery." Section 366.96, F.S. requiring TECO and other public utilities to file a transmission and distribution storm protection plan (SPP) at least every three years that covers the immediate 10-year planning period. The statute also created a SPPCRC to promote the timely recovery of costs incurred by a utility under its approved SPP.

Pursuant to Section 366.96, F.S., the Commission promulgated Rule 25-6.030, Florida Administrative Code (F.A.C.) and Rule 25-6.031, F.A.C. Rule 25-6.030 requires TECO and other public utilities to file a SPP at least every three years with the Commission beginning in 2020. The rule further requires the SPP to include an estimate of rate impacts for each of the first three years for the utility's typical residential, commercial, and industrial customers. Rule 25-6.031 allows the utility to file a petition for recovery of associated costs through the SPPCRC. The Commission is required to conduct an annual hearing to address the petition to determine if the utility's SPP costs were prudently incurred allowing recovery through the SPPCRC separate and apart from its base rates.

2.1.1 TECO's Initial 2020 Storm Protection Plan

The Commission established Docket No. 20200067-EI for the filing and approval of the company's SPP. Docket No. 20200092-EI evaluates the recoverability of the identified costs TECO is requesting through the SPPCRC.

On April 10, 2020, TECO filed its initial SPP for 2020-2029 in Docket No. 20200067-EI. After submitting it, TECO met with OPC and interested parties to simplify the review of costs associated with activities related to the SPPCRC in Docket 20200092-EI. The primary concern was the recovery of incremental SPP Operations and Maintenance (O&M) costs that are over and above the O&M costs already recovered through base rates. A Settlement Agreement was entered into on April 27, 2020 that included a one-time base rate reduction of $15 million to

streamline cost recovery. The intent of the true-up was to promote transparency and avoid double recovery through both base rates and the SPPCRC. The Agreement was approved by the Commission on June 30, 2020; however, both dockets remained opened to give TECO time to revise tariffs to implement the one-time base rate reduction and requirements for cost allocation and rate design.

On August 3, 2020, TECO filed a motion seeking approval of a second Settlement Agreement that included the revised tariffs and implementation of it SPP programs for the 2020-2029 period. The Agreement was approved by the Commission on August 28, 2020, and included the implementation of the following programs in 2020, 2021, and 2022, with an updated SPP to be filed with the Commission in early 2022 for its 2022-2031 SPP programs:

- Distribution Lateral Undergrounding (DLU)
- Vegetation Management (VM)
- Transmission Asset Upgrades (TAU)
- Distribution Overhead Feeder Hardening (DOFH)
- Transmission Access Enhancement (TAE)
- Infrastructure Inspections (II)
- Substation Extreme Weather Hardening (SEWH)

The SPP also incorporates the Legacy Storm Hardening Initiatives program stemming from Commission Order No. PSC-06-0351-PAA-EI, issued on April 25, 2006. However, the respective costs for these activities are recovered through base rates and not through the SPPCRC. These activities include improving the geographic information system, collecting post-storm data, tracking and storing overhead and underground outage data, increasing coordination with local governments, participating in collaborative research, updating disaster preparedness and recovery plan procedures, and replacing distribution poles that fail inspection.

2.1.2 TECO's 2022 Storm Protection Plan

On November 10, 2022, the Commission approved TECO's SPP for the 2022-2031 period. The majority of the SPP programs are a continuation of TECO's initial 2020 filing with a modification to remove the Transmission Access Enhancement Program. According to TECO, the proposed SPP Programs are expected to reduce restoration costs by $380 to $531 million and reduce Customer Minutes of Interruption (CMI) by 29 percent over the next 50 years, depending on the intensity and frequency of extreme weather events.

TECO used a Storm Resilience Model to determine the SPP impact on lowering restoration costs and reducing outage times over a 50 year period. **Exhibit 1** shows the estimated percentages of reduced restoration costs and CMI for the SPP programs that were included in the model.

Tampa Electric Company SPP Program Benefits		
Program	**Approximate Restoration Cost Reduction**	**Approximate Storm CMI Reduction**
Distribution Lateral Undergrounding	32%	45%
Transmission Asset Upgrades	85%	14%
Substation Extreme Weather Hardening	20%-25%	12%-45%
Distribution Feeder Hardening	54%	46%

Exhibit 1 *Source: FPSC Order No. PSC-2022-0386-FOF-EI*

TECO further asserted that its Vegetation Management Program is expected to improve its System Average Interruption Frequency Index (SAIFI) by 15.3 percent, System Average Duration Index (SAIDI) by 9.6 percent, and reduce restoration costs by 22.2 percent.

While TECO's cost/benefit modeling analysis quantifies projected extreme weather event SPP benefits such as restoration cost savings and CMI reductions, the company does not presently develop post-storm estimates of actual restoration cost savings or reductions in CMI. Regarding non-extreme weather SPP benefits (i.e. blue or gray-sky days) TECO indicates it has discussed methods to accurately demonstrate the achieved cost and reliability benefits.

2.1.3 SPP Program Consultants

To assist in the development of the SPP, TECO employed consultants to develop modeling tools to perform detailed benefits and prioritization analyses for five SPP programs; Distribution Lateral Undergrounding, Distribution Overhead Feeder Hardening, Vegetation Management, Transmission Asset Upgrades, and Substation Extreme Weather Hardening. The consultant services were provided by:

- 1898 & Co.
- Accenture
- Power Engineers, Inc.
- HDR, Inc.

1898 & Co.

1898 & Co.'s Storm Resilience Model employs a resilience-based planning approach to identify and prioritize transmission and distribution system hardening projects to reduce restoration costs and outage times associated with extreme weather events. For TECO's 2020-2029 SPP filing, it used the model for the Distribution Lateral Underground, Distribution Overhead Feeder Hardening, Transmission Asset Upgrades, and Substation Extreme Weather Hardening SPP programs. 1898 & Co.'s database includes the probabilities of major storm events occurring, as well as the magnitude of impact to specific transmission and distribution facilities to create 99 different unique storm scenarios. Each scenario is modeled to identify likelihood of failure, duration to restore system operations, and restoration costs.

The 1898 & Co. analysis incorporates information from NOAA's database of major storms, TECO historical storm reports, impact of major storms to other utilities, and TECO's experience

in storm recovery into the model. A probability-weighted basis is used to determine which specific portions of the TECO system are likely to be impacted, and their contribution to the overall restoration costs.

Key objectives of the Storm Resilience Model include the following:

- Calculate the customer benefits of hardening projects through reduced utility restoration costs and impacts to customers, i.e., reduced Customer Minutes of Interruption (CMI).

- Prioritize hardening projects with the highest resilience benefit per dollar invested into the system.

- Establish an overall investment level that maximizes customer benefits while not exceeding TECO's technical execution constraints.

The company stated that the prioritized list of projects from the model includes all feeders that experienced outages during extreme weather, including feeders on the three percent worst performing feeder list[1] for the year the SPP is being developed.

The model was updated in February 2022 to support the company's 2022-2031 SPP filing. Updates included adjustments to cost assumptions based on actual completed projects, analyses to identify a more specific scope and costs for deployment of circuit automation, and modifications to the DLU prioritization methodology to improve operational efficiencies.

Accenture

TECO analyzes its vegetation management program using a Tree Trimming Model (TTM) developed by Accenture. Since the initial program implementation in 2006, TECO has refined and updated the model's set of historical reliability and cost performance data. Data captured includes tree density, tree species, voltage, customer density, localized climate, time elapsed since the last trim, degree to which outages escalate, and trim costs. The reliability and cost factors drive a ten-year prioritization to optimize performance per dollar spent on vegetation management.

The Accenture analysis, discussed further in Chapter 5.0, estimated that the Supplemental Distribution Circuit VM initiative, over a 10-year average, will provide a 16 percent cost reduction in the day-to-day outages caused by vegetation and a 21 percent cost reduction based on outages caused by major storms. The Mid-Cycle Distribution initiative is projected to yield a 1.5 percent and a 4.5 percent cost reductions, respectively.

Power Engineers, Inc.

TECO engaged Power Engineers, Inc., to perform an automation analysis for 22 prioritized distribution circuits for the 2020-2022 Distribution Overhead Feeder Hardening program. The analysis determined the number and placement of reclosers, conductor upgrades, substation

[1]FPSC Rule No. 25-6.0455 requires each IOU to file data regarding its top three percent worst performing feeders, those with the highest number of breaker interruptions.

transformer capacity increases, relay upgrades, and in some instances circuit extensions. The intent of these enhancements was to minimize unplanned customer outages due to extreme weather events. The analysis was used as inputs to the broader 1898 & Co. model to establish spending levels in the proposed 2020-2029 SPP.

HDR, Inc.

In August 2021, HDR Inc., completed a Substation Extreme Weather Hardening Study to assess a mix of 24 transmission and distribution substations chosen by TECO that are susceptible to storm surge. Once data was collected from each substation, HDR created a scorecard to rank them based on criticality. Considerations used in the scoring included the following outcomes for each substation:

- Grid Stability/Capacity – ability of the interconnected grid to provide adequate power and balance supply and demand.
- Reliability/Availability – duration of time the system is out not providing power to customers.
- Customer Service – the number of customers and amount of load impacted by an outage.
- Cost – the cost of restoring the system after it is damaged.
- Safety – risk of injury, disability or death of an employee or member of the public.
- Environmental – risk of not meeting environmental stewardship objectives or regulations.

Three transmission and six distribution substations were recommended to be hardened at a cost of $28.8 million. For these substations, HDR developed hardening projects to mitigate the risks and improve the resiliency of the substation in the event of storm surge flooding. TECO began hardening the first substation in the latter part of 2023, with projected completion by May 2024. The company plans to harden one substation per year thereafter.

