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April 29, 2021

VIA: ELECTRONIC FILING

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

Re: Docket 20210034-EI, Petition for Rate Increase by Tampa Electric Company

Dear Mr. Teitzman:

Attached for filing in the above docket is Tampa Electric Company's Response to Staff's Third Data Request (Nos.1-34), propounded on March 29, 2021.

Thank you for your assistance in connection with this matter.

Sincerely,

Malcolm N. Means

Malcolm N. Means

MNM/ne
Attachment

cc: Charles Murphy (w/attachment)
Office of Public Counsel (via Sharepoint)
Florida Industrial Power Users Group (via Sharepoint)
Federal Executive Agencies (via Sharepoint)

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Tampa Electric Company's responses to Staff's 3rd Data Request (Nos. 1-34), have been furnished by electronic mail on this 29th day of April, 2021 to the following:

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ATTORNEY

TAMPA ELECTRIC COMPANY
DOCKET NO. 20210034-EI
STAFF'S THIRD DATA REQUEST
REQUEST NO. 1
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Depreciation Study – General

1. TECO's last depreciation study was based on data as of December 31, 2011, and the proposed effective date of the new rates was January 1, 2012. For the instant Study, however, TECO performed the analyses of the depreciation parameters, reserves, and annual accruals as of December 31, 2019, and proposed an effective date of the new depreciation rates as of January 1, 2022 (Bates-stamped pages 51-70).

a. Please explain why TECO did not prepare the instant Study based upon similar to that used in last depreciation study.

b. TECO's Petition, Paragraphs 13 - 49, (also see Exhibits B – H) address two major capital projects, the AMI metering system implementation and the Big Bend Modernization Project, which affect the period of 2020-2023. Since these projects' depreciation activities have significant impacts on various accounts, does TECO agree that including in the Study more updated information, such as 2020 and 2021 data, would make the proposed new depreciation rates more applicable for 2022-2025, the period in which the new rates will be effective?

c. Please explain whether the appropriateness and/or reasonableness of the proposed new depreciation rates would be affected by the additional information/data of two years (2020 and 2021) which are in between the years that are analyzed and the year(s) that are projected.

d. Please provide TECO's understanding/interpretation/implementation of Rule 25-6.0436(4)(d) which requires the following for an electric utility's depreciation study in the context of TECO's 2020 Depreciation Study:

The plant balances may include estimates. Submitted data including plant and reserve balances or company planning involving estimates shall be brought to the effective date of the proposed rates.

A. a. Commission Order No. PSC-2017-0456-S-EI required Tampa Electric to file its next depreciation study "no more than one year nor less than 90 days before the filing of its next general rate proceeding." As a result, the company was required to submit the instant depreciation study by the end of December 2020. The company's internal preparers began compiling the depreciation study in July 2020 using the most current actual year-end data

available at that time, namely December 31, 2019. Projected data for 2021 was not available at that time, so the company did not include projected data through December 31, 2021. Tampa Electric is in the process of updating its depreciation study to bring the plant and reserve balances to December 31, 2021 and will submit the update to the Commission as soon as it is available. The company believes that the information reflected in the study provides a reasonable basis for developing 2022 depreciation rates and that bringing forward the plant and reserve balances to forecasted December 31, 2021 will likely not materially impact the company's proposed depreciation rates.

b. Please see Tampa Electric's response to Staff's Third Data Request No. 1(a), above.

c. Please see Tampa Electric's response to Staff's Third Data Request No. 1(a), above.

d. Please see Tampa Electric's response to Staff's Third Data Request No. 1(a), above.

2. In the Petition and Exhibits B - F, TECO requested a Capital Recovery Schedule with a ten-year amortization period to recover the unrecovered net book value of the capital investment associated with Big Bend Units 1-3 and AMR to be effective on 1/1/2022. In Exhibit H, TECO requested new annual accruals, calculated based upon the proposed new rates and the plant balance, as of 12/31/2019, to be effective on 1/1/2022. For the purpose of clarification, please provide responses to the following:

a. An update to the "Annual Depreciation Accrual" and "Change in Annual Accruals," shown in Exhibit H, Bates-stamped pages 63-66, as well as the corresponding MS Excel file "Generation Master," tab "Proposed Accrual," using the estimate of the plant cost as of 12/31/2021 which should exclude the NBV amount included in the Capital Recovery Schedule for each affected generation account.

b. Please provide an update to the "Annual Depreciation Accrual" and "Change in Annual Accruals," shown in Exhibit H, Bates-stamped page 1455, as well as the corresponding MS Excel file "TDG Master," tab "Proposed Accruals," using the estimate of the plant cost, as of 12/31/2021, which should exclude the NBV amount included in the Capital Recovery Schedule for Account 37000, AMR Meters & Analog Equip.

c. Please provide an update to the "Annual Depreciation Accrual" and "Change in Annual Accruals," shown on Bates-stamped pages 63-66, as well as MS Excel file "Generation Master," tab "Proposed Accrual," using the estimate of the plant cost as of 12/31/2021 which should exclude the NBV amount included in the Capital Recovery Schedule for each affected generation account.

A. a. Please see Excel file, "(BS 4) 2020 Depr Study Life Analysis - Generation Master File - v3.xlsx". the tabs Proposed Accruals 2021, 2021 B-7, and 2021 B-9, exclude the NBV amount included in the Capital Recovery Schedule for each affected generation account.

b. Please see Excel file "(BS 5) 2020 Depr Study Life Analysis - TDG Master File - v3.xlsx". The tabs Proposed Accruals 2021, 2021 B-7, and 2021 B-9, exclude the NBV amount included in the Capital Recovery Schedule for Account 37000, AMR Meters & Analog Equip.

c. Please see Tampa Electric's response to Staff's Third Data Request No. 2(a), above.

3. The following questions relate to depreciation reserve.

a. In its last depreciation study, TECO proposed reserve transfers for the majority of production, transmission, distribution and general transportation accounts "to correct negative or inappropriate depreciation rates, to correct for average service life changes and to correct for net salvage changes." (Document Nos. 02905-2011 and 05429-2011, Docket No. 110131-EI) In contrast, TECO did not propose the reserve transfer for any account within the instant Study. Please explain TECO's reason(s) for not proposing any reserve transfers.

b. Please explain TECO's current policy/philosophy for transferring reserve among production plant units and accounts.

A. a. For Production accounts: In the last depreciation study filing, the company performed reserve transfers for accounts within Big Bend Station to correct for historical operational failures and outages that created reserve deficiencies for some older units, while newer units were not as susceptible to creating reserve deficiencies. The company performed these reserve transfers in conjunction with the implementation of various Big Bend environmental SCR assets in between the 2007 depreciation study and 2011 depreciation study. The company did not expect these assets to have reserve deficiencies soon after implementation. These SCR account deficiencies were not related to operational failures and outages. The SCR accounts used initial depreciation start rates that were lower, causing the 2011 depreciation study analysis to yield theoretical reserves deficiencies and set deprecation rates higher going forward. The reserve transfer performed between Bayside Station and Polk Station accounts was related to GE Contractual Service Agreements (CSA) parts replacement modeling of life expectancy changes. In addition, the implementation of new Bayside Units 3-6 and Polk Units 4-5 in between the 2007 depreciation study and 2011 depreciation study, where the initial depreciation start rate of 4.3 percent was higher, caused the 2011 depreciation study analysis to yield theoretical reserves surpluses and set deprecation rates lower going forward.

