AUSLEY MCMULLEN

Attorneys and Counselors at Law
123 South Calhoun Street
P.O. Box 391 32302
Tallahassee, FL 32301
P: (850) 224-9115
F: (850) 222-7560
ausley.com

April 2, 2024

ELECTRONIC FILING

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

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

Dear Mr. Teitzman:

Attached for filing on behalf of Tampa Electric Company in the above-referenced docket is the Direct Testimony of Kris Stryker and Exhibit No. KS-1.

Thank you for your assistance in connection with this matter.

(Document 5 of 32)

Sincerely,

J. Jeffry Wahlen

cc: All parties

JJW/ne
Attachment

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 20240026-EI

IN RE: PETITION FOR RATE INCREASE

BY TAMPA ELECTRIC COMPANY

PREPARED DIRECT TESTIMONY AND EXHIBIT

OF

KRIS STRYKER

TABLE OF CONTENTS

PREPARED DIRECT TESTIMONY AND EXHIBIT

OF

KRIS STRYKER

FUTURE SOLAR PROJECTS..... 6

FUTURE ENERGY STORAGE CAPACITY PROJECTS..... 27

FUTURE ENVIRONMENTAL COMPLIANCE PROJECT..... 32

EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT..... 37

SUMMARY..... 37

EXHIBIT..... 39

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

KRIS STRYKER

Q. Please state your name, address, occupation, and employer.

A. My name is Kris Stryker. My business address is 702 N. Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or the "company") as Vice President Clean Energy and Emerging Technology.

Q. Please describe your duties and responsibilities in that position.

A. As Vice President of Clean Energy and Emerging Technology, I report to the Vice President of Energy Supply. I am responsible for the planning and implementation of our utility scale solar projects, energy storage capacity projects, our investigative work into the application of emerging technologies, and oversight of our environmental department. My team, including myself, currently consists of seventy (70) team members.

Q. Please provide a brief outline of your educational

background and business experience.

A. I graduated from the University of Florida with a bachelor's degree in mechanical engineering, and I am a licensed professional engineer in the State of Florida.

I have more than 25 years of experience in the energy industry. Prior to becoming the Vice President Clean Energy and Emerging Technology, I held various positions within the company including Senior Director of Decarbonization and Major Projects and as Project Manager and Engineering Manager for various Tampa Electric power generating facilities. I was promoted to my current role in 2023.

Q. What are the purposes of your direct testimony?

A. The purposes of my prepared direct testimony are to: (1) explain the company's plan to build 488.7 megawatts ("MW") of solar photovoltaic ("PV") generating facilities (the "Future Solar Projects") to serve its customers; (2) explain the company's plan to build 115 MW of energy storage capacity (the "Future Energy Storage Capacity Projects"); (3) provide the projected installed costs for the projects; (4) explain Tampa Electric's investigative work for future environmental compliance; and (5) describe

the company's planned emerging technology research and development ("R&D") projects.

Q. Have you prepared an exhibit to support your direct testimony?

A. Yes. Exhibit No. KS-1 was prepared under my direction and supervision. The contents of my exhibit were derived from the business records of the company and are true and correct to the best of my information and belief. It consists of fourteen documents, as follows:

Document No. 1	List of Minimum Filing Requirement Schedules Sponsored or Co-Sponsored by Kris Stryker
Document No. 2	English Creek Solar Project Specifications and Projected Costs
Document No. 3	Bullfrog Creek Solar Project Specifications and Projected Costs
Document No. 4	Duette Solar Project Specifications and Projected Costs
Document No. 5	Cottonmouth Solar Project Specifications and Projected Costs
Document No. 6	Big Four Solar Project Specifications and Projected Costs

Document No. 7	Farmland Solar Project Specifications and Projected Costs
Document No. 8	Brewster Solar Project Specifications and Projected Costs
Document No. 9	Wimauma 3 Solar Project Specifications and Projected Costs
Document No. 10	Dover Energy Storage Capacity Project Specifications and Projected Costs
Document No. 11	Lake Mabel Energy Storage Capacity Project Specifications and Projected Costs
Document No. 12	Wimauma Energy Storage Capacity Project Specifications and Projected Costs
Document No. 13	South Tampa Energy Storage Capacity Project Specifications and Projected Costs
Document No. 14	Clean Energy Capital Expense Summary 2022-2025

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

A. Yes. I am sponsoring or co-sponsoring the MFR Schedules listed in Document No. 1 of my exhibit. The contents of

these MFR Schedules were derived from the business records of the company and are true and correct to the best of my information and belief. MFR Schedules B-11 and B-13 reflect the Future Solar Projects and Future Energy Storage Capacity Projects described in my testimony.

Q. How does your prepared direct testimony relate to the prepared direct testimony of the company's other witnesses?

A. My direct testimony describes the utility-scale solar and energy storage capacity projects for which cost recovery is requested, as well as the projected in-service dates and installed costs. My testimony further discusses the company's exploration into future environmental compliance and the company's emerging technology R&D projects. These costs are incorporated in the 2025 revenue requirement and subsequent year adjustment amounts requested for 2026 and 2027, as described in the direct testimony of Tampa Electric witness Richard Latta, the cost-effectiveness analysis presented by Tampa Electric witness Jose Aponte, and the proposed customer rates and miscellaneous charges submitted by Tampa Electric witness Jordan Williams.