2.2 TECO's SPP Organization

In 2022, TECO created a SPP Support Services' organization responsible for managing the two largest SPP programs by cost: DLU and VM. This organization also manages the Distribution Wood Pole Inspections[2] initiative and the TAU program. TAU is also co-managed with Transmission Operations. The DOFH program is co-managed by SPP Support Services and the company's Distribution Operations. The Substation Extreme Weather Hardening, Transmission Inspections,[3] Substation Inspections,[4] are managed by the Transmission Engineering Operations department outside of SPP Support Services. The Legacy Storm Hardening SPP program falls under the responsibility of the company's Asset Management department.

[2,3,4]These initiatives are part of the SPP Infrastructure Inspections Program.

As shown on **Exhibit 2**, SPP Support Services' current organization is comprised of four separate departments under the Director of SPP: Distribution Engineering Design and Community Outreach, Transmission Engineering, Construction, and Line Clearance.

The Manager of SPP Engineering and Design and Outreach oversees the Wood Pole Inspection initiative and the distribution design team to ensure that DLU and DOFH plans being designed align with the original scope of work identified. Community Outreach includes securing easements, in-person meetings, emails, texts and phone calls to ensure work being performed in the area has been communicated to the customer and all questions and concerns have been addressed.

The Manager of SPP Construction heads eight Construction Field Supervisors responsible for overseeing construction work performed by contractors. A group of Planner Schedulers and Materials Specialists ensure materials are available for the work being performed and conduct material reconciliation once the construction of projects are complete.

The Manager of SPP Transmission Engineering is responsible for overseeing the replacement of all wood poles with non-wood in support of the company's SPP Transmission Asset Upgrades program.

The Manager of SPP Line Clearance has overall responsibility for the vegetation management of both the transmission and distribution systems. The section includes nine Arborists, a Senior Business Analyst, and a Line Clearance Planner.

Each department manager provides regular updates to the company's SPP Advisory Board which serves as the final decision-making authority for SPP governance. Meetings are held bi-monthly and include updates on safety, performance metric results, program plans, budget, key dates, risk assessments, and any mitigation actions.

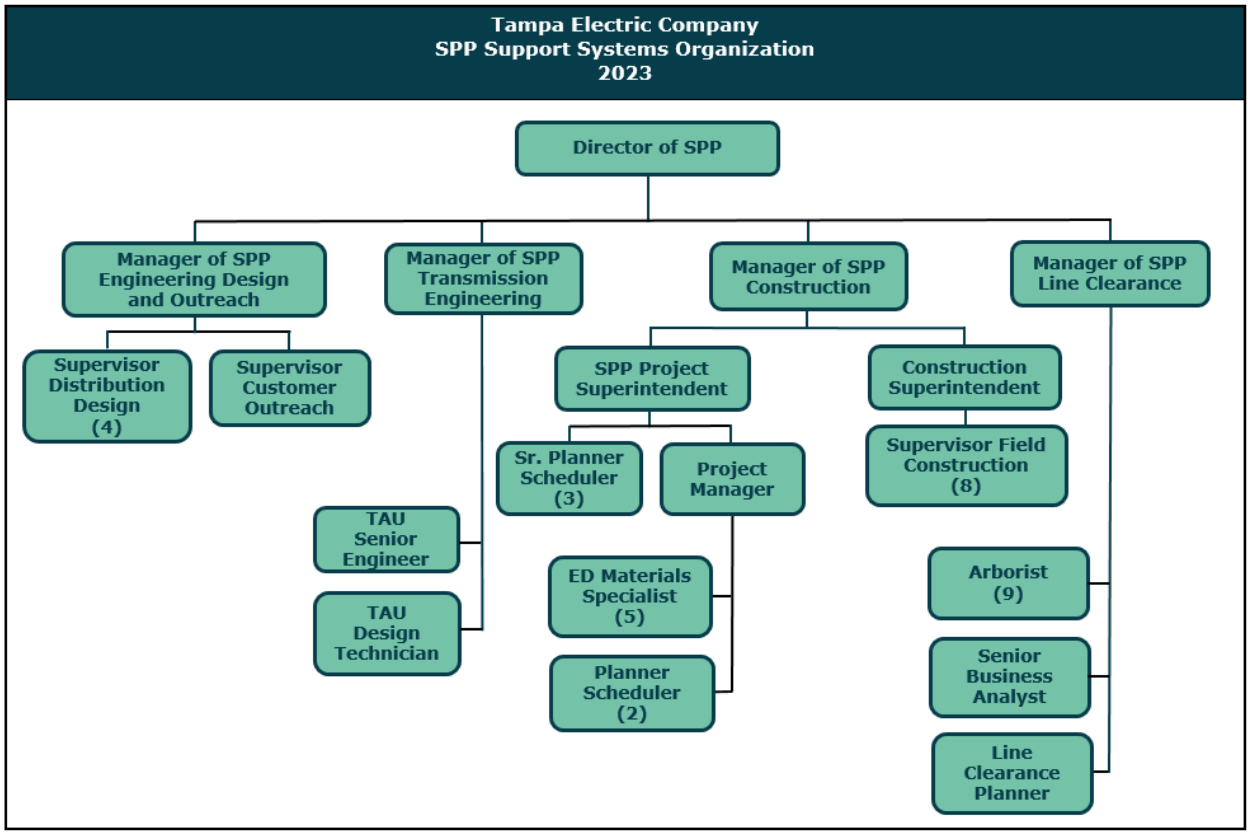


Exhibit 2 *Source: TECO's Response to Document Request 1.2(a)*

2.3 2023 Internal Audit

In July 2023, TECO's Audit Services department completed an audit of the governance structure for the company's SPP, including program alignment, management and monitoring, risk identification and mitigation, and reporting. Audit Services concluded that management has aligned with program objectives to the SPP, established leadership sponsorship and a project management office, and has processes in place for monitoring and reporting of SPP program activities. However, findings were identified that relate to processes that require additional guidance and formalized documentation.

TECO Audit Services recommended that SPP management standardize reporting for oversight meetings, formalize procedures for risk assessments, develop central procedural guides for operations (i.e., materials management, outreach, project close-out), and formalize procedures for preparation and monitoring of financial performance. In response to the audit, TECO's SPP management implemented the following key corrective actions:

- Finalized the SPP Board Charter.
- Established bi-monthly SPP Advisory Board meetings and monthly SPP team meetings to review work status and financial updates.

- Standardized key performance indicators and financial reports to be reviewed at the SPP Advisory Board and SPP team meetings.

- Developed an action item log to track attendance, priority items, issues, risks and resolutions from key monitoring meetings.

- Formalized guidance and procedures for risk assessment.

- Developed a risk register to identify, evaluate, rate, track risks, and assign responsibility.

- Developed centralized procedures in accordance with the SPP.

- Coordinated with TECO Finance to compile existing procedures and training materials that address the proper set-up, coding, review, and approval of funding projects.

- Created and documented a process for quarterly Funding Project reviews, to ensure proper set-up and coding and reconciliation across reporting metrics, to ensure accuracy.

2.4 SPP Program Improvements

Contractor Performance Monitoring

TECO has established oversight, deployment, cost controls, accounting policies, and procedures for each of its SPP programs. Contracts are the primary tools for oversight, deployment, and cost controls. SPP management holds regular meetings with contractors to monitor estimates against actuals and discuss reasons for any variances. Project costs are weighted against construction performance to verify support of program goals. When applicable, the company uses the individual project actual cost per mile to check against projected costs. In addition, the adherence to project schedules is compared with estimated completion timeframes. Evaluations are performed to validate costs incurred are aligned with yearly goals.

SPP Advisory Board

TECO established a SPP Advisory Board consisting of TECO's President and CEO, the vice presidents of Electric Delivery, Finance, Customer Experience, Energy Supply, and Regulatory Affairs, and Director of SPP programs. SPP leadership meets and updates the Board on the status of implementation and management, compliance, and overall cost effectiveness of its SPP programs.

SPP Materials Warehouse

A stand-alone and physically separate storage yard was procured to facilitate the supporting material needed for the SPP programs. The company's current service area warehouse did not have the physical space needed to have all of the materials, including minor materials, to support the SPP program. A SPP Warehouse team is responsible for maintaining warehouse quantities, ensuring materials issued to contractors are accurate, timely, and no qualified items have been added. A Material Management & Combined Transformer Tracker database is used to monitor supply versus demand. It effectively tracks extended inventory and transformer procurement lead

times when unreliable supply chain market conditions happen. Inventory is reconciled monthly and the amount of material issued to any given contractor will be audited no less frequently than once every quarter.

Accounting System Controls

SPP projects are identified using the company's accounting system attributes including funding projects, work orders, and work requests. Each SPP project is assigned a specific funding project number, which is tagged with a code indicating which SPP program the costs are attributable to. This code differentiates the SPP capital investments from the company's other capital assets in the accounting system. The company has also developed a set of charging guidelines for the SPP and several layers of internal review are performed on these costs. The company's SPP Finance group oversees cost control, budget adherence, and variance identification. A monthly report is provided to SPP management to measure these cost indicators.

Internal SPP Audit

TECO's Audit Services department conducted an audit of the governance structure for the company's SPP, including program alignment, management and monitoring, risk identification and mitigation, and reporting. The audit resulted in recommended improvements that were implemented by SPP management.

Project Management Software

TECO uses project management software that provides centralized project management functions allowing management to monitor progress and costs effectively.

Project Prioritization

In TECO's 2022-2031 SPP, the company changed the prioritization process for DLU projects as discussed in more detail in Chapter 3.0. The reprioritization decreased mobilization and demobilization costs along with alleviating customer confusion regarding order of undergrounding (i.e., some customers had their service undergrounded while other nearby customers did not).

Dedicated SPP Contractors

TECO uses dedicated third-party contractors to execute SPP DLU program projects.

Right-of-Way vs. Easements

TECO uses rights-of-way in lieu of obtaining 100 percent of easements and recognized the time spent obtaining easements was not effective on all projects. Adjustments to easement methodology improved productivity and reduced cost per mile on engineering, construction, and customer outreach.

Project Schedules

The company has developed and implemented SPP project schedules. The schedules provide greater visibility into work to be performed by contractors. This allows TECO to narrow its focus and validate material needs ahead of execution.