For Production accounts: In the instant depreciation study filing, the company did not consider reserve transfers for accounts within Big Bend Station due to early shutdown of Big Bend Units 1-3, Big Bend SCRs 1-3, and Big Bend FGD 1 & 2 and the net book value analyses for accelerated cost recovery schedule amortization. The reserve deficiencies generated by the instant depreciation study for Bayside Unit 1 and Bayside Unit 2 are primarily due to the acceleration

of each unit's terminal date by 5 and 6 years, respectively. The company did not consider reserve transfers for Polk Station units, as each unit has an overall reserve deficiency, except for the newer Polk Combined Cycle Steam Turbine assets tied to Polk Units 2-5, which has no reserve surplus nor deficiency at this time.

For Transmission accounts: In the last depreciation study filing, the company proposed rebalancing of each account's theoretical reserve ratio in part because each account within the transmission function had an average service life extension.

For Transmission accounts: In the instant depreciation study filing, only three transmission accounts have an average service life extension. Rebalancing each account or selective accounts can be still performed and would potentially have an immaterial decrease to the overall change in accrual. Reserve transfers from another function are not warranted due to FERC Wholesale rate filings.

For Distribution accounts: In the last depreciation study filing, the company proposed rebalancing of each account's theoretical reserve ratio in part because all but one account within the distribution function had an average service life extension.

For Distribution accounts: In the instant depreciation study filing, some distribution accounts have an average service life extension. Rebalancing each account or selective accounts can be still performed and would potentially have a material decrease to the overall change in accrual.

For General Transportation accounts: In the last depreciation study filing, the company proposed rebalancing of each account's theoretical reserve ratio due to inappropriate deprecation rates on some account of 1.0 percent and 32.4 percent without correct reserve transfers.

For General Transportation accounts: In the instant depreciation study filing, no inappropriate account depreciation rates were identified needing corrective reserve transfers. Rebalancing each account can be still performed and would potentially have an immaterial increase to the overall change in accrual.

b. Please see Tampa Electric's response to Staff Third Data Request No. 3(a), above.

4. For the following questions, please refer to Bates-stamped page 1456 and MS Excel file "TDG Master," tab "Proposed Rates," row 66, where TECO identified a new amortizable general account 39401 ECCR Solar Car Port, indicating "New rate requested for conservation clause project," and proposed a 5-year amortizable rate being effective 1/1/2022.

a. Please provide detailed explanations of this ECCR conservation clause project, specifically, the Solar Car Port for which TECO requested approval of a new amortization rate.

b. Is the indicated "conservation clause project" a new project? If the answer is affirmative, please respond to the following questions:

(i) Has the project been approved by the Commission? Please explain the response.

(ii) When will the project's associated plant be placed in-service?

(iii) What will be the respective initial and total plant amounts associated with the project?

(iv) Apart from Account 39401, are any other depreciation/amortizable accounts affected by the project? If so, please provide details.

c. What are the estimates of the respective annual and total plant amounts of the Solar Car Port to be recorded in Account 39401 for the period 2021 through 2025?

d. What is the manufacturer-suggested service life for the Solar Car Port?

e. Does any other regulated utility, if know, use a same or similar amortization rate for assets which are the same or equivalent to the Solar Car Port? Please explain.

f. Please provide all the relevant information and documents to support the proposed 5-year amortization rate for the requested new Account 39401.

A. a. The commercial/industrial Integrated Renewable Energy System Program (Solar Car Port) is a five-year pilot program to study the capabilities and Demand Side Management ("DSM") opportunities of a fully integrated

renewable energy system. The integrated renewable energy system will include an approximate 800 kW photovoltaic array, two-250 kW batteries, and several electric vehicle charging systems to charge electric vehicles, industrial vehicles, and auxiliary industrial vehicle batteries. The pilot program will have two main purposes. The first main purpose is to evaluate the capability to perform demand response from the main batteries and each vehicle battery and to determine the preferred operating characteristics of a fully integrated renewable and energy storage system to leverage DSM opportunities. The second main purpose is to use the installation and its associated operational information as an education platform for commercial and industrial customers seeking information on this type of system and its benefits, concerns, and capabilities.

b. Yes, the ECCR conservation clause project is a new DSM pilot program.

(i) Yes, the pilot program was approved by the Commission in the company's most recent DSM Plan Docket No. 20200053-EG.

(ii) The estimated in-service date for the project is 05/30/2021.

(iii) The total estimated Plant amount associated with the project is $4,500,000. The estimated initial Plant amount is $4,350,000 with an estimated in-service date of May 2021 and $ 150,000 in June 2021.

(iv) The company does not anticipate using other accounts.

c. The total amount of $4,500,000 will be recorded as plant additions in 2021. No plant additions are expected between 2022 and 2025, other than $10,000 per year in O&M expense.

d. The suggested service life for the Solar Car Port is 30 years.

e. We are not aware of any other regulated Utility that has an Integrated Renewable Energy System Program.

f. Please see Tampa Electric's Third Set of Data Request No. 4 (b) (i), above.

Depreciation Study – Generation (Bates-stamped pages 42-1126)

Questions Nos. 5 – 8 below are related to Big Bend Power Station (BB).

5. Bates-stamped page 44 reads:

Shutdown on 12/31/2021	Shutdown on 4/30/2023
Big Bend Unit 1	Big Bend Unit 3
Big Bend SCR System 1	Big Bend SCR System 3
Big Bend Unit 2	
Big Bend SCR System 2	
Big Bend FGD System 1-2	

> The resulting change [for BB Station] is an increase in annual depreciation expense of $4,184,336 as shown on the change in rates and accruals schedule included herein.

a. MS Excel file "Generation Master," tab "Proposed Accrual, indicates that the amount of $4,184,336 is comprised of the proposed changes in annual accruals associated with BB Units 1-3, SCR Systems 1-3 and 1&2 FGD Systems ("Assets") calculated by applying the proposed new depreciation rates (effective on 1/1/2022) to the plant balance of the "Assets" as of 12/31/2019.

On page 18 of the Petition, TECO requested a Capital Recovery Schedule for the unrecovered NBV (as of 1/1/2021) associated with the "Assets."

Please explain the rationale for requesting approval to increase the annual depreciation accruals for the "Asset," in the amount of $4,184,336 that was calculated by using plant balance of the "Assets," as of 12/13/2019, and the new depreciation rates, effective on 1/1/2022, given that the plant balance of the "Assets," as of 1/1/2022, has been included in the requested Capital Recovery Schedule.

b. Referring to Bates-stamped pages 50-51, please explain why TECO proposed to change the Average Service Life (ASL) and the Future Net Salvage Percentage (NS), effective on 1/1/2022, for the following BB Units 1, 2 and 3-related accounts (Acct), given the shutdown dates of these units as listed in the above table:

Acct 31141, BB Unit 1, increase ASL from 50 to 54 years, decrease NS from (1) to (2);

Acct 31241, BB Unit 1, decrease NS from (4) to (5);

Acct 31441, BB Unit 1, decrease NS from (4) to (6);
Acct 31541, BB Unit 1, decrease NS from (3) to (5);
Acct 31641, BB Unit 1, increase ASL from 35 to 42 years.

Acct 31142, BB Unit 2, increase ASL from 50 to 56 years, decrease NS from (1) to (2);
Acct 31442, BB Unit 2, decrease NS from (4) to (6);
Acct 31642, BB Unit 2, increase ASL from 36 to 43 years, increase NS from (8) to (2);

Acct 31143, BB Unit 3, increase ASL from 57 to 60 years, decrease NS from (1) to (2);
Acct 31243, BB Unit 3, increase ASL from 34 to 35 years, increase NS from (6) to (5);
Acct 31443, BB Unit 3, decrease NS from (5) to (6);
Acct 31543, BB Unit 3, increase ASL from 29 to 34 years, increase NS from (6) to (5);
Acct 31643, BB Unit 3, increase ASL from 35 to 37 years, increase NS from (4) to (2);

Acct 31146, 1&2 FGD System, increase ASL from 35 to 36 years;
Acct 31246, 1&2 FGD System, increase ASL from 33 to 34 years;
Acct 31546, 1&2 FGD System, increase ASL from 30 to 32 years;
Acct 31646, 1&2 FGD System, increase ASL from 36 to 38 years.