FUTURE SOLAR PROJECTS

Q. Please describe the company's plan to install 488.7 MW of Future Solar Projects.

A. As part of our strategy of transitioning to a generating portfolio with less exposure to volatile fuel prices, Tampa Electric plans to add eight new solar PV projects across its service territory in West Central Florida through 2026. This amounts to a total of 488.7 MW of cost-effective solar PV energy, which means when the projects are complete, about 18 percent of Tampa Electric's energy will come from the sun.

These solar additions are a continuation of Tampa Electric's long-standing commitment to solar energy. The company has long believed in the promise of solar energy because it plays an important role in our energy future and reduces our customers' exposure to volatile fuel prices. These solar projects will also further the public policy of the state to promote the development of renewable energy resources, to diversify the types of fuels used to generate electricity, and to improve environmental conditions.

The additional 488.7 MW of cost-effective solar PV will

be added to the company's generating fleet over a three-year period as detailed below.

English Creek Solar	December 2024
Bullfrog Creek Solar	December 2024
Duette Solar	December 2025
Cottonmouth Ranch Solar	December 2025
Big Four Solar	May 2026
Farmland Solar	December 2026
Brewster Solar	December 2026
Wimauma 3 Solar	December 2026

Q. Why are the Future Solar Projects needed?

A. The Future Solar Projects are needed to provide the company's growing customer base with cost-effective solar energy that is not exposed to volatile fuel prices.

Q. You mentioned that the Future Solar Projects are needed to provide cost-effective energy. Please explain why Tampa Electric is building it now.

A. The company is building additional solar energy now because it is a cost-effective way to serve increased customer load while reducing the impact of fuel price volatility on our customers' bills. Tampa Electric has assembled a strong

team of dedicated employees and contractors that have the experience to construct these projects efficiently and safely. Any delay in solar project construction would increase future costs since this expertise would have to be regained.

In addition, with the passage of the Inflation Reduction Act ("IRA"), the federal government is providing tax incentives that benefit customers. Should the company delay building the solar projects, the customers would not receive the benefit of the additional tax incentives until later in time.

Q. What is the total capital investment for the Future Solar Projects?

A. Tampa Electric plans to invest approximately $786.4 million for the Future Solar Projects. This amount consists of $724.4 million in construction costs, $54.0 million in contingency, $6 million in land held for future solar construction and $2 million in spare solar PV panels.

Q. What steps is the company taking to ensure that the Future Solar Projects are built at the lowest reasonable cost?

A. Tampa Electric uses a competitive bidding process for the major equipment associated with the projects as well as for the Engineering, Procurement, and Construction ("EPC") contracts to perform the detailed design, procurement, and construction of the projects. The bid requirement ensures the lowest cost that meets the reliability and performance requirements. In addition, Tampa Electric directly contracts for the major equipment such as solar panels, tracking systems, inverters, and transformers, which eliminates any costs associated with contractor markups if outsourced as part of the EPC contract.

Q. Why are the costs per kW_{ac} higher for the Future Solar Projects included in this filing as compared to earlier solar projects?

A. The costs have increased per kW_{ac} as compared to earlier solar projects primarily due to inflation related to both materials and labor. The increased costs are also a result of (1) a rise in the cost of land due to more competition for land in the company's service territory; (2) a decrease in the availability of land in proximity to existing interconnections which results in higher interconnection costs; and (3) a constrained supply chain for solar project equipment, which means price increases for this specialized

equipment are outpacing the typically reported consumer price index ("CPI").

These cost increases and the additional tax credits made available under the IRA were included in the solar project cost-effectiveness evaluations, and these projects still provide net savings to our customers.

Q. Please describe the process the company uses to screen and select sites for Future Solar Projects.

A. Tampa Electric's site selection and due diligence process includes geotechnical studies, environmental surveys, and wetland delineation. The sites were evaluated and selected after considering environmental assessments, the size of the project, proximity to Tampa Electric transmission facilities, cost of land, suitability of the site for solar PV construction, and whether the site is located within the company's service territory.

Q. Please describe the English Creek Solar Project.

A. The English Creek Solar Project ("English Creek Solar") is a 23 MW project located in Hillsborough County, Florida on approximately 244 acres of land. This project uses a

single axis tracking system and is designed to optimize energy output for the site's conditions. Document No. 2 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect English Creek Solar to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, the company expects this project to be complete and in service on or before December 1, 2024.

Q. What arrangements has the company made to design and build English Creek Solar?

A. Tampa Electric used a competitive process to review qualifications, experience, and cost to identify and select a full-service solar developer, followed by contract negotiations. At the end of the process, Tampa Electric selected Black & Veatch to provide project development and EPC services for English Creek Solar.

In addition, Tampa Electric contracted for all the major

equipment necessary to construct the project including PV modules, single axis tracking systems, inverters, and step-up transformers.

Q. Please describe the Bullfrog Creek Solar Project.

A. The Bullfrog Creek Solar Project ("Bullfrog Creek Solar") is a 74.5 MW project located in Hillsborough County, Florida on approximately 485 acres of land. The project uses a single axis tracking system and is designed to optimize energy output for the site's conditions. Document No. 3 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect Bullfrog Creek Solar to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, the company expects the projects to be complete and in service on or before December 1, 2024.

Q. What arrangements has the company made to design and build Bullfrog Creek Solar?

A. The company used a competitive process to review qualifications, experience, and cost to identify and select a full-service solar developer, followed by contract negotiations. At the end of the process, Tampa Electric selected Black & Veatch to provide project development and EPC services for Bullfrog Creek Solar.

In addition, Tampa Electric has contracted for all the major equipment necessary to construct the project including PV modules, single axis tracking systems, inverters, and step-up transformers.