Additional Personnel

TECO added support to more effectively complete the permitting process to expedite project start and completion. Construction supervisors were added to oversee contractor work performance, and a Design and Outreach Supervisor position was created to more effectively manage customer outreach.

Vendor Evaluations

TECO has established tracking mechanisms to validate performance against goals, including historical data to further develop work plans and identify opportunities for improvement. The company is also considering implementation of project score cards to evaluate contractor performance.

Vegetation Management

For the SPP Vegetation Management program, TECO expanded the Distribution Mid-Cycle VM initiative to include both feeders and laterals at the start of 2023. The associated benefits are expected to yield an estimated 2.6 percent (feeder) and 4.5 percent (feeders and laterals) improvements to storm restoration costs. The inclusion of laterals allows for total circuit coverage to identify fast-growing and or structurally compromised vegetation prior to service interruption. The estimated cost benefits stem from reduced outage response needed on mid-cycle bolstered feeders and laterals. The full value is captured in future reliability with more permanent and cumulative results mid-cycle tree removals as opposed to cycle trimming alone.

According to TECO, the combined distribution and transmission Vegetation Management activities and initiatives were under budget largely due to the work being planned efficiently with overlapping construction projects and circuit load transfers and circuit reconfigurations.

TAU Project Completion

TECO implemented a new method of identifying completed projects for its Transmission Asset Upgrades program. SPP management implemented a close-out identifier in the company's work order system for all transmission work orders. Previously, no uniform or standardized method of closing out transmission work orders existed.

3.0 Distribution Lateral Undergrounding

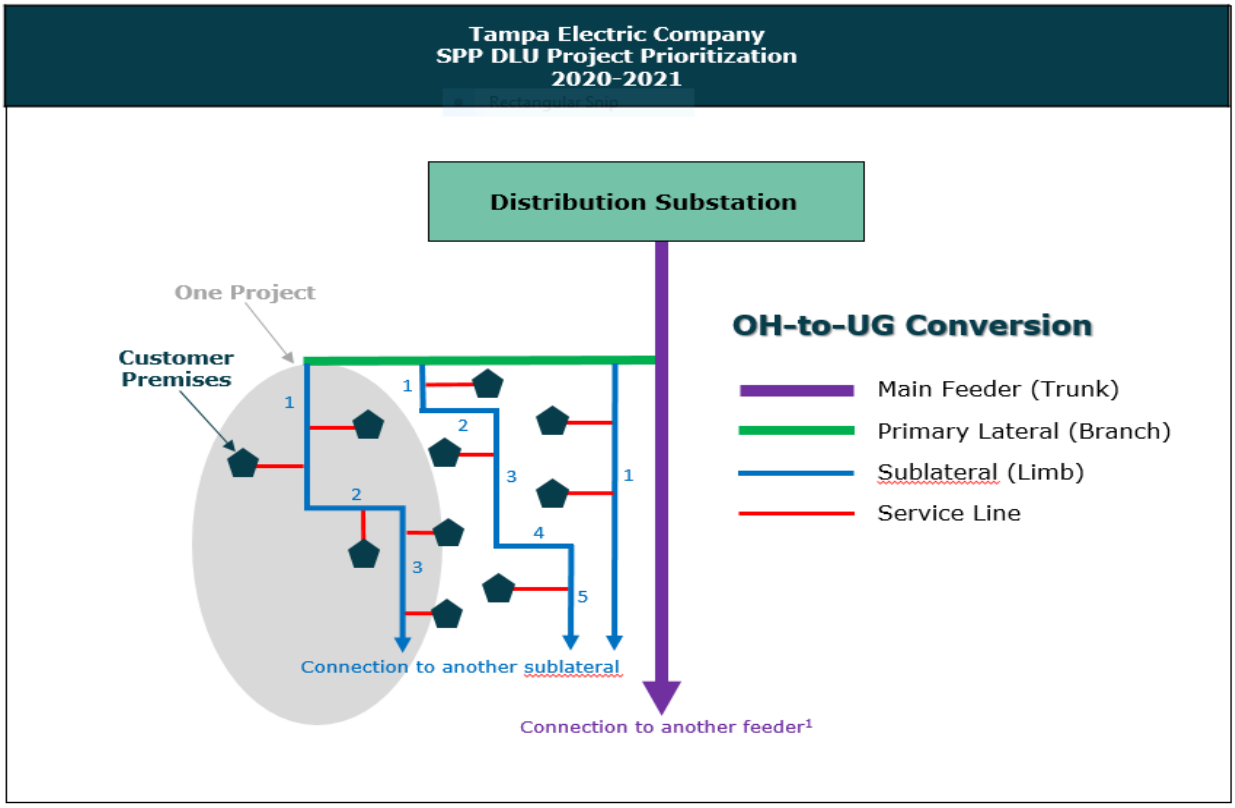
3.1 Program Initiatives

TECO's SPP Distribution Lateral Undergrounding (DLU) program focuses on strategically undergrounding existing overhead laterals. Implementation of the DLU hardening program is intended to benefit the company and its customers by reducing:

- Number/severity of customer outages
- Number of customer complaints
- Amount of system damage
- Restoration resources and costs

3.2 Prioritization Methodology and Contractor Selection

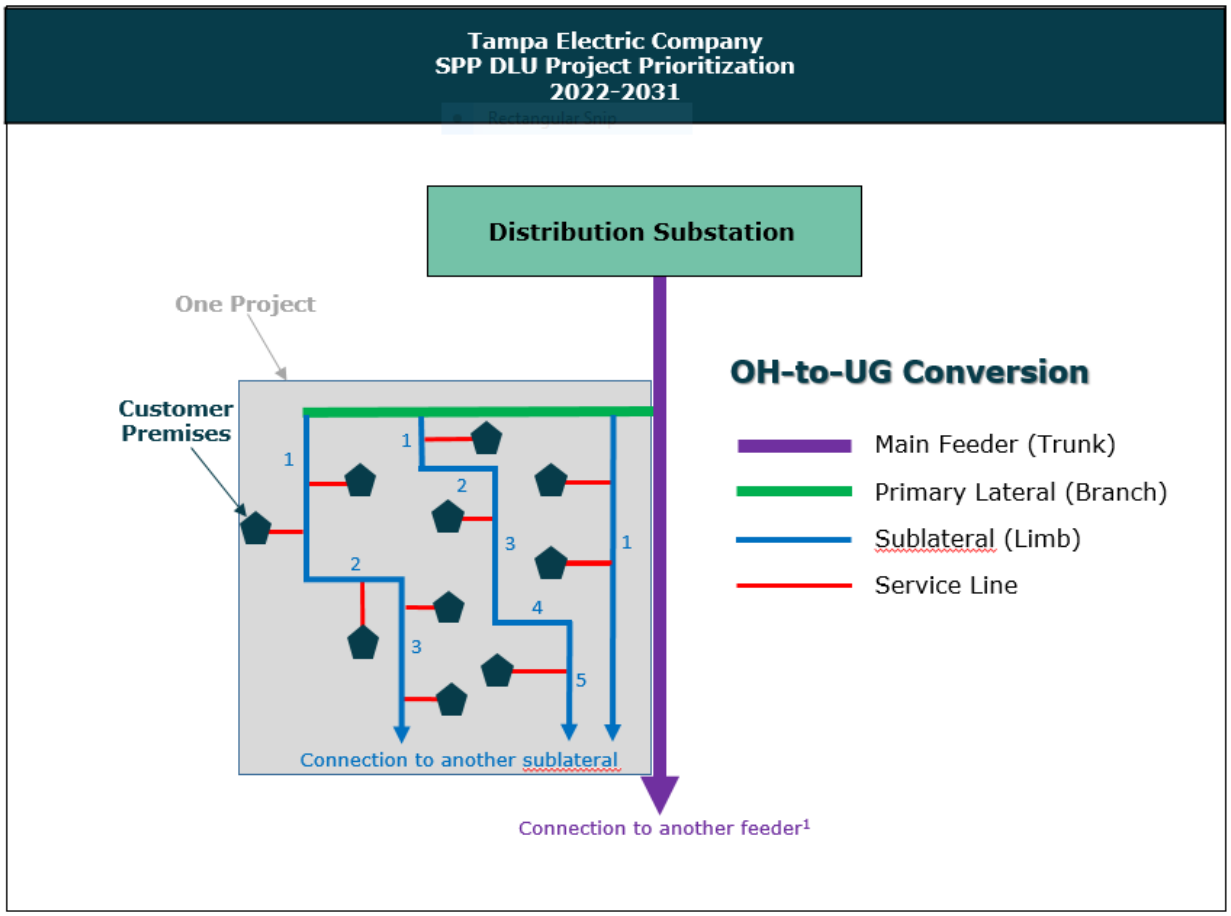
In TECO's initial 2020-2029 SPP, DLU project prioritization was based on distribution sublateral segments between protection devices (e.g., circuit breakers, reclosers, or fuses) being one projects as shown in **Exhibit 3**. Sublaterals were selected based on their ease of execution (e.g., fewer joint-use attachments, fewer rear lot spans, no major road or railroad crossings) and overall customer benefits.



[1]*Although the main feeders are not undergrounded, they are prioritized for hardening under TECO's SPP DOFH program.*

Exhibit 3 *Source: Interview with TECO Management, June 29, 2023*

In the company's most recent 2022-2031 SPP filing, 1898 & Co. and TECO changed the DLU prioritization methodology to improve operational efficiencies. A DLU project now consists of undergrounding existing overhead primary lateral (branch), and all sublaterals (limbs) downstream of the same feeder (trunk), including customer service lines. **Exhibit 4** shows a graphical representation of the infrastructure that is undergrounded. According to TECO, the new project prioritization allows more efficient looping of a single larger footprint, increases efficiency of mobilization/demobilization of resources, and enables clearer communication to customers/broader support.