Acct 31251, 1 SCR System, increase ASL from 23 to 24 years;
Acct 31551, 1 SCR System, increase ASL from 22 to 24 years.

Acct 31552, 2 SCR System, increase ASL from 25 to 27 years;
Acct 31652, 2 SCR System, increase ASL from 28 to 29 years.

Acct 31253, 3 SCR System, increase ASL from 28 to 29 years, decrease NS from (6) to (3);
Acct 31553, 3 SCR System, increase ASL from 27 to 29 years, decrease NS from (6) to (3);
Acct 31653, 3 SCR System, increase ASL from 31 to 32 years, increase NS from (5) to (1);

c. Please explain what plant assets with the estimated amounts, if any, will be left in the above listed accounts on the proposed effective date of the BB Units-related capital recovery schedule;

A. a. Please see Tampa Electric's response to Staff's Third Data Request response to Question 5(b) and (c), below.

b. This instant depreciation study approach was to study these accounts as if early shutdown capital recovery was not being considered to provide a baseline change in accrual impact or if capital recovery schedule amortizations were deferred past year 2022. In addition, some accounts will have all assets retired and other accounts will have surviving assets needing an effective depreciation rate on 1/1/2022. The study results indicate various changes to average service lives and net salvage factors consistent with the approach for stratification of assets life categorization within the account, application of Iowa curves, and net salvage assessments. The terminal dates for each unit's accounts were not changed from the terminal dates used in the last depreciation study to prevent acceleration of average remaining lives for the surviving assets. The surviving assets were identified to help support the operations of Big Bend units not subject to early shutdown at this time. The surviving assets may be transferred to the unit accounts in which the surviving assets support going forward.

Additionally, please see Tampa Electric's Response to Staff's Third Data Request No. 26, below for Net Salvage.

c. Please see Tampa Electric's response to Staff's Third Data Request No. 2(a), above, which provides budgeted estimates for year 2021 to produce the 12/31/2021 change in accruals to align with the 1/1/2022 effective date of implementation. This update reflects some accounts will have surviving assets that will not be retired as part of the early shutdown capital recovery request. The majority of the $4,184,336 12/31/2019 change in accrual will be replaced on 1/1/2022 with the capital recovery 10-year amortization amount. This can be viewed as a net impact effect for year 2022 by turning on the 10-year amortization expense amount and turning off the majority of the group depreciation 12/31/2019 change in accrual amount when the early shutdown assets are retired in December 2021.

6. Please refer to Bates-stamped page 51 for the questions below related to the Other Production Account 34644, BB CT No. 4 which was placed in-service in 2009:

a. Please identify the major plant assets recorded in this account.

b. Please explain why the existing ASL of this account is zero years.

c. Please provide an explanation to justify the proposed 34-year ASL for the account.

A. a. Please see Tampa Electric's response to Staff's Third Data Request No. 6(c) below.

b. Big Bend CT No. 4 was placed in-service in between the 2007 depreciation study and 2011 depreciation study. At the time of the budgeted 2011 depreciation study, no assets existed in the 34644 account and the company's filing listed the 34644 account but did not request any depreciation rate components as it did for 34144, 34244, 34344 and 34544. . This was reflected in Commission Order No. PSC-2012-0175-PAA-EI, which approved the company's 2011 depreciation study. However, when the BB CT No. 4 project work orders were closed and unitized during 2011; assets were placed in-service to account 34644. As a result, the company applied the depreciation rate approved for account 34544 to account 34644. In 2017, Tampa Electric filed a petition with the Commission seeking approval for this depreciation rate for account 34644 subaccounts. *See* Docket No. 20170182-EI. The Commission approved this rate as an interim rate in Order No. PSC-2017-0443-PAA-EI. In this instant depreciation study, the company only reflected the existing rate used by the 34644 account, but none of the 34544 component details.

c. The table below shows how the 34-year ASL was calculated and lists the property included in the 34644 account and the depreciation study parameters applied to each life category supporting the ASL of 34-years.

Property Group	Retirement Unit	Cost	Life Category	ASL	Weighted
Station Air	Compressor	303,874	Medium	30	9,116,233
Station Air	Piping - Under 6"	180,758	Long	40	7,230,306
Station Air	Cooler	18,361	Long	40	734,425
Crane	Crane or Hoist Eqp	7,672	Long	40	306,880
		510,665		**34**	**17,387,844**

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7. Please refer to Bates-stamped page 50 for the questions below regarding BB Common:

a. Will the shutdown of the BB Units 1-3 cause any asset retirements in the BB Common accounts? If so, please provide details.

b. Please identify the plant assets recorded in the BB Common Accounts 31140, 31240, 31440, 31240, 31540 and 31640, respectively, with clarification of what assets are used to serve the coal generation unit and what assets are used to serve the natural gas generation unit.

c. Please provide a detailed explanation to justify the proposed reduction in the ASL associated with the following accounts:

Acct. 31140, from 39 to 35 years,
Acct. 31240, from 36 to 32 years, and
Acct. 31440, from 45 to 43 years.

d. Please provide a detailed explanation to justify the proposed increase in the ASL associated with the following accounts:

Acct. 31540, from 29 to 32 years,
Acct. 31640, from 26 to 30 years.

A. a. No, at this time only the equipment specific to each of the unit accounts was reviewed for early shutdown or need to survive for operating the remaining station units.

b. Please see Excel file,"(BS 16) BB Common 311.40 to 316.40.xlsx".

c. Please see Tampa Electric's response to Staff's Third Set of Data Requests, No. 7 (b), above. Additionally, the main difference between the last depreciation study and this instant depreciation study is that the terminal date for Big Bend Unit 4 operations changed from 2050 to 2045. The terminal dates for Big Bend Common, BB SCR 4, and BB FGD 3&4 are tied to BB Unit 4. This 5-year reduction impacts the stratified long life category of the accounts 31140 to 31640, where the majority of investment vintage dollars are after year 2000 is the cause for a decreasing average service life.

d. In the last depreciation study, the Big Bend Rail infrastructure project for coal transportation was preliminarily classified to in-service under the 31140 and

31240 accounts. When this project was closed and unitized, about half of the assets dollars that were preliminarily classified to the 31140 account were unitized to accounts 31540 and 31640. As a result, the instant depreciation study now reflects those long life category asset costs, which is the cause for increasing the average service life for accounts 31540 and 31640 and was offset by the terminal date 5-year reduction.

8. The following questions are related to the BB Modernization Project discussed on Bates-stamped page 45:

a. Please explain the differences, if any, in the asset mix and the new technology deployed in the BB combined cycle (cc) system CT 5-6+CCST, compared with Polk cc system CT 2-5+CCST, that would affect the average service life and depreciation rate.

b. Please refer to MS Excel file "Generation Master," tab "TEC Plant-In Service," and identify BB CCST 5-6's max. nameplate, summer and winter capacity respectively, if known to TECO now at this time.

A. a. Polk CT 2 – 5 + CCST consists of the following:

The Polk Unit 2-5 Combined Cycle Conversion Project converted the existing simple cycle combustion turbine units into a combined cycle electric generating facility. Polk Units 2-5 are four existing, simple cycle General Electric (GE) 7FA combustion turbine generators (CTG) that were converted to a four-on-one combined cycle configuration utilizing Heat Recovery Steam Generators (HRSGs) and a single Steam Turbine Generator (STG). This produces approximately 495 gross additional megawatts (495 MW) using natural gas as the primary fuel for the CTGs and HRSG duct burners. The minimum Plant design life is 35 years with a depreciation rate of 2.9%. This rate was previously approved by the Commission.

