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January 7, 2022

**VIA: ELECTRONIC FILING**

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

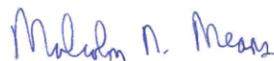
In re: Petition of Tampa Electric Company for approval of Direct Current Microgrid  
Pilot Program; Docket No. 20210181-EI;

Dear Mr. Teitzman:

Attached for filing in the above docket are Tampa Electric Company's response to Staff's  
First Data Request Nos.1-6, propounded on December 7, 2021.

Thank you for your assistance in connection with this matter.

Sincerely,



Malcolm N. Means

MNM/bmp  
Attachment

cc: Ryan Sandy, Senior Attorney, FPSC (w/attachment)  
Paula Brown, TECO Regulatory

**TAMPA ELECTRIC COMPANY  
DOCKET NO. 20210181-EI  
STAFF'S FIRST DATA REQUEST  
REQUEST NO. 1  
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1. Please refer to the Petition of TECO for approval of Depreciation Rates for Direct Current Microgrid Pilot Equipment (Petition)(Pilot), Paragraph 14.
  - a. Please specify the plant assets that will be booked to each of TECO's requested new FERC sub-accounts:
    - a. 341.98 Str and Improvements – DC Microgrid
    - b. 343.98 Prime Movers – DC Microgrid
    - c. 345.98 Accessory Elect Eq – Microgrid
    - d. 348.98 Energy Storage Equip – DC Microgrid
  - b. For each of the plant assets that will be booked to the requested sub-accounts, please identify the associated design life estimate with the sources of information, and the performance warranties from vendors.
  - c. Please specify TECO's proposed service life, net salvage, and depreciation rate associated with each of the requested sub-accounts with corresponding explanation.
- A.
  - a.
    - a. Structural steel / foundations, if any.
    - b. Roof top solar panels and CEP generators.
    - c. Accessory electric equipment, if any.
    - d. Battery storage equipment.
  - b. See responses below to Staff's First Data Request Question Nos. 2c (CEP Generators), 3b (Solar Panels) and 4a (Batteries).
  - c. For accounts 341.98, 343.98 and 345.98, an initial Average Service Life of 30 years and Net Salvage of 0%, derives a 3.3 percent depreciation rate. See responses below to Staff's First Data Request Question Nos. 2c and 3b.

For account 348.98, an initial Average Service Life of 10 years and Net Salvage of 0%, derives a 10.0 percent depreciation rate. See response below to Staff's First Data Request Question No. 4a.

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2. Please refer to Order No. PSC-2021-0237-PAA-EI (Order) and the Petition, Paragraph 12, for the questions below regarding the “reciprocating generators:”

- a. Please confirm that there will be two reciprocating generators installed within the Pilot and they are what is discussed in the Order (page 6).
- b. Which of the four requested sub-accounts will the reciprocating generators-related plant and reserve be booked?
- c. Please provide technical details (type, capacity, design life estimated by the manufacturer, performance warranties from vendor, etc.) pertaining to the reciprocating generators, and explain all the differences, when compared to the generators currently included in TECO’s AC system.
- d. With corresponding explanation for each, please specify TECO’s proposed lifespan, net salvage, the probable retirement date of the reciprocating generators.
- e. Please explain how the reciprocating generators will be disposed of when the Pilot is suspended (at the end of year one or four) as detailed in the Order (pages 4 and 5); and how the unrecovered amount of plant costs will be handled.

A. a. Confirmed.

b. 343.98 Prime Movers – DC Microgrid.

c. Type - Natural gas fueled engine reciprocating engine driven.

Capacity - 175 kW / 220 kVA.

Design Life - The life of this type of generator is between 10,000 and 15,000 operating hours. Operation of these units in this application during the pilot period will provide information about the period of time such operations will provide. As these are considered to be stand-by units, the expected life is 20-25 years.

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Warranty - One year from registered startup or 2000 hours (whichever occurs first). In any event, the warranty period will expire not later than thirty months from the date of shipment from Kohler's factory.

- d. See response above to Staff's First Data Request Question No. 1c.
- e. When the pilot period is ended, it is expected that the generators will stay in service at their current location to serve the customers under the pilot and provide generation as needed to the grid. If the DC service the pilot customers is terminated at any time, and if the equipment can be repurposed within the company's operating system it will be relocated and put into service for that purpose (asset cost and reserve reclassification). If it cannot, then the remaining net book value will be imputed and written-off to account 421.2, Loss on Disposition of Property.

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- 3.** Please refer to Paragraphs 14 through 15 of the Petition for the questions below regarding the solar panels used in the Pilot:
- a. Which of the four requested sub-accounts will the plant assets and reserves of the solar panels be booked?
  - b. Please identify the manufacturer's design life estimate of these solar panels.
  - c. Please identify the difference, if any, between these solar panels and the utility-scaled solar panels currently in-service in TECO's system; and explain whether these differences will affect the panels' average service life and net salvage.
  - d. Please explain how these solar panels will be disposed of when the Pilot is suspended as detailed in the Order; and how the unrecovered amount of plant costs will be handled
- A.**
- a. 348.98 Energy Storage Equip – DC Microgrid.
  - b. The manufacturer provides a 25-year product warranty and 30-year performance warranty on the solar panels.
  - c. These warranties are consistent with the design life of other solar panels used on the company's system.
  - d. See response above to Staff's First Data Request Question No. 2e.