[1]*Although the main feeders are not undergrounded, they are prioritized for hardening under TECO's SPP DOFH program.*

Exhibit 4 *Source: Interview with TECO Management, June 29, 2023*

The 1898 & Co. consulting firm provides TECO's SPP DLU program management with a proposed prioritized master list of construction projects by year. Prioritization is based on: location of facilities (front or back of property), available equipment, number of customers, potential savings from avoided restoration costs, and reduction in outage times or reduced customer minutes of interruption. However, TECO may reprioritize 1898 & Co.'s final ranking of projects based on follow-up feasibility studies.

Feasibility studies are performed by TECO's SPP team to identify potential risks prior to assigning projects to DLU contractors. The team walks each DLU project route to identify possible impediments that may occur during construction, including physical barriers, permitting

delays, obtaining easements, and customer objections. Once complete, feasibility studies are assigned to the DLU design team to determine whether the project can move forward.

SPP DLU project contracts are awarded via a competitive bid process based on funding, resources, and location of TECO's prioritized projects. A minimum of three bids must be requested and contracts are given for a three-year period. Initial awards and service agreements were made in 2020. In 2023, the company issued updated request for proposals (RFPs) for engineering and construction services. Service agreements were awarded in January 2024.

Once the targeted DLU projects are determined, contractor assignments are made among TECO's seven service areas. Currently, three dedicated contractors are undertaking the company's SPP DLU projects. None of the contractors are used for non-SPP DLU work such as undergrounding new residential subdivisions or new commercial complexes.

3.3 Project Management Software

The original DLU project timeline is provided to the contractor during scope development. The contractor develops a work schedule based on historical duration of time for activities and develops a critical path scheduling of a sequence of required tasks for completion.

Approvals and action items for TECO and DLU contractors are controlled by requirements in the company's work management system, WorkPro. Each requirement must be verified as completed by a TECO employee or contractor representative. Schedules are validated against WorkPro requirements to verify work requests can progress through the process. Targets are formulated from schedules and validated with program projections to ensure estimated progress supports overall program goals. These targets are input into the company's TracPro system.

TracPro captures real-time data including construction status, budget adherence, and forecasts. TracPro exports data to the company's DLU tracker to manage and monitor SPP undergrounding projects from start to finish. The DLU tracker produces dashboards and graphs illustrating design and construction status, estimated and actual start and completion dates, customer outreach information, and invoice reconciliation.

TECO also uses Oracle's Primavera Enterprise Project Portfolio Management software for scheduling, risk analysis, and resource management. Using schedules from contractor partners, key projects dates are uploaded into Primavera. Through queries, the system can summarize and report on the status and various aspects of the construction projects such as overhead to underground circuit mileage, and compliance with FPSC and other regulatory agencies. Primavera schedules are imported to TracPro to update key dates weekly.

TECO's System Application and Process (SAP) financial accounting system performs invoice reconciliation and project closeout. Exports from SAP are uploaded to the DLU tracker for monthly reporting purposes.

TECO is formalizing procedures to close out projects within 90 days after construction completion because closeout of completed projects has often taken longer than anticipated. The period can be extended due to final inspections, reconciliation, final invoice processing, and development of work requests for joint-use transfers. As a result, projects largely completed in one plan year may be reflected in the next year.

TECO indicated to Commission audit staff that, in some cases, the closeout process was taking more than 90 days due to inaccessibility of a transaction code in the company's SAP system. This code allows for the tracking and recording of the movement of various materials for SPP project use. Also, some completed projects experienced a change in spending amount in a subsequent year due to accrual reversals, lagging invoices from contractors payment processing, and reconciliation adjustments. The company is currently working through a backlog of reconciliations and fully anticipates closeout to occur within 90 days of future completions. TECO plans to clear the backlog by the end of March 2024, and expects its two returning construction contractors and two new contractors to adhere to the 90-day close-out process on a going forward basis.

3.4 Management Oversight

SPP management conducts weekly scheduled meetings to monitor projects, including completed work requests, and adherence to codes, work specifications, and contract requirements. Monthly metrics reports generated by combining data exports from various tracking systems are used to monitor the progress of work from groundbreaking to restoration and completion.

TECO's SPP leadership meets and updates the SPP Advisory Board on the status of implementation and management, compliance, and overall cost effectiveness of the SPP DLU program. The Advisory Board consists of TECO's President and CEO, the vice presidents of Electric Delivery, Finance, Customer Experience, Energy Supply, and Regulatory Affairs, and Director of SPP programs. Four meetings were held in 2022, three in 2023, and one in 2024 to date.

TECO's DLU construction supervisors perform quality control field visits, when needed, to ensure the project meets all of the design and construction requirements. Once work is completed and the as-built information is collected, the company reviews documentation for project compliance.

TECO is working on the development of a project quality audit schedule which will integrate quality assurance and quality control functions into work progression at all levels. The audit schedule measures contractor compliance with procedures for the scope of work. The quality control goal is to identify any contractor non-compliance and opportunities for improvement. TECO currently is in the process of reviewing and approving the applicable internal procedures to be used for a comparison tool for the project audit schedule. The company has targeted implementation of the audit schedule to be in 2024.

3.5 Project Status and Costs

Exhibit 5 depicts DLU engineering and construction projects and the associated costs over the period 2020 through 2022. The target for converting overhead distribution to underground is 100 to 150 miles per year. The company projects the DLU program to have completed 1,712 projects by the end of 2031 for a total of 1,001 miles.

2020 Results

In 2020, the company initiated 138 DLU engineering designs and began construction on the one completed project design. The contributing factor for the delay in completed engineering designs was a shortage of engineers due to the outbreak of COVID-19 and general tight job market. The company incurred $7.2 million of annual costs, all of which were capitalized.

2021 Results

In 2021, TECO refined its project schedules to accelerate engineering design completion in advance of construction. TECO contracted with engineering firms and also had difficulty staffing design teams. The design teams needed to be trained to ensure the standards required by the company would be met. By year-end 2021, TECO initiated an additional 439 DLU engineering designs, began construction on 78, and completed 33 construction projects (8.5 miles) as shown in **Exhibit 5**. The completed project costs totaled $11.5 million, $2.1 million less than the projected $13.6 million. The primary driver for these finished projects being under budget was an overestimate of labor, material, and outside service costs for 12 of the projects and one project was redesigned that resulted in reduced costs.

Total 2021 annual engineering and construction services amounted to $53.7 million. The company projected $79.5 million in annual costs, anticipating that more construction projects initiated would have been completed. However, the company experienced a delay in obtaining permits, customer easements, and materials.

To mitigate these issues, the company leased a dedicated SPP warehouse to facilitate supply and store materials. A consultant was engaged to streamline the permitting and easement access processes. Of the $53.7 million in total costs, $138,000 was allocated between operations and maintenance support and the warehouse lease.

2022 Results

For 2022, TECO initiated another 229 DLU engineering designs and completed all 117 construction projects that were initiated. As previously mentioned, TECO changed its DLU prioritization methodology to gain operational efficiencies. Total engineering and construction costs in 2022 amounted to $127.4 million, $21.6 million over the projected costs of $105.8 million. The company attributes the over budget to engineering designs being slower than expected for being ready for construction, continued delays with obtaining easements, and the ramping up of crews to stay on target with the DLU mileage the company projected to complete. Of the $127.4 million in total costs, $352,000 of it was allocated between operations and maintenance support and the warehouse lease.

The 117 DLU construction projects (50 miles) that were completed cost $83.7 million, $4.9 million less than projected. The company overestimated labor, material, and outside service costs for 44 of the finished construction projects and redesigned two of the projects that resulted in lower than anticipated costs.

Total 2020-2022 Results

Over the period 2020 through 2022, engineering initiated 806 DLU projects, completed 311, and the company finished construction of 150 projects (58.5 miles) out of 196 initiated. TECO recognized that engineering design for the DLU program was getting too far ahead of operations and recommended that engineering staff should be reduced to better align construction operations. Total costs for the 150 construction projects completed over the three year period were $95.2 million, $7.0 million less than $102.2 million projected for these projects. Over the same three-year period, total costs including initiation of engineering designs through completion of construction were $5.0 million dollars under than what was projected.

Tampa Electric Company
SPP Distribution Lateral Undergrounding Program
Projects and Costs - Estimated versus Actual
2020-2022

2020							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects/ Miles Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
138	1	1	0/0	$0	$0	$8.0M	$7.2
2021							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects/ Miles Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
439	169	78	33/8.5	$13.6M	$11.5	$79.5M	$53.7M
2022							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects/ Miles Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
229	141	117	117/50	$88.6M	$83.7	$105.8M	$127.4M
Total 2020-2022							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects/ Miles Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
806	**311**	**196**	**150/58.5**	**$102.2M**	**$95.2M**	**$193.3M**	**$188.3M**

[1]Includes all projected project costs, including costs from prior years
[2]Includes all actual project costs, including costs from prior years

Exhibit 5 *Source: TECO's Response to Document Requests 2, 4, and 7.10*

4.0 Distribution Overhead Feeder Hardening

4.1 Program Initiatives

The Distribution Overhead Feeder Hardening Program (DOFH) strengthens selected feeders to withstand increased wind-loading associated with extreme weather events through two primary enhancements: feeder strengthening, and sectionalizing and automation. TECO has identified and prioritized 341 feeder circuits to be hardened by the end of the 2022-2031 SPP ten-year period and anticipates additional feeders will be hardened beyond this timeframe.

Feeder strengthening hardens selected feeders to meet NESC extreme wind loading and strength criteria. Activities include evaluation of poles older than 35 years, conductor, and equipment to determine if upgrades are necessary. Sectionalization and automation enhancements include installation of automated switches, breakers, reclosers, trip savers, sensors, relays, and sectionalizers. This prevents some outages through remote real-time network reconfiguration without operator intervention.

These design and standards changes will increase resiliency of the company's distribution system and reduce the customer interruptions and outage times.