BB CT 5 6 + CCST consists of the following:

The Big Bend Unit 1 Modernization Project (Project) is to complete the conversion of Big Bend (BB) Unit 1 into a combined cycle electric generating facility, along with associated transmission and interconnection facilities and natural gas infrastructure, located on the site of the existing Big Bend Power Station. Unit 1 is an existing pulverized coal unit that is to be modernized into a single two-on-one combined cycle configuration utilizing two new GE 7HA.02 Combustion turbines, HRSGs and a single Modernized STG reusing the existing generator and portions of the LP steam turbine. BB CT 5 – 6 + CCST includes all modifications and tie-ins to existing facilities required on the existing plant site to complete the desired conversion.

b. When in combined cycle, the max rated net capacity for modernized Unit 1 is 1055 MW summer and 1120 MW winter. This net output is made up of approximately 360 MW summer and 390 MW winter per CT and 335 MW summer and 340 MW winter for ST1.

Questions Nos. 9 – 13 below are related to Bayside Power Station.

9. Referring to Bates-stamped pages 46 and 52, please provide a detailed explanation to justify the proposed changes in the ASL associated with BP Common-related accounts below:

Acct. 34130, from 45 to 38 years,
Acct. 34230, from 41 to 40 years,
Acct. 34330, from 35 to 25 years,
Acct. 34530, from 26 to 30 years, and
Acct. 34630, from 32 to 29 years.

A. In the last depreciation study, the terminal date year was 2045. The composite average age of the accounts was 11.6 years. The composite average service life of the accounts was 38 years. The composite average remaining life of the accounts was 29 years.

In this instant depreciation study, the terminal date year is still 2045. The composite average age of the accounts is 14.5 years. The composite average service life of the accounts is 34 years. The composite average remaining life of the accounts is 21 years.

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study are drivers for a decreasing/increasing average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage and the vintage additions and retirements that have occurred since the last depreciation study are also drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2045. Vintage year costs placed in-service after year 2002 can only have a remaining life of 29.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date the long life category, ARL begins to truncate. When investments are made within 30 years of the terminal date the medium life category, ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable), which are considered perpetual plant with no end-of-life measurement.

Please see Bates stamped pages 572 to 622 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and, CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

10. Referring to Bates-stamped pages 46 and 52, please provide a detailed explanation to justify the proposed changes in the ASL associated with BP Unit 1-related accounts:

Acct. 34131, from 40 to 34 years,
Acct. 34231, from 36 to 31 years,
Acct. 34531, from 34 to 29 years,
Acct. 34631, from 38 to 35 years.

A. In the last depreciation study, the terminal date year was 2043. The composite average age of the accounts was 8.5 years. The composite average service life of the accounts was 29 years. The composite average remaining life of the accounts was 22 years.

In this instant depreciation study, the terminal date year was accelerated to 2038. The composite average age of the accounts is 14.4 years. The composite average service life of the accounts is 28 years. The composite average remaining life of the accounts is 14.5 years.

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study is a driver for a decreasing average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage, a terminal date decrease of 5-years, and the vintage additions and retirements that have occurred since the last depreciation study are also drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2038. Vintage year costs place in-service after year 1998 can only have a remaining life of 18.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date, the long life category ARL begins to truncate. When investments are made within 30 years of the terminal date the medium life category, ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable) are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 623 to 668 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

11. Referring to Bates-stamped pages 46 and 52, please provide a detailed explanations to justify the proposed changes in the ASL associated with BP Unit 2-related accounts:

Acct. 34132, from 40 to 33 years,
Acct. 34232, from 36 to 32 years,
Acct. 34532, from 35 to 29 years, and
Acct. 34632, from 37 to 34 years.

A. In the last depreciation study, the terminal date year was 2044. The composite average age of the accounts was 8.1 years. The composite average service life of the accounts was 29 years. The composite average remaining life of the accounts was 23 years.

In this instant depreciation study, the terminal date year was accelerated to 2038. The composite average age of the accounts is 14.0 years. The composite average service life of the accounts is 28 years. The composite average remaining life of the accounts is 14.8 years.

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study are drivers for a decreasing average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage, terminal date decrease of 6-years, and the vintage additions and retirements that have occurred since the last depreciation study are also drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2038. Vintage year costs placed in-service after year 2002 can only have a remaining life of 18.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date the long life category, ARL begins to truncate. When investments are made within 30 years of the terminal date the medium life category, ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional

accounts (non-amortizable) are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 689 to 714 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

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12. Please refer to Bates-stamped pages 52-53 and 56-57 for the following questions regarding several accounts associated with Bayside BP CT Nos. 3-6 which were placed in-service in 2009 as indicated in MS Excel file "Generation Master," tab "TEC Plant In-Service:"

a. Please explain why the existing ASLs of Account 34633, 34634, 34635 and 34636 are zero years.

b. Please provide an explanation to justify the proposed 30-year ASL for Accounts 34633 and 34634, respectively.

c. Please provide an explanation to justify the proposed 37-year ASL for Account 34635.

d. Please provide an explanation to justify the proposed 40-year ASL for Account 34636.

A. a. Bayside Units 3-6 were placed in-service in between the 2007 depreciation study and 2011 depreciation study. At the time of the budgeted 2011 depreciation study, no assets existed in accounts 34633, 34634, 34635 and 34636. The company's 2011 depreciation study listed the 34633, 34634, 34635 and 34636 accounts but did not request any depreciation rate components as it did for 341, 342, 343, 345 accounts per unit. This was reflected in Commission Order No. PSC-2012-0175-PAA-EI, which approved the company's 2011 depreciation study. However, when the Bayside Units 3-6 project work orders were closed and unitized during 2011, assets were placed in-service to accounts 34633, 34634 and 34636. As a result, the company applied the depreciation rate approved for accounts 34533, 34534 and 34546 to accounts 34633, 34634 and 34646. In 2017, Tampa Electric filed a petition with the Commission seeking approval for these depreciation rates for the seven 346.xx subaccounts. *See* Docket No. 20170182-EI. The Commission approved these rates as interim rates in Order No. PSC-2017-0443-PAA-EI. In this instant depreciation study, the company only reflected the existing rate used by the 34633, 34634, 34635 and 34636 account, but none of the 345 account component details.

b. For account 34633, see Bates stamped page 749 for the vintage asset cost found in the medium life category for the 30-year ASL calculation. For account 34634, Bates stamped page 786 displays the vintage asset cost found in the medium life category for the 30-year ASL calculation.

c. For account 34635, this account does not have any asset costs to study. To prevent this condition of an account not having a rate provided from occurring again, the account 34535 components for average age, average service life and average remaining life were mapped to account 34635. The average age of account 34635 should be 0.0.

d. For account 34636, Bates stamped page 749 displays the vintage asset cost found in the long life category for the 40-year ASL calculation.

13. Referring to Bates-stamped page 57 and MS Excel file "Generation Master," tab "Plant & Reserve," please explain the nature and cause of the negative amounts of Accumulated Reserves, as of 12/31/2019, recorded in Accounts 34133, 34134, and 34135 associated with BP CT Nos. 3-5.

A. Please see Tampa Electric's response to Staff's Third Data Request No. 18, below.

Questions Nos. 14 – 17 below are related to Polk Power Station.