Q. Please describe the Duette Solar Project.

A. The Duette Solar Project ("Duette Solar"), formerly known as FFD Solar Project, is a 74.5 MW project located in Manatee County, Florida on approximately 641 acres of land. The project uses a single axis tracking system and is designed to optimize energy output for the site's conditions. Document No. 4 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect Duette Solar to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, the company expects the project to be complete and in service on or before December 1, 2025.

Q. What arrangements has the company made to design and build Duette Solar?

A. Duette Solar will be designed and built using the same general contractual arrangements and processes and competitive bid process that I described for the previous projects. The EPC selection process began in 2024 to support the project schedule.

Tampa Electric contracted for all the major equipment necessary to construct the project including PV modules, single axis tracking systems, inverters, and step-up transformers.

Q. Please describe the Cottonmouth Ranch Solar Project.

A. The Cottonmouth Ranch Solar Project ("Cottonmouth Solar") is a 74.5 MW project located in Hillsborough County, Florida on approximately 458 acres of land. The project uses a single axis tracking system and is designed to

optimize energy output for the site's conditions. Document No. 5 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect Cottonmouth Solar to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, the company expects the project to be complete and in service on or before December 1, 2025.

Q. What arrangements has the company made to design and build Cottonmouth Solar?

A. Cottonmouth Solar will be designed and built using the same general contractual arrangements and processes and competitive bid process that I described for the previous projects. The EPC selection process began in 2024 to support the project schedule.

Tampa Electric contracted for all the major equipment necessary to construct the project including PV modules, single axis tracking systems, inverters, and step-up

transformers.

Q. Please describe the Big Four Solar Project.

A. The Big Four Solar Project ("Big Four Solar") is a 74.5 MW project located in Polk County, Florida on approximately 680 acres of land. The project uses a single axis tracking system and is designed to optimize energy output for the site's conditions. Document No. 6 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect Big Four Solar to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, the company expects the project to be complete and in service on or before May 1, 2026.

Q. What arrangements has the company made to design and build Big Four Solar?

A. Big Four Solar will be designed and built using the same

general contractual arrangements and processes and competitive bid process that I described for the previous projects. The EPC selection process began in 2024 to support the project schedule.

Tampa Electric has contracted for all the major equipment necessary to construct the project including PV modules, single axis tracking systems, inverters, and step-up transformers.

Q. Please describe the Farmland Solar Project.

A. The Farmland Solar Project ("Farmland Solar") is a 54.4 MW project located in Hillsborough County, Florida on approximately 383 acres of land. The project uses a single axis tracking system and is designed to optimize energy output for the site's conditions. Document No. 7 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect Farmland Solar to begin commercial service?

A. Based on the current engineering, permitting,

procurement, and construction schedules, the company expects the project to be complete and in service on or before December 1, 2026.

Q. What arrangements has the company made to design and build Farmland Solar?

A. Farmland Solar will be designed and built using the same general contractual arrangements and processes and competitive bid process that I described for the previous projects. The EPC selection process will begin in early 2025 to support the project schedule.

Tampa Electric contracted for all the major equipment necessary to construct the project including PV modules, single axis tracking systems, inverters, and step-up transformers.

Q. Please describe the Brewster Solar Project.

A. The Brewster Solar Project ("Brewster Solar"), formerly known as Solvay Solar Project, is a 38.8 MW project located in Polk County, Florida on approximately 191 acres of land. The project uses a single axis tracking system and is designed to optimize energy output for the site's

conditions. Document No. 8 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect Brewster Solar to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, the company expects the project to be complete and in service on or before December 1, 2026.

Q. What arrangements has the company made to design and build Brewster Solar?

A. Brewster Solar will be designed and built using the same general contractual arrangements and processes and competitive bid process that I described for the previous projects. The EPC selection process will begin in early 2025 to support the project schedule.

Tampa Electric is actively negotiating the PV module supply contract to support this project and will perform a competitive bid process for the remaining major equipment to support the project schedule.

Q. Please describe the Wimauma 3 Solar Project.

A. The Wimauma 3 Solar Project ("Wimauma 3 Solar"), formerly known as FRP Solar Project, is a 74.5 MW project located in Hillsborough County, Florida on approximately 500 acres of land. The project uses a single axis tracking system and is designed to optimize energy output for the site's conditions. Document No. 9 of my exhibit contains project specifics, a general arrangement drawing, and projected installed costs in total and by category for the project.

Q. When does the company expect Wimauma 3 Solar to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, the company expects the project to be complete and in service on or before December 1, 2026.

Q. What arrangements has the company made to design and build Wimauma 3 Solar?

A. Wimauma 3 Solar will be designed and built using the same general contractual arrangements and processes and

competitive bid process that I described for the previous projects. The EPC selection process will begin in early 2025 to support the project schedule.

Tampa Electric is actively negotiating the PV module supply contract to support this project and will perform a competitive bid process for the remaining major equipment to support the project schedule.

Q. What safety protocols are in place for contractors involved in constructing the Future Solar Projects?

A. The company uses its Contractor Safety Management Program to manage contractor safety at the project sites. Before the project begins, a senior management level meeting is held with the EPC to set expectations for successful implementation of the Health, Safety, and Environmental program. This meeting is followed by safety orientations and review of all EPC safety documentation. Tampa Electric uses an online contractor and supplier management platform to ensure the EPC is maintaining the company's minimum safety requirements. This includes analysis of (1) Days Away / Restricted or Transfer rate ("DART"); (2) Total Recordable Incident Rate ("TRIR"); (3) active insurance; and (4) effective written safety programs.