4.2 Prioritization Methodology and Contractor Selection

TECO leveraged 1898 & Co.'s resilience-based prioritization methodology to identify DOFH projects that provide the most benefit. Projects are prioritized based on design year, overall reliability performance for both extreme weather events and blue-sky days, priority services, and number of customers served. Higher priority is given to feeders that have the highest likelihood of failure and have the greatest customer impact if an outage were to occur. However, obstacles such as coordinating with municipalities, obtaining permits, and working with community associations can cause some projects to be completed out of sequence.

TECO allocates project funding and contractor resources through its standard RFP process based upon the prioritization and location of projects. New contracts were awarded in January 2024. Work initiation begins with a construction schedule maintained by each contractor. The original feeder hardening project timeline is provided by the contractor during scope development. A schedule is developed based on historical duration of time for activities and adjusted as needed during the project lifecycle. DOFH contractors identify and provide to their respective TECO construction supervisors the critical path to ensure projects are on schedule.

4.3 Project Management Software

Approvals and action items for TECO and its contractors are controlled by requirements in the WorkPro management system. Each work requirement must be completed by the employee or contractor to ensure that projects are properly closed out.

TECO counts projects by circuits and they may include requests for multiple equipment installs and change-outs such as pole installations, reconductoring, and recloser installations. The work requests are validated against WorkPro requirements to verify that work can progress. Targets are formulated from project schedules and tracking spreadsheets provided by contractors and are validated against program projections in WorkPro.

Monthly reports and key performance indicator results are generated from WorkPro data exports, project schedules, and tracking spreadsheets. The company's System Applications and Products (SAP) software captures financial transactions, invoice processing, and reconciliation. A project is considered complete when the project (circuit) is back in service, and final invoice reconciliation is performed for project closeout.

As previously noted, the company is experiencing a backlog of reconciliations causing delay in closing projects and is in the process of developing a procedure to require closeout within 90 days. Due to the backlog, some completed projects have seen additional costs assigned or removed in a subsequent year as the material reconciliation is performed. Once the backlog is caught up, the company expects its SPP personnel and contractors to fully comply with the 90-day window for project closeouts.

4.4 Management Oversight

TECO construction supervisors are responsible for the progress of work. Tracking is accomplished in WorkPro for key dates identified around milestones. Supervisors monitor projects through weekly scheduled meetings and completed work requests. They also assess adherence to codes, work specifications, and contract requirements.

Internal team members perform quality control field visits, when needed, to ensure the project meets the design and construction requirements. Once work is completed and the as-built information is collected, the company reviews these documents to check for project compliance.

TECO is working on the development of a project quality audit schedule that will integrate quality assurance and quality control functions into work progression at all levels. Construction supervisors will use this tool to monitor contractor work performance. Additionally, the company is considering implementation of project score cards to evaluate contractor performance.

TECO's Construction Superintendent overseeing the DOFH program is responsible for monthly cost control, budget and schedule adherence, and variance identification. Weekly forecast updates monitor cost performance. Monthly metrics reports and customer/contractor feedback are used to assess the status of its DOFH program for consideration of implementing changes to improve cost effectiveness. Leading indicators are monitored and examined to identify root-cause factors. Issues are communicated with applicable parties and a path forward is discussed.

4.5 Project Status and Costs

Exhibit 6 depicts DOFH engineering and construction projects and the associated costs over the period 2020 through 2022. TECO has 710 distribution circuits consisting of 2,300 miles of overhead primary feeders. The company identifies construction projects at the circuit level and each project consists of hardening one feeder circuit. The costs shown in the exhibit are for enhancements which include pole replacements and upgrades, three-phase and single-phase recloser installations, and fuse coordination replacements.

2020 Results

During 2020, the DOFH program initiated 20 project engineering designs and began construction on five projects at a cost of $3.8 million, $2.9 million less than projected. TECO states that construction resources were pulled to honor mutual assistance commitment for storm restoration, reducing SPP construction activity. The company states it learned the importance of designing and engineering projects sooner to resolve issues prior to experiencing construction delays.

2021 Results

For 2021, TECO initiated engineering on 16 DOFH projects and completed engineering activities on 18. This includes those rolled over from 2020. Final construction of six projects was completed out of 18 initiated in 2021 and five in 2020. According to TECO, construction project completions were delayed by material shortages, outages, and unforeseen impacts at the time the company started to finalize the 2022-2031 SPP. Total costs of the DOFH construction projects completed were $7.7 million, $8 million less than estimated. The difference is primarily attributed to an overestimation of labor, material, and outside service costs. Total 2021 annual costs for both engineering and construction services were $17.4 million, $1.7 million dollars over than what was projected.

2022 Results

TECO, in 2022, completed 14 construction projects at a cost of $18 million, within five percent of the respective projection of $18.9 million. Total annual costs for both engineering and construction services were $26 million, $7.4 million less than what was projected. The variance is attributed to completing less construction projects than what was originally projected.

Total 2020-2022 Results

Over the three-year period 2020 through 2022, 47 DOFH engineering projects were initiated and 38 were completed. Construction initiated 35 projects and completed 20. TECO states that it is working to meet the goal of hardening 341 feeder circuits by the end of 2031. Total costs for the construction projects completed were $25.7 million, $8.9 million less than projected, driven primarily by the overestimation of costs in 2021. Total 2020-2022 costs for both engineering and construction services were $47.2 million, $8.7 million less than projected.

Tampa Electric Company SPP Distribution Overhead Feeder Hardening Program Projects and Costs - Estimated versus Actual 2020-2022							
2020							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
20	5	5	0	$0	$0	$6.7M	$3.8M
2021							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
16	18	18	6	$15.7M	$7.7M	$15.8M	$17.4M
2022							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
11	15	12	14	$18.9M	$18.0M	$33.4M	$26.0M
Total 2020-2022							
Engineering Projects Initiated	**Engineering Projects Completed**	**Construction Projects Initiated**	**Construction Projects Completed**	**Projects Completed Estimated Costs[1]**	**Projects Completed Actual Costs[2]**	**Total Annual Estimated Costs**	**Total Annual Actual Costs**
47	**38**	**35**	**20**	**$34.6M**	**$25.7M**	**$55.9M**	**$47.2M**

[1]Includes all projected costs, including costs from prior years
[2]Includes all actual costs, including costs from prior years

Exhibit 6

Source: TECO's Response to Document Requests 2, 4, and 7.12

5.0 Vegetation Management

5.1 Program Activities and Initiatives

The single largest cause of electric power outages is fallen or wind-blown trees and limbs. Keeping trees and vegetation from encroaching on overhead conductors and triggering power outages is critical to service reliability. TECO's SPP Vegetation Management (VM) program involves both distribution and transmission line clearing activities and initiatives.

The Commission approved TECO's VM program within its 2020-2029 SPP in Order No. PSC-2020-0224-AS-EI, issued on June 30, 2020, in Docket No. 20200067-EI. The program consists of three proactive legacy storm hardening activities and three new VM initiatives. The three legacy VM activities are:

- Distribution VM Four-Year Cycle
- Transmission VM Two-Year Cycle
- Transmission VM Right-of-Way Maintenance

The three new VM initiatives are:

- Supplemental Distribution VM
- Mid-Cycle Distribution VM
- 69 kV Transmission VM Reclamation

The legacy Distribution VM Four-Year Cycle is designed to reduce tree-related outages by inspecting and selectively trimming over 6,300 miles of the company's distribution circuits once every four years. The Supplemental Distribution Circuit VM initiative was approved by the Commission in TECO's initial 2020 SPP filing as an enhancement to the Distribution VM Four-Year Cycle by presently including 700 additional miles of VM per year. At the start of this initiative, the company used a target of 400 and 500 miles in years 2020 and 2021, respectively, to manage contract resource availability.

The Mid-Cycle Distribution VM initiative, also approved in 2020, is an inspection-based approach performed two years beyond each trim to identify and mitigate hazard trees and areas where vegetation grows rapidly and may not be controlled effectively within the Distribution VM Four-Year Cycle. Although the initiative originally estimated 1,000 feeder miles of VM per year, TECO used a target of 200 miles in 2021 and 2022 to manage contract resource availability.

TECO's distribution tree trimming activities also support customer-requested work and internal work orders associated with the company's circuit improvement process. These unplanned activities are categorized as reactive and the associated costs are recovered through base rates, not included in the SPPCRC.

The company's transmission SPP VM program includes the legacy activities to maintain 1,300 miles of transmission right-of-ways that existed prior to the inception of the SPP and a newly added 69 kV Reclamation initiative. The company operates four voltages of transmission lines: 230 kV, 138 kV, 69 kV, and 34 kV. The company maintains a two-year VM cycle for 230 kV and 138 kV circuits, and a three-year cycle for 69 kV and 34 kV circuits. The 69 kV Reclamation initiative, approved in TECO's 2020 SPP filing, is aimed to clear specific problematic vegetation areas outside of the company's current vegetation-to-conductor clearance specification of 15 feet.

NERC standard FAC-003-05 imposes VM compliance standards for circuits with 200 kV or higher, requiring TECO to maintain an annual work plan, including detailed reports, policies, practices, and performance levels. TECO audits every three years with additional progress reports submitted to NERC upon request. For the period 2020 through 2022, the company discovered no compliance issues.

5.2 Prioritization Methodology and Contractor Selection

In the development of TECO's initial SPP in 2020, TECO teamed with Accenture to perform an analysis of the company's VM strategies for storm hardening. Using a proprietary VM software application, TECO and Accenture estimated the value derived from activities that address part of a circuit at a time. Updates were performed to include recent outage, cost, and trim data. This analysis gave rise to the Supplemental Distribution Circuit VM, Mid-Cycle Distribution VM, and the 69 kV Transmission VM Reclamation initiatives.

The VM software further analyzes multi-year circuit performance data, trim cycles, and corrective and restoration costs to generate a priority list for circuit trimming. The software optimizes circuit selection reliability and cost effectiveness. Work is prioritized based on trim-cycle schedule, customer need, resource availability, and geography.

For its transmission VM activities, TECO implemented a hard two-year cycle for 138 kV and 230 kV facilities and a three-year cycle for 34 kV and 69 kV facilities.