14. Referring to Bates-stamped pages 47 and 53, please provide a detailed explanation to justify the proposed changes in the ASL associated with PK Common accounts:

Acct. 34180, from 45 to 35 years,
Acct. 34280, from 28 to 31 years,
Acct. 34380, from 47 to 32 years,
Acct. 34580, from 36 to 30 years, and
Acct. 34680, from 43 to 31 years.

A. In the last depreciation study, the terminal date year was 2047. The composite average age of the accounts was 14 years. The composite average service life of the accounts was 44 years. The composite average remaining life of the accounts was 31 years.

In this instant depreciation study, the terminal date year is still 2047. The composite average age of the accounts is 9.7 years. The composite average service life of the accounts is 34 years. The composite average remaining life of the accounts is 26 years.

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study are drivers for a decreasing/increasing average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage and the vintage additions and retirements that have occurred since the last depreciation study are also drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2047. Vintage year costs placed in-service after year 1995 can only have a remaining life of 27.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date, the long life category ARL begins to truncate. When investments are made within 30 years of the terminal date the medium life category, ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable), which are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 870 to 912 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

15. Referring to Bates-stamped pages 47 and 53, please provide a detailed explanation to justify the proposed changes in the ASL associated with PK Unit 1 accounts:

Acct. 34181, from 40 to 34 years,
Acct. 34281, from 32 to 30 years,
Acct. 34381, from 24 to 28 years,
Acct. 34581, from 31 to 33 years, and
Acct. 34681, from 35 to 30 years.

A. In the last depreciation study, the terminal date year was 2036. The composite average age of the accounts was 13.6 years. The composite average service life of the accounts was 30 years. The composite average remaining life of the accounts was 17.5 years.

In this instant depreciation study, the terminal date year is still 2036. The composite average age of the accounts is 17.9 years. The composite average service life of the accounts is 30 years. The composite average remaining life of the accounts is 14.2 years.

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation stud are driers for a decreasing/increasing average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage and the vintage additions and retirements that have occurred since the last depreciation study are also drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2036. Vintage year costs placed in-service after year 1995 can only have a remaining life of 16.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date, the long life category ARL begins to truncate. When investments are made within 30 years of the terminal date the medium life category, ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable), which are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 913 to 961 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

16. Referring to Bates-stamped pages 47 and 53-54, please provide a detailed explanation to justify the proposed changes in the ASL associated with PK CT Nos. 2-5 accounts:

Acct. 34182, from 37 to 39 years,
Acct. 34282, from 32 to 28 years,
Acct. 34382, from 25 to 29 years,
Acct. 34582, from 36 to 35 years, and
Acct. 34682, from 30 to 40 years.

Acct. 34283, from 35 to 34 years,
Acct. 34383, from 24 to 32 years,
Acct. 34583, from 34 to 32 years, and
Acct. 34683, from 34 to 40 years.

Acct. 34184, from 41 to 39 years,
Acct. 34284, from 32 to 42 years,
Acct. 34384, from 27 to 31 years, and
Acct. 34584, from 28 to 35 years.

Acct. 34185, from 41 to 39 years,
Acct. 34385, from 27 to 31 years, and
Acct. 34585, from 28 to 35 years.

A. For accounts 34182 to 34682:

In the last depreciation study, the terminal date year was 2040. The composite average age of the accounts was 10.3 years. The composite average service life of the accounts was 28 years. The composite average remaining life of the accounts was 18.6 years.

In this instant depreciation study, the terminal date year is still 2040; however, the composite average age of the accounts is 15.7 years. The composite average service life of the accounts is 32 years. The composite average remaining life of the accounts is 16.4 years.

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study are drivers for a change in average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the

vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage and the vintage additions and retirements that have occurred since the last depreciation study are also drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2040. Vintage year costs placed in-service after year 1999 can only have a remaining life of 20.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date, the long life category ARL begins to truncate. When investments are made within 30 years of the terminal date, the medium life category ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable), which are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 962 to 1007 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

For Accounts 34183 to 34683:

In the last depreciation study, the terminal date year was 2042. The composite average age of the accounts was 7.8 years. The composite average service life of the accounts was 27 years. The composite average remaining life of the accounts was 19.8 years.

In this instant depreciation study, the terminal date year is still 2042. The composite average age of the accounts is 16.7 years. The composite average service life of the accounts is 33 years. The composite average remaining life of the accounts is 16.9 years.

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study are drivers for a change in average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the

vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage and the vintage additions and retirements that have occurred since the last depreciation study are drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2042. Vintage year costs placed in-service after year 2001 can only have a remaining life of 22.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date, the long life category ARL begins to truncate. When investments are made within 30 years of the terminal date the medium life category, ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable), which are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 1008 to 1053 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

For accounts 34184 to 34684

In the last depreciation study, the terminal date year was 2047. The composite average age of the accounts was 4.3 years. The composite average service life of the accounts was 29 years. The composite average remaining life of the accounts was 24 years.

In this instant depreciation study, the terminal date year is still 2047. The composite average age of the accounts is 11.6 years. The composite average service life of the accounts is 34 years. The composite average remaining life of the accounts is 22 years

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study are drivers for a change in average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the

vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage is also a driver for a decreasing average remaining life, as well as the vintage additions and retirements that have occurred since the last depreciation study. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2047. Vintage year costs placed in-service after year 2006 can only have a remaining life of 22.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date, the long life category ARL begins to truncate. When investments are made within 30 years of the terminal date the medium life category, ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable), are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 1054 to 1090 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yields the average service life and average remaining life per vintage year costs.

For accounts 34185 to 34685

In the last depreciation study, the terminal date year was 2047. The composite average age of the accounts was 4.4 years. The composite average service life of the accounts was 29 years. The composite average remaining life of the accounts was 25 years.

In this instant depreciation study, the terminal date year is still 2047. The composite average age of the accounts is 11.8 years. The composite average service life of the accounts is 33 years. The composite average remaining life of the accounts is 21 years

Production curve usage and the vintage additions and retirements that have occurred within the Long, Medium, Short and CSA life categories since the last depreciation study are drivers for a change in average service life. The vintage survivors have declining average service lives due to the terminal date year (end of life) and the

vintage retirements are no longer included in the weighted average calculation of the account's survivors yielding a lower average service life.

Production curve usage the vintage additions and retirements that have occurred since the last depreciation study are also drivers for a decreasing average remaining life. Curve truncation is becoming more prevalent for the long life category of assets based on the terminal date year of 2047. Vintage year costs placed in-service after year 2006 can only have a remaining life of 22.5 years for depreciation purposes. This is an accelerated recovery concept that effects production accounts. For example, when investments are made within 40 years of the terminal date, the long life category ARL begins to truncate. When investments are made within 30 years of the terminal date, the medium life category ARL begins to truncate. Lastly, when investments are made within 20 years of the terminal date, the short life category ARL begins to truncate.

Declining vintage survivor ASL and truncating ARL only impacts the Production accounts, in contrast to Transmission, Distribution and General Plant functional accounts (non-amortizable), which are considered perpetual plant with no end-of-life measurement.

Additionally, please see Bates stamped pages 1091 to 1124 and the various Generation Arrangement Reports for each account's stratified Long, Medium, Short, and CSA life category analysis that yield the average service life and average remaining life per vintage year costs.

17. Please refer to Bates-stamped pages 52-53 for the following questions regarding several accounts associated with PK CT Nos. 4-5 which were placed in-service in 2007 as indicated in MS Excel file "Generation Master," tab "TEC Plant In-Service:"

a. Please explain why the existing ASLs of Account 34684 and 34685 are zero years.

b. Please provide an explanation to justify the proposed 35-year ASL for Accounts 34684 and 34685, respectively.