Tampa Electric assigns safety professionals to each solar site to assist Construction Supervisors in monitoring project activities for compliance of both Tampa Electric's and the EPC's Health, Safety, and Environmental programs.

Q. Has the company procured the land necessary for the Future Solar Projects?

A. The company procured land for seven of the eight Future Solar Projects. The status of land procurement for each project is shown below. The list below summarizes the status of land procurement for each project, as well as whether the land is already owned by Tampa Electric or will be leased or purchased.

English Creek	Owned
Bullfrog Creek	Under long-term lease
Duette	Under contract to purchase
Cottonmouth	Lease option to be exercised
Big Four	Negotiating with landowner
Farmland	Under contract to purchase
Brewster	Under contract to purchase
Wimauma 3	Lease option to be exercised

Q. What is the status of project engineering, design, and

permitting for the Future Solar Projects?

A. The engineering and design for English Creek Solar and Bullfrog Creek Solar is underway. Engineering and design for the remaining six projects will be completed on time to support each project schedule.

English Creek Solar received an environmental resource permit in December 2017, and the county permit was received in November 2023. The site work for this project began in January 2024.

Bullfrog Creek received an environmental resource permit in October 2023, and the county permit was received in January 2024. The site work began in February 2024.

Q. Has the company purchased PV modules necessary to construct the projects?

A. Yes. Tampa Electric solicited pricing from several module manufacturers and determined First Solar to be the best value for most of the projects based on pricing, demonstrated performance, and reduced risk of tariff exposure. Tampa Electric purchased enough First Solar Series 6 Plus modules to support 85 percent of the Future

Solar Project needs.

For the remaining 15 percent, which will not be needed until 2026, Tampa Electric is negotiating to purchase modules from Canadian Solar due to improved pricing, performance, and reduced tariff exposure compared to previous years. These panels will be the latest technology available at the time of shipment.

Q. What are the projected installed costs for the Future Solar Projects?

A. The projected installed costs of the Future Solar Projects with land are as follows. Lease costs and AFUDC are not included in these figures.

English Creek	\$40.4M or \$1,754 per kW_{ac}
Bullfrog Creek	\$104.5M or \$1,402 per kW_{ac}
Duette	\$109.2M or \$1,466 per kW_{ac}
Cottonmouth	\$105.1M or \$1,410 per kW_{ac}
Big Four	\$99.2M or \$1,332 per kW_{ac}
Farmland	\$89.3M or \$1,641 per kW_{ac}
Brewster	\$54.7M or \$1,411 per kW_{ac}
Wimauma 3	\$122.0M or \$1,637 per kW_{ac}

Q. What costs were included in these projections for the

Future Solar Projects?

A. The projected total installed costs broken down by major category for the Future Solar Projects are shown on Document Nos. 2 through 9 of my exhibit.

Q. How were the projected cost amounts in your exhibit developed?

A. Tampa Electric used a combination of our recently completed project EPC costs, combined with updated major equipment pricing from suppliers and anticipated project specific land and interconnect costs to determine the all-in costs for the projects. This included negotiating and executing agreements directly with manufacturers and suppliers for PV modules, inverters, single axis trackers, and Generator Step-up ("GSU") transformers. The fixed O&M amounts were developed by Tampa Electric's solar operations group based on experience operating our existing solar fleet.

Q. How is the cost of land used in the calculation of each Future Solar Project's estimated installed cost?

A. The Bullfrog Creek, Cottonmouth, Big Four Solar, and

Wimauma 3 projects are located on leased land, so land costs are not included in the projected installed cost. However, the land lease costs were included in project cost-effectiveness analysis by Mr. Aponte. English Creek Solar is being constructed on land previously purchased by the company, and included in rate base, as referenced in MFR Schedule B-15. The company is currently under contract to purchase the land for the Duette, Farmland, and Brewster Solar projects, and these land costs are included in the estimated installed cost.

Q. What other benchmarks demonstrate that the costs of the Future Solar Projects are reasonable?

A. A September 2023 National Renewable Energy Laboratory ("NREL") report that benchmarks US solar costs, "U.S. Solar Photovoltaic System and Energy Storage Cost Benchmarks, With Minimum Sustainable Price Analysis: Q1 2023" shows a 74.6 MW utility scale PV system with single axis tracking costs an average of $1,556 per kW_{ac} excluding land costs (when converted from a direct current basis to the more commonly used alternating current basis). Tampa Electric's Future Solar Projects costs, excluding land, average $1,428 per kW_{ac}, or eight percent less than the average cost.

Q. Are Allowance for Funds Used During Construction ("AFUDC") costs included in your cost estimates?

A. No. Mr. Aponte added AFUDC to the Future Solar Projects costs I provided and used the total cost, including AFUDC, when analyzing each project's cost-effectiveness.

Q. Are the Future Solar Project costs reasonable?

A. Yes. Tampa Electric based the projected Future Solar Project costs on actual contracted costs for the projects combined with recent construction costs and major equipment purchases for previous projects adjusted for inflation. Tampa Electric controls project costs using competitive bidding processes; diligent oversight of EPC contractors; negotiation of cost-effective equipment purchases for PV modules, inverters, and tracking systems; and project management to ensure the projects remain on time and on budget. As previously discussed, these project costs are below recent benchmark prices.