For the Mid-Cycle Distribution VM initiative, TECO will inspect feeders that have not been trimmed in the last two years and prescribe additional VM work based on the inspection findings. Commission audit staff notes that TECO expanded this initiative in 2023 to include both feeders and laterals. Accenture's analysis estimates additional 2.6 percent (feeders) and 4.5 percent (feeders and laterals) improvements to storm restoration costs.

In its 69 kV Transmission VM Reclamation initiative, TECO identified and mapped areas where vegetation obstruction exists to determine project scope, cost, and schedule. This initiative was completed in 2023 as originally projected.

TECO employs a total of four contractors who deploy 350 trim personnel for the vegetation management initiatives. Separate blue-sky contractors are vetted by way of its RFP process using business knowledge and experience, resource availability, safety record, and cost as the primary

criteria. Black-sky contractors are secured through Southeastern Electric Exchange or industry resource requests. Contractors are held accountable to contract scopes and specifications.

5.3 Project Management Software

TECO uses Accenture's Tree Trimming Model (TTM) to analyze day-to-day vegetation-caused outages. Circuits are grouped according to their similarity in terms of outage escalation and separately grouped as a function of how expensive it is to trim them. The TTM calculates the degree the electrical system will be impacted from tree damage due to extreme weather conditions. Historical data such as wind speed, extent of damage, and proximity of limbs to lines are built into the TTM Storm Module. The Storm Module predicts damage levels and associated costs for typical years and can also project the impact of storms of specific magnitude.

The company uses TTM to estimate vegetation management initial costs by taking into account the outage and trim data, and current and historical financial records. This provides TECO with an objective method for optimizing tree-trimming schedules by determining the impact of tree trimming costs on system reliability (i.e., SAIDI or SAIFI performance targets).

TECO uses a VM Circuit Tracker software tool to monitor the number of circuit miles completed by VM contractors. Weekly status reports are generated benefiting the company, contractors, and customers by:

- Documenting pertinent historical information
- Assisting in the management of contracts/contractors
- Allowing real-time data for company and customers
- Assisting in the compliance with VM requirements

5.4 Management Oversight

An annual work plan for each vegetation management initiative is created and work is issued to contractors in accordance with the plan schedule. The work is divided into seven service areas and factors such as increased contractor costs, resource constraints, weather, supply chain shortfalls may require revisions to the initial cost and plan schedule.

TECO's Line Clearance department is comprised of 11 employees under the direction of a manager. These 11 employees are comprised of nine Arborists (one of which is a Transmission Field Specialist) a Planner and a Senior Business Analyst. The Transmission Field Specialist is more responsible for NERC inspections and line clearance support than Arborist activities. The Planner is responsible for managing customer requests while the Senior Business Analyst oversees the VM financials.

The Arborists maintain a host of metrics and mapping tools to track contractor performance, costs, compliance, and field safety. Daily and weekly activity reporting, quarterly meetings, semi-annual reviews, and reconciliation of data submitted by the contractors provide validation

to ensure trimming completed is recorded accurately. Oversight is further achieved through a series of field inspections. These inspections, while largely informal with no set schedule, key in on a number of miles trimmed, quality of clearance and trimming, and safety work practices. Contractor progress is regularly compared with historical and projected performance.

Timesheets and daily activity reports are submitted by the contractor weekly detailing the work completed by initiative, circuit, and work request. The Senior Business Analyst ensures invoices match the timesheet and daily activity reports as a final verification prior to submitting for payment. The information is compiled into usable metrics. These metrics are made available to the Line Clearance department, contractors, and TECO management and are key to managing annual plans, compliance, and program effectiveness.

Regularly scheduled meetings and email correspondence serve as the primary routes of data exchange between TECO's Line Clearance department and senior management. The Line Clearance department does not produce specific reports for senior management outside of those provided to the Commission and Federal Energy Regulatory Commission.

TECO further participates in industry benchmarking studies and professional associations and committees to compare their program with peer utilities and industry professionals to enhance VM initiatives including safety, storm response, communications, customer service, contractor management, legal, and environmental matters. Committees and associations include CN Utility Consulting, International Society of Arboriculture, Utility Arborist Association, Southeastern Electric Exchange, North American Transmission Forum, Florida Urban Forestry Council, and USF Campus Tree Committee.

5.5 Activity/Initiative Status and Costs

Exhibit 7 shows the projected and actual miles trimmed and associated costs for TECO's VM SPP program activities and initiatives for each year 2020 through 2022, including totals for the three-year period. TECO's three new VM initiatives were implemented in 2020: Distribution Mid-Cycle, Distribution Supplemental, and the Transmission 69 kV Reclamation.

2020 Results

For 2020, the company completed 2,589.5 miles of VM at a cost of $13.1 million, $600,000 less than projected. This is predominantly attributed to the actual costs for the Distribution Four-Year Cycle activity being $700,000 less than the projected $9.7 million. For this activity, the company cleared 82.1 miles less than the projected 1,720 miles; however, it was accomplished at a cost of $5,495 per mile versus a projected cost of $5,640 per mile. According to TECO, this activity as a whole was short of its miles goal as a result of losing resources for several weeks to support storm restoration in other states through the industry mutual assistance program.

The Transmission Two-Year Cycle VM activity, including the Right-of-Way Maintenance activity, was slightly over budget for 2020. TECO attributed the $200,000 additional cost to delays related to weather and construction, which pushed some early VM activities into the later

months of 2020. This caused the company to meet trimming requirements in a shorter timeframe, requiring some contractors to be compensated for overtime.

2021 Results

For 2021, the total actual costs for all of the Distribution VM were $19.4 million, $400,000 less than projected. However, the Distribution Four-Year Cycle activity was $500,000 over the projected amount of $13 million at a cost of $8,294 per mile, $2,799 over the $5,495 cost per mile in 2020. The difference is attributed to an increase in labor and equipment cost from 2020 to 2021. The cost per mile of VM can vary significantly as well due to the area trimmed, access to the area, density, type of vegetation, and labor and equipment needed.

The $2.2 million cost for the Transmission Two-Year Cycle activity in 2021 was $600,000 less than the projected $2.8 million and $1,080 per mile less than the projected $5,283 per mile. TECO projected to clear 27 miles of vegetation for the Transmission 69kV Reclamation initiative at a cost of $700,000, but was only able to clear 6.5 miles at a cost of $900,000. This initiative got behind schedule due to several factors including higher than expected contractor costs, resource availability, and permitting issues.

2022 Results

For 2022, the total actual costs of $19.8 million for all of the Distribution VM were $1.4 million less than the projected $21.2 million. This is primarily driven by $2.3 million in costs that were lower than the projected $3.6 million for the Distribution Mid-Cycle initiative. For this initiative, TECO was also able to clear 389 miles of vegetation versus a projected 196. The company was able to accomplish this because inspections did not result in the need for trimming.

The 2022 cost for the Transmission Two-Year Cycle activity was $5,254 per mile for a total of $2.7 million, $200,000 under the projection. The cost for the 69kV Reclamation initiative was $700,000, the same as projected. Actual miles cleared were 18 versus a projected 28, slightly behind schedule due to the same factors mentioned above.

Total 2020-2022 Results

Over the three-year period, TECO achieved over 100% of its projected 8,510.3 trim miles at a cost of $58.8 million, $3.0 million less than projected. According to TECO, the combined distribution and transmission VM activities and initiatives were under budget largely due to the work being planned efficiently with overlapping construction projects and circuit load transfers and circuit reconfigurations. However, Commission audit staff notes that the Distribution Four-Year Cycle activity and the Transmission 69 kV Reclamation initiative were 4 percent and 13 percent over their projected costs, respectively. The Distribution Mid-Cycle VM initiative was 52 percent less than the projected $5.0 million.

Tampa Electric Company SPP Vegetation Management Program Activities and Initiatives – Estimated versus Actual 2020-2022				
2020				
Planned VM Activities/ Initiatives	**Estimated Miles**	**Actual Miles**	**Estimated Costs**	**Actual Costs**
Dist. Four-Year Cycle	1,720.0	1,637.9	$9.7M	$9.0M
Dist. Supplemental	402.3	396.5	$2.9M	$2.9M
Dist. Mid-Cycle	0	37.0	$0.1M	$.01M
Trans. Two-Year Cycle[1]	530.0	518.1	$0.9M	$1.1M
Trans. 69 kV Reclamation	0	0	$0.1M	$.05M
Total	**2,652.3**	**2,589.5**	**$13.7M**	**$13.1M**
2021				
Planned VM Activities/ Initiatives	**Estimated Miles**	**Actual Miles**	**Estimated Costs**	**Actual Costs**
Dist. Four-Year Cycle	1,560.0	1,627.7	$13.0M	$13.5M
Dist. Supplemental	510.2	508.0	$5.5M	$4.8M
Dist. Mid-Cycle	243.1	212.4	$1.3M	$1.1M
Trans. Two-Year Cycle[1]	530.0	523.4	$2.8M	$2.2M
Trans. 69 kV Reclamation	27.0	6.5	$0.7M	$0.9M
Total	**2,870.3**	**2,878.0**	**$23.3M**	**$22.5M**
2022				
Planned VM Activities/ Initiatives	**Estimated Miles**	**Actual Miles**	**Estimated Costs**	**Actual Costs**
Dist. Four-Year Cycle	1,557.7	1,464.3	$11.2M	$12.6M
Dist. Supplemental	692.0	682.6	$6.4M	$5.9M
Dist. Mid-Cycle	196.0	389.0	$3.6M	$1.3M
Trans. Two-Year Cycle[1]	513.9	513.9	$2.9M	$2.7M
Trans. 69 kV Reclamation	28.1	18.0	$0.7M	$0.7M
Total	**2,987.7**	**3,067.8**	**$24.8M**	**$23.2M**
Total 2020-2022				
Planned VM Activities/ Initiatives	**Estimated Miles**	**Actual Miles**	**Estimated Costs**	**Actual Costs**
Dist. Four-Year Cycle	4,837.7	4,729.9	$33.9M	$35.1M
Dist. Supplemental	1,604.5	1,587.1	$14.8M	$13.6M
Dist. Mid-Cycle	439.1	638.4	$5.0M	$2.4M
Trans. Two-Year Cycle[1]	1,573.9	1,555.4	$6.6M	$6.0M
Trans. 69 kV Reclamation	55.1	24.5	$1.5M	$1.7M
Total	**8,510.3**	**8,535.3**	**$61.8M**	**$58.8M**

[1]Right-of-Way Maintenance is included in transmission two-year cycle

Exhibit 7 *Source: TECO's Response to Supplemental DR1.1, September 12, 2023*

6.0 Transmission Asset Upgrades

6.1 Program Initiatives

While TECO continues with its existing eight-year inspection cycle of wood transmission poles as an initiative within the SPP Infrastructure Inspections Program (discussed in Chapter 7), the company further developed a SPP Transmission Asset Upgrades (TAU) program to accelerate hardening of the transmission system. The TAU program consists of proactively replacing all of the company's remaining transmission wood poles with higher strength steel or concrete poles and bringing aging structures up to current wind loading standards.