A. a. Accounts 34684 and 34685 do not have any asset costs. In previous depreciation study filings, these accounts had no assets to study and no rate was requested. In 2017, Tampa Electric filed a petition with the Commission seeking approval for depreciation rates for the seven 346.xx subaccounts. *See* Docket No. 20170182-EI. The Commission approved these rates as interim rates in Order No. PSC-2017-0443-PAA-EI. If future additions are made to the 346 account, which is possible, the company is requesting a rate similar to those like kind accounts.

b. The ASL is taken from the 34584 and 34585 accounts and the ARL of 28 is the terminal year 2047 minus 2019 to calculate the remaining life rate.

18. Referring to Bates-stamped pages 57 and MS Excel file "Generation Master," tab "Plant & Reserve," please explain the nature and cause of the negative amount of Accumulated Reserves, as of 12/31/2019, recorded in the following accounts:

Account 34133, BP CT No. 3 – Str & Improve, ($27,876),
Account 34134, BP CT No. 4 – Str & Improve, ($122,817),
Account 34135, BP CT No. 5 – Str & Improve, ($173,609), and
Account 34680, Polk Common – Misc. Power Plant Equipment, ($131,378).

A. For accounts 34133, 34134, and 34135, the negative reserve balance occurred as a result of the last depreciation study that used budgeted projections and rebalancing of theoretical reserves via transfers. The budgeted amount for these account assets and reserves used in the last depreciation study were budgeted too high and as a result, when the reserve transfers were booked to the financial system during 2012, the reserve balances became negative.

For account 34680, the negative reserve balance occurred in 2018 as the result of retiring analog security system camera equipment that was replaced with digital camera technology additions.

19. Please refer to MS Excel file "Generation Master," tab "Solar" for the questions below:

a. Please identify the major plant assets recorded in Account 342.99 – Fuel Holders, Producers and Accessories that are associated with a solar site. Are they similar to the major plant assets recorded in a Fuel Holders, Producers and Accessories accounts that are associated with a coal-fired generation units and/or a natural gas-fired generation units?

b. Please identify the major plant assets recorded in Account 343.99 – Prime Movers, that are associated with a solar sites. Are they similar to the major plant assets recorded in a Prime Movers accounts that are associated with a coal-fired generation units and/or a natural gas-fired generation units?

c. In which account are the solar photovoltaic panels recorded?

A. a. Currently, the Solar projects in-service and under construction will be utilizing the accounts 341.99, 343.99, 345.99 and 348.99.

The format of the deprecation study summarization schedules assumes the accounts eligible to used are 341, 342, 343, 345 and 346 for a generating unit. To prevent the condition from occurring, as noted by Staff's Third Data Request Nos. 6(b), 12(a) and 17 above, the company is requesting a depreciation rate for accounts 342.99 and 346.99 based on zero asset costs found in the accounts.

b. The 340 to 346 series of accounts for other production is currently used by utilities for generating units that are not coal-fired steam, nuclear, or hydraulic. The 340 to 346 series of accounts would contain natural gas-fired and wind generating units. Solar Sites have not been broken out by FERC and thus fall under the other production 340 to 346 series of accounts. At this time, the 343 account is the best fit for solar photovoltaic panels and inverters that are converting sun light into electricity.

Equipment	Account 343.99	Ratio
Panels	$ 263,410,878	97%
Inverter	7,505,623	3%
	$ 270,916,501	**99%**

c. Solar photovoltaic panels are only recorded in account 343.99

20. Please explain the methodology (including the use of stratified investment) TECO used in the current Study to determine the curve shape, average service life, future net salvage, and average remaining life for production plant. Please provide an example with sample calculations.

A. Please see Tampa Electric's responses to Staff's Third Data Request Nos. 21, 22, 23, 24, 25 and 26, below.

21. Please respond to the following questions regarding the life category stratification:

a. Referring to MS Excel file "Generation Master," tab "Life Category 2019," please explain what is meant by the column titled "Production – CSA."

b. Please identify all the life categories TECO used in the 2020 Study, and provide an example of assets contained in each stratified life category.

c. Please explain how the stratified life categories for each production plant site were determined.

d. Are the stratified life categories used for each production plant site the same as those used in the 2011 depreciation study? If the categories are different from the 2011 study, please identify the specific reasons justifying each life category change.

e. Please explain how the average age of each life category is determined.

f. Please explain how TECO determined the curve types for long, medium, and short life production plant in the 2020 Study. If the method used differs from that method used in the 2011 study, please explain why the current method was chosen.

A. a. The Production – CSA life category is given to the part replacements managed under the contractual service agreements with General Electric (GE). The activities included are related to combustion turbine outages at Bayside and Polk stations. These parts are highly susceptible to wear and tear and are replaced more frequently than assets found in the life categories of Long, Medium and Short.

b. Tampa Electric used the following life categories in the instant depreciation study:

Long – buildings and enclosures, superstructures, concrete foundations, support steel, roads, reservoirs, steel piping, conduit, waste ponds, etc.

Medium – boiler tubes, ductwork, waterfall tubes, rotors, stators, pump systems, conveyors, compressors, control systems, transformers, etc.

Short – computer equipment, monitors, exhaust systems, expansion joints, SCR and FGD catalyst, steam turbine parts, etc.

CSA – combustion turbine parts; nozzle tips, baskets, blade rows, etc.

c. Consistent with prior depreciation studies, the asset retirement units' assignment to each stratified life category were developed by the company's operations engineers based on service life expectations. Assets subject to wear and tear generally have shorter lives. Other assets that house and support the operations of the units generally have longer lives.

d. Yes, the stratified life categories used for each production plant sites are the same as used in the 2011 deprecation study.

e. Coal-fired units at Big Bend have had life extensions over the years. In the 2007 deprecation study, Big Bend Common and Units 1- 4 life spans were extended by 15 years. The long life category uses a SQ curve type and curve age is based on the maximum life span of the unit (terminal date year minus the unit's in-service year). The medium life category uses a S4 curve type and curve age of 35 years. The short life category uses a S3 curve type and curve age of 20 years.

Natural gas-fired units at Bayside and Polk are assumed to have a 40-year maximum life span. The long life category uses a SQ curve type and curve age of 40 years, except for Common plant curve age is extended to support the last unit placed in-service. The medium life category uses a S4 curve type and curve age of 30 years. The short life category uses a S3 curve type and curve age of 20 years. The CSA life category uses a SQ curve type and curve age of 12 years.

f. The curve types used for Medium – S4, Short – S3 and CSA – SQ have been used in prior depreciation study filings. The curve type used for Long has changed from a custom/modified Iowa curve used in prior depreciation study filings to using a SQ curve type. This was determined during the replacement of the spreadsheet depreciation study model and implementation of the PowerPlan Depreciation Study software.

22. Referring to "Generation Master," tab "TEC Plant In-Service," please identify all the generation units, if any, in which the Capital Recovery year is different from what was proposed in TECO's 2011 depreciation study with an explanation of the specific reasons for capital recovery date revision.

A. The generating units that have different capital recovery years are Big Bend Station Common, Big Bend Unit 4 Boiler, Big Bend SCR 4, and FGD 3 & 4. These generating units' capital recovery year were reduced by 5-years. Additionally, Bayside Station Units 1 and 2 also have a different capital recovery schedule. Bayside Station Unit 1 capital recovery year was reduced by 5-years and Bayside Station Unit 2 capital recovery year was reduced by 6-years. The company believes that it is prudent to recognize public policy changes and the trend in the utility industry towards reduced coal consumption by reducing the lives of coal-burning generating assets.