FUTURE ENERGY STORAGE CAPACITY PROJECTS

Q. Please describe the Future Energy Storage Capacity Projects.

A. Tampa Electric is building 115 MW of energy storage capacity to include (1) the 15 MW Dover Energy Storage Capacity Project ("Dover"); (2) the 40 MW Lake Mabel Energy Storage Capacity Project ("Lake Mabel"); (3) the 40 MW Wimauma Energy Storage Capacity Project ("Wimauma"); and (4) the 20 MW South Tampa Energy Storage Capacity Project ("South Tampa"), collectively, the "Future Energy Storage Capacity Projects." These projects are part of the company's ongoing efforts to improve the efficiency, sufficiency, and adequacy of facilities. All four projects use the latest Lithium Iron Phosphate ("LFP") technology and provide two hours of storage at the design capacity. The Dover, Lake Mabel, and Wimauma Energy storage capacity projects are located on existing solar sites to reduce costs. The South Tampa energy storage capacity project is located on the MacDill Air Force Base, which is described in greater detail in the direct testimony of Tampa Electric witness Carlos Aldazabal.

Q. Please explain why the Future Energy Storage Capacity Projects are needed.

A. The Future Energy Storage Capacity Projects are needed to help the company maintain the required winter capacity

reserve margin as peak load grows with increased customers. Additionally, these projects will provide the ability to shift generation from the time it is generated to times when customer demands are highest. This shift in timing will also provide fuel savings for customers by storing lower cost off-peak generation and delivering it during peak times. The Lake Mabel project has the added benefit of eliminating an otherwise necessary transmission upgrade by locating an energy source close to a high load area, as referenced in Mr. Aponte's direct testimony.

Q. What is the total capital investment for the Future Energy Storage Capacity Projects?

A. The company will invest approximately $156.1 million for the Future Energy Storage Capacity Projects. This amount consists of $136.8 million in construction costs and $19.3 million in contingency.

Q. When does the company expect the Future Energy Storage Capacity Projects to begin commercial service?

A. Based on the current engineering, permitting, procurement, and construction schedules, Tampa Electric

expects the projects to be complete and in service on or before the dates shown below.

Dover	September 2024
Lake Mabel	January 2025
Wimauma	February 2025
South Tampa	April 2025

Q. Were any changes made to in-service dates after the budget and MFR Schedules were completed?

A. Yes, one such change occurred, and the correct in-service date is shown in the list above. For the Lake Mabel project, the in-service date used in the budget and our financial data for this rate case was based on an April 2025 in-service date. We corrected the date in my testimony but have not adjusted our filing to increase the revenue requirement to reflect the earlier in-service date.

Q. What arrangements has the company made to design and build the Future Energy Storage Capacity Projects?

A. Tampa Electric completed a competitive bidding process and entered into contracts for the major equipment, engineering, and construction services for all four of

the projects. The major equipment includes the battery cells and electrical switchgear.

Q. What safety protocols are in place for contractors involved in constructing the Future Energy Storage Capacity Projects?

A. The safety protocols are identical to those discussed previously in my testimony for the Future Solar Projects. The construction work oversight will be provided by the same team of professionals that monitors the company's solar projects.

Q. What are the projected installed costs for the Future Energy Storage Capacity Projects?

A. The projected installed costs of the Future Energy Storage Capacity Projects are as follows.

Dover	$18.5M or $1,232/kW
Lake Mabel	$48.6M or $1,215/kW
Wimauma	$42.7M or $1,067/kW
South Tampa	$27.0M or $1,351/kW

Q. Did you include the same types of costs and use the same cost estimation techniques for Future Solar Projects?

A. Yes, however, since most of the costs for the Future Energy Storage Capacity Projects are already under fixed priced contracts, the company was able to use these values instead of estimates. The specifications and projected total installed costs broken down by major category for the Future Energy Storage Projects are shown on Document Nos. 10 through 13 of my exhibit.

Q. What other benchmarks demonstrate that the costs of these projects are reasonable?

A. As I previously mentioned, the NREL Annual Technology Baseline provides benchmark costs for various renewable energy technologies, including utility scale energy storage capacity. The 2023 update to this benchmark reports an installed system capital cost of $1,074 per kW in 2021 dollars for a 60MW-120MWh project. When adjusted for inflation through 2024, the benchmark is $1,300 per kW. Tampa Electric's project cost is $1,189 per kW or 8 percent lower.

FUTURE ENVIRONMENTAL COMPLIANCE PROJECT

Q. Is Tampa Electric exploring technologies to promote the long-term viability of its generating units?

A. Yes, Tampa Electric is actively monitoring and exploring developments in technologies that may promote the long-term viability of its fossil fuel generation units, including carbon capture and storage ("CCS").

Q. Please describe CCS.

A. CCS employs a well-proven technology in which carbon dioxide is absorbed from the exhaust gas of the power plant and then concentrated and compressed for safe, permanent storage deep in the earth. The technology can remove greater than 90 percent of the carbon emissions from a power plant. This technology has been applied to chemical processing and natural gas treatment plants and successfully used at two power generation facilities in North America.

Q. Please describe Tampa Electric's CCS evaluation.

A. Tampa Electric's CCS evaluation includes (1) performing detailed front-end engineering and design ("FEED") studies; (2) developing and submitting permit applications; and (3) preparing community benefits plans. Additionally, the company will conduct detailed geological characterizations to confirm the feasibility of CCS

technology at its Polk Power Station ("Polk"). This work also supports the development of an accurate cost estimate to use CCS technology at Polk. This evaluation is a prudent step to ensure the continued beneficial use of Polk in the future.

Q. Why is the company evaluating CCS technology now?

A. The company is evaluating CCS technology now primarily because of (1) a proposed rule announced by the United States' Environmental Protection Agency ("EPA") to impose standards for greenhouse gas emissions; and (2) the availability of federal financial support.