For cost recovery purposes, poles replaced as part of the TAU program are charged to the SPP clause. The associated cost for poles failing the eight-year inspection cycle and in need of immediate replacement with a non-wood pole are charged to base rates.

TECO has over 25,000 transmission poles and structures on 225 circuits, comprised of approximately 1,250 miles. The company intends to complete the conversion of all the remaining wood transmission wood poles on 126 circuits by December 31, 2029. As shown in **Exhibit 8**, 87 percent of the TECO's poles are constructed of steel or concrete, up from 81.7 percent since 2020.

Tampa Electric Company
SPP Transmission Asset Upgrades Program
Wood to Non-Wood Pole Conversion
2020-2022

	2020	2021	2022
Wood Poles	4,582	3,987	3,270
Non-Wood Poles[1]	20,448	21,170	21,896
Total Poles	**25,030**	**25,157**	**25,166**
Percent Hardened	**81.7%**	**84.2%**	**87.0%**

[1]Includes pre-stress spun concrete, tubular steel, and composite poles.

Exhibit 8 *Source: TECO's Response to Document Request 4.5(c)*

6.2 Prioritization Methodology and Contractor Selection

TECO used the 1898 & Co.'s resilience-based modeling to develop the initial prioritization of projects based upon the transmission circuit's historical performance. Factors include the criticality of the transmission line, number and duration of customer outages, restoration costs, and age of the wood pole population on a given circuit.

The prioritization list is reviewed and revised by TECO to accommodate for operational and scheduling constraints such as access challenges and long lead time for permits. The revised

prioritization is reflected in TECO's 2022-2031 SPP program with the most feasible projects to be accelerated and completed within the first three years of the SPP.

TECO obtains contracts for its TAU program through its standard RFP process, with contracts rebid every three years. Presently, the company employs one engineering and one construction contractor. Responsibilities of the engineering contractor include updating work requests, performing circuit field verifications, updating circuit maps, identifying existing wood poles along with required tree trim, and preparing prints for construction.

6.3 Project Management Software

TAU Project execution is recorded in WorkPro and on a master Excel file maintained by the TAU engineering group. The data includes metrics such as pole counts, work to be performed, and work completed. WorkPro generates a work order and an associated SPP funding project number by circuit. The work order along with a circuit map is retrieved from the company's Transmission Operations SharePoint site and transmitted to the SPP contractor through a file transfer system.

The company's SPP Finance group oversees cost control, budget adherence, and variance identification. Every month a report from the SPP Finance group is provided to measure these cost indicators. This is used in a monthly status meeting where finances are discussed.

6.4 Management Oversight

TECO's TAU program is managed by SPP Support Services and co-managed by the company's Transmission Operations. The TAU positions in the SPP Support Services group, shown on **Exhibit 2** in Chapter 2, responsible for oversight and evaluation of contractor performance are the Transmission Engineering Manager, Senior Engineer, and Design Technician.

The Transmission Engineer Manager and Senior Engineer are responsible for all aspects of the TAU program including supporting technical design, choosing components and materials, ensuring compliance with codes and standards, establishing work requests, and readying circuits for the engineering contractor.

The Design Technician obtains permits and coordinates with all involved TECO departments to ensure successful scheduling and completion of projects, and customer satisfaction. The position further established specifications in TECO's geographical information system, such as the correct electrical connectivity, proper supporting structure, and compatible units for material and labor are of the correct type and amount.

Contractor work is scheduled and tracked by the SPP TAU team using an Excel database. Weekly reviews are performed to gauge performance against goals and identify any deviation from projected cost. If necessary, estimates and project timelines are adjusted. Oversight of the TAU budgeting and costs is a function of the SPP Finance team. Email correspondence,

dashboards, and monthly status reports serve as the primary routes of information exchanged between the TAU working group and the SPP Advisory Board.

6.5 Project Status and Costs

Exhibit 9 shows the number of TAU projects planned, completed, and associated costs for each year 2020 through 2022. Projects are identified by circuit with each circuit having a planned number of poles that need to be replaced. As of December 31, 2022, the company replaced all of the poles associated with 29 circuits.

2020 Results

In 2020, TECO replaced 181 poles out of 185 planned at a cost of $3.0 million, $200,000 over the estimated $2.8 million. The variance is largely attributed to the company's inability to support a daytime outage for one project causing crews to be paid at a premium rate and overestimated materials and outside services for another project. Total 2020 annual costs were $5.9 million, four percent over the estimated $5.7 million. This includes costs for engineering designs and construction projects initiated and the costs for the designs and projects that were completed.

2021 Results

For 2021, the company replaced 637 poles out of 577 planned at a cost of $18.3 million, $3.1 more than projected. This is attributed to final reconciliation and invoice processing being carried over from 2020 and the costs for engineering man-hours being greater than expected. Total annual estimated 2021 costs for projects designed and completed were $15.2 million compared to $18.3 million actually spent, a difference of $3.1 million over what was projected.

2022 Results

For 2022, the company replaced 526 poles out of 474 planned at a cost of $18.9 million, $2.4 million above the estimated $16.5 million. The variance is mainly attributed to a correction reversing costs from capital to the operation and maintenance expense account. Like 2021, project close-out costs are carried over from previous years and the costs for engineering man-hours were more than expected. As previously mentioned, TECO is formalizing procedures to closeout projects within 90 days after construction completion. It should be noted that TECO adopted a new method of confirming that a project has been completed by uniquely coding the project closeout work order in WorkPro.

Total 2020-2022 Results

Over the three year period 2020 through 2022, TECO completed the replacement of 1,344 poles. With 3,270 wood poles still on the transmission system as of the end of 2022 (as shown in **Exhibit 8**) that are still in need of conversion, the company appears to be on pace to complete all the replacements by the planned year 2029. Total 2020-2022 costs including engineering and construction amounted to $43.1 million, $5.7 more than estimated.

Tampa Electric Company SPP Transmission Asset Upgrades Program Pole Replacements – Estimated vs. Actual 2020-2022			
2020			
Pole Replacements Planned	**Pole Replacements Completed**	**Total Annual Estimated Costs[1]**	**Total Annual Actual Costs[2]**
185	181	$5.7M	$5.9M
2021			
Pole Replacements Planned	**Pole Replacements Completed**	**Total Annual Estimated Costs[1]**	**Total Annual Actual Costs[2]**
577	637	$15.2M	$18.3M
2022			
Pole Replacements Planned	**Pole Replacements Completed**	**Total Annual Estimated Costs[1]**	**Total Annual Actual Costs[2]**
474	526	$16.5M	$18.9M
Total 2020-2022			
Pole Replacements Planned	**Pole Replacements Completed**	**Total Annual Estimated Costs[1]**	**Total Annual Actual Costs[2]**
1,236	**1,344**	**$37.4M**	**$43.1M**

[1]Includes all estimated project costs, including costs from prior years
[2]Includes all actual project costs, including costs from prior years

Exhibit 9 *Source: TECO's Response to Supplemental DR1.1, October 11, 2023*

7.0 Infrastructure Inspections

7.1 Program Initiatives

Pursuant to Commission orders,[3] investor-owned utilities are required to inspect its distribution and transmission wood poles on an eight-year cycle and its substations annually. They must also maintain a plan for auditing joint-use agreements, including inspections and pole strength assessments. TECO states its SPP Infrastructure Inspections program complies with the Commission's orders. Inspection costs are recovered through the SPP Cost Recovery Clause, while the costs for poles failing inspection and needing immediate replacement are recovered through base rates. Costs for performing joint-use pole attachment inspections, including pole strength and attachment loading assessments, are paid for by the attachers.

As of year-end 2022, TECO owned approximately 285,000 distribution and lighting wood poles. Inspections are conducted on a substation circuit basis with a projection of 35,625 poles to be inspected annually. Each pole receives a visual, sound and bore, and groundline inspection. The most recent eight-year distribution inspection cycle was completed at the end of 2021.

Since inception of the TAU program in 2020 to proactively harden transmission poles, wood poles are being replaced by non-wood poles at a rate of approximately three percent per year. Out of 25,166 transmission system poles in 2022, only 3,270 wood poles remain. The transmission infrastructure inspections range from eight-year groundline and above ground to annual ground patrol and aerial infrared. The most recent eight-year transmission inspection cycle was completed at the end of 2021.

The company's substation inspection initiative includes visual inspection of fencing, equipment, and structures for 147 distribution and 85 transmission substations. While the Commission requires TECO to inspect each substation annually, the company's goal is to inspect each substation at least three times a year. The company believes that with more frequent substation inspections the severity of discrepancies found will be reduced, including finding potential problems before they can have any operational impacts. In addition, the increased number of inspections are being documented which should aid in future streamlining of inspections, improving substation work plans, and eliminating any overlapping work.