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4. Please refer to Paragraphs 14 and 16 of TECO's Petition for the questions below regarding the battery storage to be used in the Pilot:
- a. Please provide the technical details of the battery storage including, but not limited to, the following:
    - Type (e.g., Li-ion, Redox-flow, and zinc-hybrid)
    - Capacity
    - Energy density
    - Efficiency,
    - Manufacturer's design life estimate
  - b. Please identify all the differences between the Pilot-used battery storage equipment and the battery storage equipment currently in-service in TECO's system, and explain whether the differences will affect the equipment's average service life and net salvage.
  - c. Please explain how the battery storage will be disposed of when the Pilot is suspended as detailed in the Order; and how the unrecovered amount of plant costs will be handled.
- A.**
- a. Type - The battery storage in each Block Box is Lithium Nickel-Manganese-Cobalt oxide. The battery storage in the Community Energy Park is Lithium Iron Phosphate.
- Capacity - The battery storage in each Block Box is rated at 17.7 kWh, 1C/3C. The battery storage in the Community Energy Park is rated at 240 kWh, 1C/0.5C.
- Energy Density - The battery storage in each of the Block Boxes has an energy density of approximately 220 Wh/kg (at the battery cell level). The battery storage in the Community Energy Park has an energy density of approximately 145 Wh/kg (at the battery cell level).
- Efficiency - the round trip efficiency for the Block Box and Community Energy Park is approximately 89%.
- Manufacturers Design Life Estimate - The design life estimate for the Block Boxes is 2500 cycles which is estimated to be between 7-9 years. The design life estimate for the Community Energy Park is 3500 cycles which is about 10 years.

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- b. No differences, the battery storage equipment currently in-service in TECO's system is also utilizing an initial Average Service Life of 10 years, Net Salvage of 0% and a 10.0 percent depreciation rate. Since battery storage is relatively new equipment technology deployed by the company, not enough operational experience at this time to revise the initial average service and net salvage estimates.
- c. See response above to Staff's First Data Request Question No. 2e.

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5. Please refer to the Order (pages 7-8) and Document [DN 02589-2021], in Docket No. 20200234-EI. TECO provided in [DN 02589-2021] that:  
Upon approval of this pilot program, the company will be submitting a request to initiate new depreciation plant accounts and depreciation rates.

348.98 DC Microgrid/CEP Batteries \$ 2,965  
343.98 DC Microgrid/Generator 140,961  
362.00 Station Equipment 312,378  
366.00 Underground Conduit 63,046  
367.00 Underground Conductors and Devices 12,932  
368.00 Line Transformers 900,258  
397.25 Fiber 67,217  
343.98 DC Microgrid/Solar Panels 440,242  
\$ 1,990,000

Please also refer to TECO's Petition, Paragraph 12, where TECO indicates: [TECO ...] needs to create new sub-accounts for the company-owned rooftop solar panels and related battery storage utilized in the Pilot to isolate those assets from the accounts for existing utility-scale solar and utility-scale battery storage.

- a. Please elaborate on how the isolation discussed in Paragraph 12 of the Petition will be achieved.
- b. Please clarify whether TECO has now determined that five of those previously identified new sub-accounts (362.00, 366.00, 367.00, 368.00, and 397.25) will no longer be needed for the purpose of isolating the Pilot-associated assets from the accounts for existing electric system. Please explain your response.
- c. In terms of allocation and recovery of the Pilot-associated costs, what would be the impact, if any, resulting from not establishing the five new sub-accounts discussed in Question 5.b?
- d. The total Pilot investment amount associated with the aforementioned no-longer-needed new sub-accounts is \$1,355,829 (summation of \$312,378, \$63,046, \$12,932, \$900,258, and \$67,217). Please explain how this plant investment, and the corresponding depreciation reserve, will be booked in a manner of being isolated from the same

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type of plant assets in TECO's existing system for Pilot cost-tracking purposes.

- A.** a. Regardless of an isolated plant account being used or not, all costs related to this pilot project can be isolated by specific work orders used to track the costs and associated asset records that will be unitized. Reperformance of gross plant costs, monthly depreciation expense calculations and reserve balances can be provided to support any write-off loss accounting requirements.
- b. Usage of the existing 5 plant accounts is more in line with work management system integrations to financial systems for work order as-built unitization into the property records. Also, the equipment being installed into the existing 5 plant accounts is standard equipment that would have been installed if there was no pilot program to provide the customer basic service.
- c. There would be no impact, any cost exclusions from retail rate making can still be performed.
- d. See responses above to Staff's First Data Request Question Nos. 5a and 5b.

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- 6.** Assuming approval of ECO's Petition, please identify any accounting entries or adjustments that may be necessary resulting from establishing the requested new sub-accounts.
  
- A.** If assets records are place in-service prior to approval of these accounts 341.98, 343.98, 345.98, 348.98 depending on the plant account used (temporarily), asset cost and reserves can be transferred upon approval and depreciation expense true-ups can be posted as a net book value reperformance analysis. Asset records place in-service prior to approval, which are using the existing accounts 362.00, 366.00, 367.00, 368.00, and 397.25 would not need any adjustments.