On May 23, 2023, the EPA announced a proposed rule to impose standards for greenhouse gas emissions for certain fossil fuel-fired electric generating units. Tampa Electric could not prudently ignore the possibility that limits on greenhouse gas emissions would soon be imposed on the company's fossil fuel generation units. In addition, the proposed rule compliance schedule meant that unless Tampa Electric began studying technologies for greenhouse gas emissions reductions, certain options, as well as the federal grants associated with them, would no longer be available or feasible to achieve compliance by the

deadlines set in the rule.

Q. Please describe the DOE funding awarded to Tampa Electric.

A. The value of the DOE funding is approximately $98.4 million. The awards constitute cooperative agreements where the DOE provides a percentage cost share of 80 percent on two awards and 50 percent on the third. The total cost of the CCS evaluation is an estimated $126.5 million, and Tampa Electric's portion of the total cost is approximately $28.1 million. These awards provided Tampa Electric the opportunity to evaluate CCS technology at a significantly reduced cost to customers.

Q. Have there been any new developments related to the company's evaluation of CCS technology to comply with the proposed EPA rules?

A. On February 29, 2024, the EPA announced that existing natural gas-based units will no longer be covered by the proposed rule; the EPA stated a separate rule limiting emissions from existing natural gas-fired units will be issued. These emissions limits likely will have strict compliance deadlines that would be difficult for the company to achieve in a timely and cost-effective manner

without completing the ongoing prudent evaluation to determine its compliance options.

Tampa Electric made a prudent decision to evaluate CCS technology and is acting prudently by continuing its evaluation of compliance options now while the federal funding remains available and significantly offsets the evaluation cost.

Q. When will the evaluation be completed?

A. Tampa Electric expects to complete the evaluation by the end of 2025.

Q. What part of the evaluation costs are requested for recovery in this proceeding?

A. The total cost of the CCS evaluation is an estimated $126.5 million. Of this amount, the company anticipates receiving $98.4 million in federal funding from the DOE. Thus, the company will be responsible for approximately $28.1 million of the total cost. Of that amount, $18.2 million is capital included in the 2025 test year.

EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT

Q. Is Tampa Electric exploring any research and development ("R&D") projects in your area?

A. Yes, the company is actively working on two R&D projects in my area. One is a long duration energy storage project, and the other is a microgrid at our Florida Conservation and Technology Center ("FCTC"). These are both emerging technologies that will likely be used in the future as the grid evolves to enable higher levels of customer owned distributed energy resources as discussed in the testimony of Tampa Electric witness Chip Whitworth.

Q. Are the costs associated with these R&D projects prudent?

A. Yes, the approximately $7.1 million in costs associated with these R&D projects are prudent to better understand the possibilities and limitations of these technologies before it is necessary to implement them on a larger scale.

SUMMARY

Q. Please summarize your direct testimony.

A. Tampa Electric is building 488.7 MW of additional renewable capacity over eight new Future Solar Projects.

The projects have in-service dates ranging from December 2024 through December 2026.

Additionally, Tampa Electric is building 115 MW of Future Energy Storage Capacity Projects over four projects. These projects include Dover, Lake Mabel, Wimauma, and South Tampa.

Tampa Electric controls project costs using competitive bidding processes, diligent oversight of EPC contractors, negotiation of cost-effective equipment purchases, and project management to ensure the projects remain on time and on budget. The costs of these projects are reasonable, prudent, and competitive with external benchmarks and should be approved for cost recovery in the company's base rates.

The company's proposal to evaluate CCS technology and its two R&D projects are reasonable and prudent and should be approved for cost recovery in the company's base rates.

Q. Does this conclude your direct testimony?

A. Yes, it does.

EXHIBIT

OF

KRIS STRYKER

Table of Contents

DOCUMENT NO.	TITLE	PAGE
1	List of Minimum Filing Requirement Schedules Sponsored or Co-Sponsored by Kris Stryker	42
2	English Creek Solar Project Specifications and Projected Costs	43
3	Bullfrog Creek Solar Project Specifications and Projected Costs	45
4	Duette Solar Project Specifications and Projected Costs	47
5	Cottonmouth Solar Project Specifications and Projected Costs	49
6	Big Four Solar Project Specifications and Projected Costs	51
7	Farmland Solar Project Specifications and Projected Costs	53
8	Brewster Solar Project Specifications and Projected Costs	55
9	Wimauma 3 Solar Project Specifications and Projected Costs	57
10	Dover Energy Storage Capacity Project Specifications and Projected Costs	59
11	Lake Mabel Energy Storage Capacity Project Specifications and Projected Costs	61

DOCUMENT NO.	TITLE	PAGE
12	Wimauma Energy Storage Capacity Project Specifications and Projected Costs	63
13	South Tampa Energy Storage Capacity Project Specifications and Projected Costs	65
14	Clean Energy Capital Expense Summary 2022-2023	67

LIST OF MINIMUM FILING REQUIREMENT SCHEDULES

SPONSORED OR CO-SPONSORED BY KRIS STRYKER

MFR Schedule	Title
B-07	Plant Balances By Account And Sub-Account
B-08	Monthly Plant Balances Test Year-13 Months
B-09	Depreciation Reserve Balances By Account And Sub-Account
B-10	Monthly Reserve Balances Test Year-13 Months
B-11	Capital Additions And Retirements
B-12	Production Plant Additions
B-13	Construction Work In Progress
B-15	Property Held For Future Use-13 Month Average
B-19	Miscellaneous Deferred Debits
B-24	Leasing Arrangements

