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January 13, 2020

VIA: ELECTRONIC FILING

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

Re: Petition for approval of depreciation rates for energy storage equipment, by Tampa Electric Company;
FPSC Docket No. 20190215-EI

Dear Mr. Teitzman:

Attached for filing in the above docket are Tampa Electric Company's Responses to Staff's First Data Request (Nos. 1-12) dated December 23, 2019.

Thank you for your assistance in connection with this matter.

Sincerely,

Malcolm N. Means

Malcolm N. Means

MNM/bmp
Attachment

cc: Lee Smith
Jennifer Crawford

1. Please generally describe the type(s) of batteries contemplated and/or planned for use in effectuating the Big Bend Battery Project. Please also note the function (i.e. production, transmission, distribution) if dissimilar assets will be used in each depreciable plant category.

A. The Big Bend Battery Project is exclusively made up of Samsung E2 Nickel Manganese Cobalt lithium-ion batteries, which is the most proven type of battery for use in utility applications. The project is capable of being used for multiple functions and benefits as described in the response to Staff's First Data Request No. 7.

2. How many batteries by type does Tampa Electric Company (TEC) intend to install in order to achieve the full 12.6 MW of battery storage?

A. The Big Bend Battery Project consists of 6 inverters and 6 containers. Each container contains 2 battery banks. Each battery bank consists of 11 battery racks. Each battery rack consists of 26 battery modules. Each battery module consists of 22 battery cells for a total of over 75,000 battery cells. The actual number of cells may vary slightly after accounting for spares. The Big Bend Battery Project is exclusively made up of Samsung E2 lithium-ion batteries.

3. Has TEC begun installing any batteries and/or energy storage-associated equipment? If so, please identify the types of assets installed, dates of installation, number of MWs, and installation locations.

A. Installation of the Big Bend Battery Project commenced in 2019, and the project was placed in service in January 2020. It is a 12.6 MW (and 26.1 MWh of energy) lithium-ion based battery energy storage system located adjacent to the existing Big Bend Solar site.

4. Please identify any currently scheduled installations of battery and/or energy storage associated equipment.

A. Other than the Big Bend Battery Project, no other battery and/or energy storage projects have been scheduled. Tampa Electric is actively investigating potential battery/energy storage projects that would benefit Tampa Electric customers.

5. Is TEC currently recording any plant depreciation associated with its Big Bend Battery Project?

a. If the response to Request No. 5 is affirmative, is the company requesting any plant in service and accumulated depreciation transfers be performed as part of this docket?

b. If the response to Request No. 5(a) is affirmative, please specify: amounts to be transferred; accounts in which the property/balances are currently being depreciated; and accounts to which the property/balances are being transferred to.

A. No; however, the company expects to begin recording depreciation associated with the Big Bend Battery Project in February 2020.

a. Yes. Tampa Electric requests plant in service and accumulated depreciation transfers be performed as part of this docket in order to move all plant in service and depreciation associated with the project to FERC Account 348 Energy Storage Equipment – Production, FERC Account 351 Energy Storage Equipment – Transmission or FERC Account 363 Energy Storage Equipment – Distribution, as appropriate depending on the use of the asset, upon receiving Commission approval for setting up these FERC accounts.

b. Effective in February 2020, the Big Bend Battery Storage Project plant in service and accumulated depreciation will be recorded in FERC Account 362 – Station Equipment with a depreciation rate of 2.4%. The amounts to transfer will depend on timing of the approval for energy storage depreciation rates. Once approved, the project amounts should be moved from FERC Account 362 to FERC Account 348 Energy Storage Equipment – Production, FERC Account 351 Energy Storage Equipment – Transmission or FERC Account 363 Energy Storage Equipment – Distribution, as appropriate depending on the use of the asset.

6. Has TEC estimated the total capital cost associated with the full 12.6 MW of battery storage? If so, please specify.

A. The estimated total capital cost associated with the 12.6 MW Big Bend Battery Storage Project is $11,520,000.

7. Please refer to paragraph (7) of TEC's Petition for Approval of Depreciation Rates for Energy Storage Equipment (Petition). Please elaborate on each benefit of the battery/energy storage listed in the statement "expected projects benefits include, but are not limited to, increasing reliability of power supplied to the grid, reducing peak demands, contribution to contingency reserves, and frequency regulation."

A. The expected benefits of the Big Bend Battery Project are as follows.

Increasing reliability of power supplied to the grid – Output from solar generating facilities typically fluctuates over time due to changing weather. The Big Bend Battery Project has the ability to complement the Big Bend Solar facility when the solar output decreases, therefore supplying steady, reliable power to the grid.