Station Unit No.	2011 Recovery Year	2019 Recovery Year
Big Bend Station		
Common	2050	2045
Boiler 4	2050	2045
FGD 3&4	2050	2045
SCR 4	2050	2045
Bayside Station		
Unit 1 (3xCT + CCST)	2043	2038
Unit 2 (4xCT + CCST)	2044	2038

23. Did TECO use any interim retirement rate for production plant? If yes, please explain how an interim retirement rate was derived and provide both a quantitative explanation as well as a narrative explanation.

A. No. The depreciation study software used for this instant filing performs all the Iowa curve calculations for average remaining life and theoretical reserve analysis.

24. Did TECO use any future estimated retirement rate for production plant? If yes, please explain how a future estimated retirement rate was derived and provide both a quantitative explanation as well as a narrative explanation.

A. No. The depreciation study software used for this instant filing performs all the Iowa curve calculations for average remaining life and theoretical reserve analysis. In prior depreciation study filings, future estimated retirement rates were used for the applicable of net salvage factors. The depreciation study software used for this instant filing applies net salvage factors to the surviving plant balances.

25. For production plant, does TECO propose any curve types (e.g., S3-25) different from those that are currently prescribed? If so, please explain, by account, the quantitative and qualitative reasons for the change.

A. Yes, Tampa Electric proposed different curve types. The curve type used for the long life category has changed from a custom/modified Iowa curve used in prior depreciation study filings to using a SQ curve type. This was determined during the replacement of the spreadsheet depreciation study model and implementation of the PowerPlan Depreciation Study software. The curve type used for the medium life category for Big Bend CT4, Bayside and Polk stations were changed from S3 - 25 to S4 - 30 to provide more useful life separation from the short life category. The curve type used for the short life category S3 - 20 did not change.

Please see Excel file, "(BS 47) Curve and NS Changes.xlsx".

26. For each production account where TECO's proposed interim future net salvage differs from what is currently prescribed, please explain the reasons for changing the future net salvage. The explanation should include relevant quantitative data and analysis as well as a brief narrative explanation for each account.

A. In prior depreciation study filings, the spreadsheet model used a future estimated retirement rate to applied net salvage factors. A like-kind template approach was used for applying net salvage to each account's estimated retirements per life category. The new depreciation study software does not use an estimated retirement rate for application of net salvage. An analysis was performed based on B-9 from 2011 to 2019 and 5-year average activities basis for net salvage. A like-kind template was derived to apply net salvage to coal-fired Big Bend accounts and natural gas-fired Bayside and Polk units. In addition to the internal analysis, the results were compared to the other Florida utilities recent depreciation study filings for reasonableness.

Please see Excel file, "(BS49) 2020 CPR - NS Analysis on ASR 2011 to 2019 - Final.xlsx".

27. Referring to Bates-stamped pages 80-1124, please explain how production plant retirements were estimated and developed for the budget year 2020.

A. This instant filing is based on 2019 actuals and is not a 2020 projected budget filing. The new depreciation study software attempts to project the next year's retirement but is not relied upon. See the example below of the Remaining Life Depreciation Accrual report for the 311.42 Medium life category account. This instant filing focus is on the Pre-2020 Additions row of information only.

Remaining Life Depreciation Accrual

Account: 311.42 M Str & Improvements-BB2
Scenario: TEC 2019 A - Strat 20201110
Dispersion: 35.00 - S4
Average Net Salvage Rate: -2.00%
Future Net Salvage Rate: -2.00%

Broad Group Procedure

January 1 , 2020

	Plant Amt	Remaining Life	Accrual (Dollars)	Accrual Rate (Gross Plant)	Accrual Rate (Net Plant)
Pre- 2020 Additions	$455,204.54	16.63	$21,601.56	4.745461%	6.014767%
2020 Additions	$0.00	0.00	$0.00	0.000000%	
2020 Retirements	($22,846.89)	0.50	($332.93)	1.457222%	
Total:	$455,204.54 *		$21,268.63	4.672323%	5.922065%
Average:	$443,781.10		$21,268.63	4.792594%	6.120642%

* Excluding 2020 Retirements

28. Please provide, in MS Excel file, TECO's actual (or estimate if the actual is not available) Production Plant and Reserve Activities, for the year ending December 31, 2020. For this request, please use a similar format as MS Excel file "Generation Master," tabs "2019 B-7" and "2019 B-9."

A. Please see Excel file, "(BS 4) 2020 Depr Study Life Analysis - Generation Master File - v3.xlsx", provided in Tampa Electric's response to Staff's Third Data Request No. 2(a), above.

29. Please provide, in MS Excel file, TECO's 2021 Budget of Production Plant and Reserve Activities, in a similar format as MS Excel file "Generation Master," tabs "2019 B-7" and "2019 B-9."

A. Please see Excel file, "(BS 4) 2020 Depr Study Life Analysis - Generation Master File - v3.xlsx", provided in Tampa Electric's response to Staff's Third Data Request No. 2(a), above.

30. Please refer to MS Excel file "Generation Master," tab "Plant & Reserve" for the questions below:

a. Please describe the plant assets included in the amortizable Accounts 31647 (Big Bend Amortizable Tools), 34637 (Bayside Amortizable Tools) and 34687 (Polk Amortizable Tools).

b. Please describe the plant assets included in the amortizable Accounts 31247 (Big Bend Fuel Clause), and 34287 (Polk 1 Fuel Clause).

c. Please explain how the amortization expense is calculated for the aforementioned production plant accounts, and specify how the vintage group concept is applied within the calculation.

A. a. These tool account equipment types are of the same natural accounts that is prescribed for account 394 Tools, Shop and Garage Equipment. Each power station has its own tool account, since these tools are not transferrable and are to be used with that power station, not cross-functionally like the 394 account between transmission and distribution operating locations.

b. These two accounts were created for fuel clause purposes that recovered the cost over a 5-year period. The investments were made to allow for Big Bend Units 1-4 and Polk Unit 1 to pre-heat with natural gas instead of propane. Big Bend Units 1-4 started using the 312.47 account in 2015 and recovered the asset cost through 2020.

Polk Unit 1 started using the 342.87 account in 2013, the asset costs were recovered through 2018.

The types of assets included in both accounts are;

Equipment Types
Control Valve
Heater / Heater Shell
Piping - Under 6"
Piping 6" & larger
Skid
Structural Support Steel
Valves - 10" & larger
Wire & Cable

c. The financial system is configured one of two ways; accounts that are group depreciated (gross plant balance times depreciation rate) or amortized (where individual vintage asset records are individually amortized to the account's reserve). The formula used for amortization of individual vintage asset records is as follows:

$$\frac{\text{Net Book Value (Cost – Reserve)}}{\text{Remaining Number of Months}}$$

This formula technique prevents over depreciation (reserve surplus) situations whether or not the asset cost is retired. The company does monitor when amortizable assets have been fully depreciated and retires the asset record soon after its net book value = $0.

31. Apart from the Big Bend Modernization Project, are there any major overhauls or upgrades planned for production plant during 2020 - 2025? If so, please include a description of the work to be performed, any retirement units expected to be replaced as a direct result of the overhaul or upgrade, and identify the year each overhaul or upgrade is planned to take place. Please provide the January 1, 2022 estimated investment and reserve associated with the equipment currently planned for replacement during each overhaul, by account by plant site.

A. The table below represents the planned major overhauls and upgrades to production plant. This is a five-year projection where the estimated scope, costs and timing are subject to change based on operation changes and generation system demands. The assets records have not been identified for retirement at this time, so we will not be able to identify the associated reserve.