English Creek Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	English Creek Solar
(2)	Net Capability	23 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	January 2024
	B. Commercial In-Service Date	December 2024
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	244 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,754
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.15
	Variable O&M ($/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

English Creek Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	23
Major Equipment[1]	11.1
Balance of System[2]	26.0
Transmission Interconnect	1.6
Land	0.0
Owners Costs	1.6
Total Installed Cost ($ Million)	40.4
Total ($ per kW_{ac})	1,754

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Bullfrog Creek Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Bullfrog Creek Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	January 2024
	B. Commercial In-Service Date	December 2024
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	577 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,402
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.15
	Variable O&M ($/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Bullfrog Creek Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	74.5
Major Equipment[1]	36.6
Balance of System[2]	53.5
Transmission Interconnect	7.3
Land	0.0
Owners Costs	7.0
Total Installed Cost ($ Million)	104.5
Total ($ per kW_{ac})	1,402

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Duette Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities

(1)	Plant Name and Unit Number	Duette Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	January 2025
	B. Commercial In-Service Date	December 2025
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	695 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,466
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.53
	Variable O&M ($/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Duette Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	74.5
Major Equipment[1]	35.2
Balance of System[2]	53.5
Transmission Interconnect	3.5
Land	14.1
Owners Costs	3.0
Total Installed Cost ($ Million)	109.2
Total ($ per kW_{ac})	1,466

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Cottonmouth Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Cottonmouth Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	January 2025
	B. Commercial In-Service Date	December 2025
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	458 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,410
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.53
	Variable O&M ($/MWh)	0.0

1

Cottonmouth Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	74.5
Major Equipment[1]	36.0
Balance of System[2]	54.4
Transmission Interconnect	7.3
Land	0.0
Owners Costs	7.4
Total Installed Cost ($ Million)	105.1
Total ($ per kW_{ac})	1,410

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Big Four Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Big Four Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	April 2025
	B. Commercial In-Service Date	May 2026
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	681 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,332
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.82
	Variable O&M ($/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Big Four Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	74.5
Major Equipment[1]	35.2
Balance of System[2]	53.5
Transmission Interconnect	7.6
Land	0.0
Owners Costs	3.0
Total Installed Cost ($ Million)	99.2
Total ($ per kW_{ac})	1,332

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Farmland Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Farmland Solar
(2)	Net Capability	54.4 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	January 2026
	B. Commercial In-Service Date	December 2026
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	383 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,641
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.92
	Variable O&M ($/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Farmland Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	54.4
Major Equipment[1]	26.4
Balance of System[2]	39.1
Transmission Interconnect	11.0
Land	9.8
Owners Costs	3.0
Total Installed Cost ($ Million)	89.3
Total ($ per kW_{ac})	1,641

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Brewster Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Brewster Solar
(2)	Net Capability	38.8 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	January 2026
	B. Commercial In-Service Date	December 2026
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	290 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,411
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.92
	Variable O&M ($/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Brewster Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	38.8
Major Equipment[1]	19.4
Balance of System[2]	26.9
Transmission Interconnect	2.2
Land	2.4
Owners Costs	3.8
Total Installed Cost ($ Million)	54.7
Total ($ per kW_{ac})	1,411

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Wimauma 3 Solar Project Specifications

Specifications of Proposed Solar PV Generating Facilities		
(1)	Plant Name and Unit Number	Wimauma 3 Solar
(2)	Net Capability	74.5 MW
(3)	Technology Type	Single-Axis Tracker
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date [1]	January 2026
	B. Commercial In-Service Date	December 2026
(5)	Fuel	
	A. Primary Fuel	Solar
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	680 Acres
(9)	Construction Status	Ongoing
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Designed Capacity Factor	26%
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	35
	Total Installed Cost (In-Service Year $/kW) [2]	$1,637
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	18.92
	Variable O&M ($/MWh)	0.0

1 Construction schedule includes engineering design and permitting.

2 Total installed cost includes transmission interconnection.

Wimauma 3 Solar

Projected Installed Costs ($ Million)	
Project Output (MW)	74.5
Major Equipment[1]	37.3
Balance of System[2]	60.0
Transmission Interconnect	16.5
Land	0.0
Owners Costs	8.3
Total Installed Cost ($ Million)	122.0
Total ($ per kW_{ac})	1,637

[1] Major Equipment includes modules, inverters, and transformers
[2] Balance of System includes racking, posts, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Dover Energy Storage Capacity Project Specifications

Specifications of Proposed Energy Storage Capacity Facilities		
(1)	Plant Name and Unit Number	Dover Energy Storage Capacity
(2)	Net Capability	15 MW
(3)	Technology Type	Battery (LFP)
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date	November 2023
	B. Commercial In-Service Date	September 2024
(5)	Fuel	
	A. Primary Fuel	N/A
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	1 Acres
(9)	Construction Status	U
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	N/A
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	10
	Total Installed Cost (In-Service Year $/kW) [1]	1,232
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	4.00
	Variable O&M ($/MWh)	0.0

1 Total installed cost includes transmission interconnection.

Dover Energy Storage Capacity

Projected Installed Costs ($ Million)	
Project Output (MW)	15
Major Equipment[1]	11.0
Balance of System[2]	6.2
Transmission Interconnect	0.0
Land	0.0
Owners Costs	1.3
Total Installed Cost ($ Million)	18.5
Total ($ per kW_{ac})	1,232

[1] Major Equipment includes batteries, inverters and transformers.
[2] Balance of System includes foundations, roads, surfacing, collection cables, EPC contractor, and project management.
Note: Totals may not sum due to rounding.