Reducing peak demands – The Big Bend Battery Project has the capability to store energy at the time it is generated, typically in the middle of the day for solar plants, and discharge it at the peak time it is needed most when the solar output may be lower. This can require less power from central station generators and the associated transmission and distribution infrastructure required to deliver the energy to customers at the peak time.

Contribution to contingency reserves – The Big Bend Battery Project is capable of being dispatched very quickly. This allows it to contribute to contingency reserves in a similar fashion to spinning reserves or quick start units. By fulfilling a portion of those reserves, the remaining system is allowed more flexibility and therefore a more efficient dispatch for Tampa Electric customers.

Frequency regulation – Battery storage technology has the capability to respond quickly to variations in frequency. However, extensive use for this purpose can cause accelerated degradation of the battery and is not anticipated to be a regular use application for the Big Bend Battery Project.

8. Please refer to paragraph (14) of TEC's Petition. Please provide a hypothetical accounting example of how TEC would "allocate a single asset to multiple functions."

A. Tampa Electric plans to allocate a single battery storage asset into multiple functions based on its planned usage of the battery storage assets at the inception of the project. Tampa Electric will not revise this initial allocation of the battery storage assets unless the actual usage differs significantly from the planned usage. In cases where the battery storage asset is being used as an alternative to a traditional asset (production, transmission, or distribution), Tampa Electric will allocate a single battery storage asset into the function (or classification) of the traditional asset being displaced.

For example, Tampa Electric might install battery storage assets at one of its solar sites where Tampa Electric plans to use the installed battery storage assets primarily for peak shaving (i.e., charging batteries at non-peak times and discharging at peak times) and on occasion for frequency support. Peak shaving would be considered a generation function, and frequency support would be considered a transmission function. If Tampa Electric concludes that it would use the battery storage assets 90% of the time for peak shaving and 10% of the time for frequency regulation, then such allocation would be applied to the costs of the battery storage assets at the inception of the project.

As another example, Tampa Electric might install a battery storage asset on a distribution feeder to displace or defer a distribution substation upgrade/expansion. Although the battery storage asset may also be used for peak shaving and/or frequency response, the primary justification for the project was for distribution, and therefore 100% of the costs would be allocated to FERC Account 363 Energy Storage Equipment-Distribution.

9. Please refer to paragraph (13) of TEC's Petition. According to the Company: "Based on expected use of the Big Bend Battery Project equipment, Tampa Electric's engineering subject matter experts, along with benchmarking by industry peers, estimate that a reasonable and appropriate estimated design life and net salvage percentage for battery storage equipment is ten (10) years and zero, respectively."

a. Please identify the "subject matter experts" being referenced to in this passage.

b. Please identify the “industry peers" being referenced to in this passage.

A. a. The subject matter experts referenced are engineers from Tampa Electric who have detailed knowledge of energy storage assets and their various uses.

b. Industry peers include Duke Energy Florida and Florida Power and Light.

10. Please identify the key dates of the Big Bend Battery Project, including such milestones or stages as site selection, design and engineering, contracting, issuance of RFP (if applicable), project completion, and commercial service.

A. Key dates associated with the Big Bend Battery Project are listed below.

9/2018 – Limited notice to proceed for equipment purchase
1/2019 – Full contract award for engineering, procurement, and construction
1/2020 – In Service

11. Pursuant to Rule 25.,6.0436(2)(a), F.A.C., "No utility may initiate a new depreciation rate without prior Commission approval." (emphasis added) Assuming TEC's petition approval, please identify any accounting entries or adjustments that may be necessary resulting from TEC's decision to petition for a new depreciation rate for the Big Bend Battery Project at such a date as to require retroactive application of such rates.

A. See the company's response to Staff's First Data Request, No. 5.

12. Will the batteries/storage equipment carry a warranty?

a. If so, please specify or approximate the typical warranty period.

b. What protections are in place for TEC's customers if the warranty period is less than the estimated design life of ten years?

A. a. The batteries carry a manufacturer's warranty of up to 5 years provided that the equipment is used within the operating limits set forth in the agreement.

b. The Big Bend Battery Project represents a relatively small portion of Tampa Electric's installed capacity (less than 0.3% of winter installed capacity) and therefore limits any potential customer exposure. State of the art controls and detection systems have been installed to prevent damaging the batteries and to shut it down if unwanted conditions are detected.