7.2 Prioritization Methodology and Contractor Selection

Distribution and transmission pole inspections are conducted and completed by circuit. Since the pole inspections are cyclical, there is no priority in this planning as the entire population is scheduled and inspected during the eight-year period. TECO allocates project funding and contractor resources through its standard RFP process based upon the prioritization and location of projects. The process is projected to be finalized by April of this year. Inspection contractors work from a list of specified circuits to inspect and adhere to an agreed upon project timeline.

[3]Order Nos. PSC-06-0144-PAA-EI, PSC-06-0351-PAA-EI, PSC-06-0781-PAA-EI, and PSC-14-0684-PAA-EI.

Frequency of substation inspections is contingent on classification, age, and date of last inspection. The company's policy is to inspect all transmission substations at least once every four months, and all distribution substations at least once every year. Generation substation inspections are to be conducted weekly, and metering and cogeneration substation inspections are on a six-month cycle.

7.3 Project Management Software

Distribution inspections are captured in Osmose 360, a vendor project management software that monitors, prioritizes, and tracks pole inspections. Interactive software allows TECO and third-party attachers to view a map of the poles on its system and associated attachments. Through a visual dashboard, the company is able to monitor inspections, produce monthly reports and metrics, and follow the inspection program budget performance. Monthly metrics reports are generated through the use of TracPro, WorkPro, and SAP.

Transmission inspections are tracked through Microsoft Access, Excel, and a structured query language database. Inspection results are monitored via the Transmission System Maintenance Dashboard. Pole failures detected by patrol inspections are catalogued by year. Aerial infrared inspection results are organized by year and work order resolution.

Substation inspection schedules are captured in Cascade, an asset management and maintenance system that triggers quarterly substation inspections. Once an inspection is complete, a new corrective work order is created if any follow-up action is required.

7.4 Management Oversight

The Distribution Operations Engineer and the Transmission Operations Analyst oversee the quality of the inspections performed by contractors and track inspection cost control, budget adherence, and variance identification on a monthly basis. Performance is also tracked monthly based on forecast versus actual project completions, and cost control.

Groundline inspection contractors are required to submit weekly inspection reports documenting activities and results. Contractors may be accompanied by a TECO foreman to review workmanship issues found during the inspection process. TECO performs quality control checks on inspections to monitor adherence to standards.

A Substation Operations Supervisor, Substation Senior Budget Analyst, and Technical Support Analysts oversee the substation inspection initiative. The substation supervisor schedules and tracks SPP substation inspections. Oversight includes quality control checks, coordinating equipment repair and maintenance, and associated costs.

7.5 Project Status and Costs

Exhibit 10 depicts the distribution, transmission, and substation inspection projects planned, completed, and associated costs for each year 2020 through 2022. Projects are identified as the number of poles or substations inspected and the costs to be recovered through the SPP clause are for operating and maintenance only.

Distribution Pole Inspection Results

For 2020, the 24,962 distribution pole inspections completed exceeded the projection of 22,500 by 11 percent at a cost of $160,000, $548,000 less than the projected $708,000.[4] The difference is attributed to adjustments TECO made to avoid double recovery of costs in base rates and SPPCRC pursuant to the 2020 Settlement Agreement. For 2021 and 2022, the number of distribution poles inspected and associated costs were within the respective projections. The costs per pole inspected averaged $29 in 2021 and $34 in 2022.

Distribution Substation Inspection Results

For 2020, TECO planned on inspecting each of its distribution substations twice a year. The company exceeded the projection of 286 inspections by completing 373, at a cost of $166,000, $9,000 below what was projected. Costs fell below the projection because team members recorded their time incorrectly to other accounts during the year. This time recording error was due to team members creating maintenance work orders to make the repairs, and then charging all of the time to that repair, including the time to perform the inspection. The team members should have separated their time into these two separate activities. This issue has since been communicated and corrected.

Beginning in 2021, the company increased the number of inspections to at least three times a year and conducted 460 inspections, meeting the projected costs of $210,000. The cost per substation inspection was $457 versus an estimated $729. In 2022, 411 inspections were performed at a cost of $203,000, $84,000 above the projected $119,000. The cost per substation inspected increased to $494 and was $89 per substation more than the estimated $405.

Transmission Wood Pole Inspection Results

For 2020, the company inspected 94 percent (659) of its transmission wood poles out of 702 planned for inspection at a cost of $45,000, 75 percent less than estimated. The annual cost per pole inspected was $68 versus $85 projected. In 2021, the company reduced the number of poles planned for inspection to 367 and inspected 77 percent (284) at cost of $19,000. The cost per pole inspected was $67 dollars versus an estimated $123. The company believed an increase in cost would occur due to a new inspection contract and by inflation. The company increased the projection to 663 in 2022 and inspected 60 percent at cost of $33,000, 53 percent less than projected. The actual cost per pole inspected increased to $83 versus $94 projected.

[4]The costs for the distribution and transmission eight-year wood pole and groundline inspections are combined because the inspections are performed at the same time.

Transmission Substation Inspection Results

Beginning in 2022, the company increased the number of inspections to at least three times a year. The company completed 164, 218, and 196 inspections for each year 2020, 2021, and 2022, respectively. The inspection costs per substation were within the cost projections for each year. However, in 2022, the company completed fewer inspections than planned due to internal resource availability.

Total 2020-2022 Infrastructure Inspections Program Costs

The total costs for TECO's SPP Infrastructure Inspections Program over the 2020 through 2022 period were $3.9 million, $400,000 less than projected. Almost half of the costs, $1.9 million, are attributed to the distribution wood pole inspection program. Inspections performed on the company's distribution and transmission substations accounted for $1.1 million, while the remaining inspection initiatives totaled $900,000.

Tampa Electric Company SPP Infrastructure Inspections Program Projects and Costs – Estimated vs. Actual 2020-2022				
2020				
Inspection Projects	**Projects Planned**	**Projects Completed**	**Estimated Costs**	**Actual Costs**
Dist. Eight-Year Wood Pole/Groundline	22,500/13,275	24,962/24,290	$708K	$160K
Dist. Annual Substation	286	373	$175K	$166K
Trans. Eight-Year Wood Pole/Groundline	702	659	$60K	$45K
Trans. Eight-Year Above Ground (poles)	2,949	3,228	$10K	$1K
Trans. Annual Aerial Infrared (poles)	25,416	0[1]	$110K	$1K
Trans. Annual Ground Patrol (poles)	25,416	24,614	$145K	$144K
Trans. Annual Substation	144	164	$140K	$166K
Total	**90,688**	**78,290**	**$1.3M**	**$0.7M**
2021				
Inspection Projects	**Projects Planned**	**Projects Completed**	**Estimated Costs**	**Actual Costs**
Dist. Eight-Year Wood Pole/Groundline	19,650/19,121	19,861/12,214	$593K	$574K
Dist. Annual Substation	288	460	$210K	$210K
Trans. Eight-Year Wood Pole/Groundline	367	284	$45K	$19K
Trans. Eight-Year Above Ground (poles)	3,895	3,886	$10K	$12K
Trans. Annual Aerial Infrared (poles)	25,030	24,810	$117K	$118K
Trans. Annual Ground Patrol (poles)	25,030	24,810	$214K	$176K
Trans. Annual Substation	154	218	$194K	$206K
Total	**93,535**	**86,543**	**$1.4M**	**$1.3M**
2022				
Inspection Projects	**Projects Planned**	**Projects Completed**	**Estimated Costs**	**Actual Costs**
Dist. Eight-Year Wood Pole/Groundline	35,625/21,018	35,779/19,574	$1.0M	$1.2M
Dist. Annual Substation	294	411	$119K	$203K
Trans. Eight-Year Wood Pole/Groundline	663	398	$62K	$33K
Trans. Eight-Year Above Ground (poles)	3,386	3,386	$10K	$11K
Trans. Annual Aerial Infrared (poles)	25,157	24,689	$114K	$103K
Trans. Annual Ground Patrol (poles)	25,157	24,689	$201K	$238K
Trans. Annual Substation	255	196	$76K	$175K
Total	**111,555**	**109,122**	**$1.6M**	**$2.0M**
Total 2020-2022				
Inspection Projects	**Projects Planned**	**Projects Completed**	**Estimated Costs**	**Actual Costs**
Dist. Eight-Year Wood Pole/Groundline	77,775/53,414	80,602/56,078	$2.3M	$1.9M
Dist. Annual Substation	868	1,244	$504K	$578K
Trans. Eight-Year Wood Pole/Groundline	1,732	1341	$168K	$97K
Trans. Eight-Year Above Ground (poles)	10,230	10,500	$31K	$25K
Trans. Annual Aerial Infrared (poles)	75,603	49,499	$341K	$221K
Trans. Annual Ground Patrol (poles)	75,603	74,113	$561K	$558K
Trans. Annual Substation	553	578	$411K	$548K
Total	**295,778**	**273,955**	**$4.3M**	**$3.9M**

[1]Aerial infrared inspections were canceled due to the COVID-19 pandemic.

Exhibit 10 *Source: TECO's Responses to Document Requests 4.5c, 5, and 7.7*

8.0 Substation Extreme Weather Hardening

Concerns have grown over storm surge related to extreme weather events such as hurricanes and tropical storms. These concerns, coupled with rising sea levels, have led TECO to study hardening 24 transmission and distribution substations in low-elevation areas located near or at the coast. TECO hired HDR Engineering, Inc. to perform a substation hardening study which began in April 2021.

A scorecard was developed for the 24 substations where outages could impact grid stability or reliability of service. Of the 24 substations evaluated, 1898 & Co.'s Storm Resilience Model recommended hardening nine substation at an estimated cost of $28.8 million.

TECO initiated the first substation project in the latter part of 2023 and is projected to complete this substation hardening project by May 2024. As of the date of this report, TECO anticipates the project to be completed within the estimate of costs. The company plans to harden one substation per year thereafter. The project scope involves evaluating equipment, and raising digital protective equipment, transformers, relays, and control enclosures that support substation operations. It also involves removing old equipment and replacing it with new equipment to reduce outages/restoration times and enhance emergency response during extreme weather events.