Lake Mabel Energy Storage Capacity Project Specifications

Specifications of Proposed Energy Storage Capacity Facilities		
(1)	Plant Name and Unit Number	Lake Mabel Energy Storage Capacity
(2)	Net Capability	40 MW
(3)	Technology Type	Battery (LFP)
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date	January 2024
	B. Commercial In-Service Date	January 2025
(5)	Fuel	
	A. Primary Fuel	N/A
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	2 Acres
(9)	Construction Status	U
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	N/A
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	10
	Total Installed Cost (In-Service Year $/kW) [1]	1,215
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	4.19
	Variable O&M ($/MWh)	0.0

1 Total installed cost includes transmission interconnection.

Lake Mabel Energy Storage Capacity

Projected Installed Costs ($ Million)	
Project Output (MW)	40
Major Equipment[1]	32.3
Balance of System[2]	13.5
Transmission Interconnect	0.0
Land	0.0
Owners Costs	2.8
Total Installed Cost ($ Million)	48.6
Total ($ per kW_{ac})	1,215

[1] Major Equipment includes batteries, inverters, switchgear and transformers.

[2] Balance of System includes foundations, roads, surfacing, collection cables, EPC contractor, and project management.

Note: Totals may not sum due to rounding.

Wimauma Energy Storage Capacity Project Specifications

Specifications of Proposed Energy Storage Capacity Facilities		
(1)	Plant Name and Unit Number	Wimauma Storage
(2)	Net Capability	40 MW
(3)	Technology Type	Battery (LFP)
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date	February 2024
	B. Commercial In-Service Date	February 2025
(5)	Fuel	
	A. Primary Fuel	N/A
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	2 Acres
(9)	Construction Status	U
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	N/A
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	10
	Total Installed Cost (In-Service Year $/kW) [1]	1,067
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	4.19
	Variable O&M ($/MWh)	0.0

1 Total installed cost includes transmission interconnection.

Wimauma Energy Storage Capacity

Projected Installed Costs ($ Million)	
Project Output (MW)	40
Major Equipment[1]	27.5
Balance of System[2]	12.2
Transmission Interconnect	0.0
Land	0.0
Owners Costs	3.0
Total Installed Cost ($ Million)	42.7
Total ($ per kW_{ac})	1,067

[1] Major Equipment includes batteries, inverters, switchgear and transformers.

[2] Balance of System includes foundations, roads, surfacing, collection cables, EPC contractor, and project management.

Note: Totals may not sum due to rounding.

South Tampa Energy Storage Capacity Project Specifications

Specifications of Proposed Energy Storage Capacity Facilities		
(1)	Plant Name and Unit Number	South Tampa Energy Storage Capacity
(2)	Net Capability	20 MW
(3)	Technology Type	Battery (LFP)
(4)	Anticipated Construction Timing	
	A. Field Construction Start Date	March 2024
	B. Commercial In-Service Date	April 2025
(5)	Fuel	
	A. Primary Fuel	N/A
	B. Alternate Fuel	N/A
(6)	Air Pollution Control Strategy	N/A
(7)	Cooling Method	N/A
(8)	Total Site Area	1 Acre
(9)	Construction Status	U
(10)	Certification Status	N/A
(11)	Status with Federal Agencies	N/A
(12)	Projected Unit Performance Data	
	Planned Outage Factor (POF)	N/A
	Forced Outage Factor (FOF)	N/A
	Equivalent Availability Factor (EAF)	N/A
	Resulting Capacity Factor	N/A
	Average Net Operating Heat Rate (ANOHR)	N/A
(13)	Projected Unit Financial Data	
	Book Life (Years)	10
	Total Installed Cost (In-Service Year $/kW) [1]	1,351
	Escalation ($/kW)	N/A
	Fixed O&M ($/kW-yr)	4.19
	Variable O&M ($/MWh)	0.0

1 Total installed cost includes transmission interconnection.

South Tampa Energy Storage Capacity

Projected Installed Costs ($ Million)	
Project Output (MW)	20
Major Equipment[1]	16.0
Balance of System[2]	9.0
Transmission Interconnect	0.0
Land	0.0
Owners Costs	2.0
Total Installed Cost ($ Million)	27.0
Total ($ per kW_{ac})	1,351

[1] Major Equipment includes batteries, inverters, switchgear and transformers.

[2] Balance of System includes foundations, roads, surfacing, collection cables, EPC contractor, and project management.

Note: Totals may not sum due to rounding.

Tampa Electric

Clean Energy

	2022	2023	2024	Total 2022-2024	2025	Total 2022-2025
Total Capital	46,840,600	90,283,072	241,886,008	**379,009,679**	366,998,187	**746,007,866**
FUTURE SOLAR	46,809,929	63,126,781	142,941,767	**252,878,478**	312,906,045	**565,784,522**
FUTURE SOLAR LAND	-	-	-	**-**	6,000,000	**6,000,000**
FUTURE ENERGY STORAGE	30,671	27,156,290	92,719,614	**119,906,575**	36,160,596	**156,067,171**
OTHER			6,224,627	**6,224,627**	11,931,546	**18,156,173**
	46,840,600	**90,283,072**	**241,886,008**	**379,009,679**	**366,998,187**	**746,007,866**

TAMPA ELECTRIC COMPANY
DOCKET NO. 20240026-EI
EXHIBIT NO. KS-1
WITNESS: STRYKER
DOCUMENT NO. 14
PAGE 1 OF 1
FILED: 04/02/2024