Big Bend	2020	2021	2022	2023	2024	2025	Total	Assets
BB4 FGD Common Inlet Duct	13,457,647						13,457,647	FGD duct work
BB4 Generator Rewind	5,438,049						5,438,049	Generator
BB4 BFP Turbine Overhaul	1,089,522						1,089,522	Boiler Feed pump
BB4 HP/IP/LP Main Turb&Vlv	6,442,430						6,442,430	HP,IP,LP turbine calves
BB4 ESP Fields 3&4 Replacement	16,122,183						16,122,183	BB4 Precipitator
BB4 2019 Furnace Water Wall Tube Re	7,095,623						7,095,623	Boiler waterwall tubes
BB4 APH Replacement	2,743,805						2,743,805	Air preheater
Big Bend 4 Major Outage	**52,389,260**	**-**	**-**	**-**	**-**	**-**	**52,389,260**	
BB4 Boiler Furnace Roof Tube Replacement					3,437,500	4,690,496	8,127,996	Boiler waterwall tubes
HP/LP Centerline Improvements					3,424,170	4,669,323	8,093,493	Turbine
BB4 GSU Replacement					2,000,000	3,000,000	5,000,000	GSU
Phase II Ductwork					1,000,000	2,000,000	3,000,000	Ductwork
ID Fans (A&B) Wheels Replacement					1,000,000	2,000,000	3,000,000	ID Fans
Big Bend 4 Major Outage	**-**	**-**	**-**	**-**	**10,861,670**	**16,359,819**	**27,221,489**	
Bayside								
BPS Advanced Hardware Upgrades	665,405	27,276,200	20,233,867	29,505,934	8,027,250		85,708,655	Replace Hot Gas components
BPS unit 1 major		1,068,356	8,904,839	4,880,250	8,099,166		22,952,611	HP/IP/LP turbine rotor and blades
BPS unit 2 major		889,268	5,915,014	23,449,615			30,253,897	steam turbine and control repl.

32. Are there any substantial retirements or additions to production plant expected in connection with current or proposed state or federal regulations, including environmental regulations, during 2021-2025? If so, please include a description of the regulation and the work to be performed, any retirement units expected to be replaced as a direct result, and identify the year(s) each retirement or addition is planned to take place. Please provide the January 1, 2022 estimated investment and reserve associated with the equipment currently planned for replacement, by account by plant site.

A. The table below represents the planned major overhauls and upgrades to production plant. This is a five-year projection where the estimated scope, costs and timing are subject to change based on operation changes and generation system demands. The assets records have not been identified for retirement at this time, so we will not be able to identify the associated reserve.

Big Bend	2020	2021	2022	2023	2024	2025	Total	Assets
ECRC FGD Waste Inj.	2,382,912	13,675,041	8,173,319				21,848,360	Pumps, motors, piping, valves

33. Please refer to TECO's Response to OPC's 1st IRR Nos. 1-5, Electronic Files IRR 05, "(BS 18) 2020 CPR - Generation Life Category Analysis.xlsb." It appears that a different tab of this file shows a different plant amount for the same power station as indicated in Table 1 below:

Table 1: Different Plant Amounts Shown in Different Tabs of "(BS 18) 2020 CPR - Generation Life Category Analysis.xlsb"

File Name	(BS 18) 2020 CPR - Generation Life Category Analysis.xlsb		
Tab Name	Summary Depr Study View	Summary Generation Depr Groups	B-7 2019
	(1)	(2)	(3)
Bayside Total	1,110,577,446.47	1,112,170,337.52	1,110,577,446.47
Big Bend Total	2,221,175,464.51	2,228,099,093.02	2,180,333,328.62
Polk Total	1,368,350,417.81	1,386,547,759.28	1,368,350,417.81
Solar Total	545,189,315.58	611,379,191.93	545,189,315.58
Grand Total	5,277,215,390.94	5,370,119,128.32	5,245,292,644.37

a. In general, please explain the difference between the plant amounts shown in column (1) and column (2) for a same power station, or, the grand total of production plant.

b. Please explain the difference between the plant amounts shown in columns (1) and (2) associated with the Bayside Station.

c. Please explain the difference between the plant amounts shown in columns (1) and (2) associated with the Big Bend Station.

d. Please explain the difference between the plant amounts shown in columns (1) and (3) associated with the Big Bend Station.

e. Please explain the difference between the plant amounts shown in columns (1) and (2) associated with the Polk Station.

f. Please explain the difference between the plant amounts shown in columns (1) and (2) associated with the Solar Total.

g. Please explain the difference between the amounts shown in columns (1), (2) and (3) associated with the Production Plant Grand Total.

A. a. Please see Tampa Electric's responses to Staff's Third Data Request No. 33 (b) - (f) below.

b. The variance between (1) and (2) is due to the inclusion of account 340.30 Land & Land Rights-BPC amount of $1,592,891. Land is excluded from the (1) depreciation study view. The variances between (3) and (2) are due to the inclusion of account 340.30 Land & Land Rights-BPC amount of $1,592,891. Land accounts on (3) B-7 2019 are included in a different subtotal section called Non-Depreciable Property.

c. The variance between (1) and (2) is due to the inclusion of account 310.40 Land & Land Rights-BBCM amount of $ 6,923,629. Land is excluded from the (1) depreciation study view. The variance between (3) and (2) is due to the inclusion of account 310.40 Land & Land Rights-BBCM amount of $6,923,629 and other production Big Bend CT 4 accounts 341.44 to 346.44 amount of $40,842,136. Land accounts on (3) B-7 2019 are included in a different subtotal section called Non-Depreciable Property and on (3) B-7 2019 Big Bend has two subtotals, one in steam production and in other production.

d. Please see Tampa Electric's response to Staff's Third Data Request No. 33 (c), above.

e. The variance between (1) and (2) is due to the inclusion of account 340.81 Land & Land Rights-Polk Unit 1 amount of $18,197,341. Land is excluded from the (1) depreciation study view. The variances between (3) and (2) are due to the inclusion of account 340.81 Land & Land Rights-Polk Unit 1 amount of $18,197,341. Where land accounts on (3) B-7 2019 is included in a different subtotal section called Non-Depreciable Property.

f. The variance between (1) and (2) is due to the inclusion of account 340.99 Land & Land Rights-Solar amount of $66,189,876. Land is excluded from the (1) depreciation study view. The variances between (3) and (2) are due to the inclusion of account 340.99 Land & Land Rights-Solar amount of $66,189,876. Where land accounts on (3) B-7 2019 is included in a different subtotal section called Non-Depreciable Property.

g. Please see Tampa Electric's responses to Staff's Third Data Request No. 33 (b) – (f), above.

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34. Referring to TECO's response to OPC's 1st POD 2, "(BS 68) Mortality Curve ID.xlsx," where TECO provided the following the mortality curves that were used in the 2020 Study:

Mortality Curve Id	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
Description	GM1.0	GM1.5	GM2.0	GM2.5	GM3.0	GM3.5	GM4.0	GM4.5	GM5.0	GM5.5	H0.50	H1.00	H1.50	H2.00	H2.50	H3.00	H4.00	H5.00
Gm Indicator	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	3

a. Please explain what is a GM curve type.

b. Please explain what is an H curve type.

c. Please explain the difference between GM1.0 and GM 1.5 types.

d. Please explain the difference between H1.0 and H1.5 types.

e. Please explain why a Gm indicator is applicable, even for an H curve type.

A. a. The file (BS 68) Mortality Curve ID.xlsx was only a refence list to be used in conjunction with all the other files provided in response OPC's 1st POD2. The file (BS 68) Mortality Curve ID.xlsx was not intended to be a listing of only the curves used in this instant depreciation study. The data set provided was an extraction of the entire Depreciation Study software eligible curves table to support the various other files submitted. Below chart are the curves that were used in this instant depreciation study.

Generation Curves	T,D&G Curves
S3	L1
S4	L3
SQ	L4
	R1
	R1.5
	R2
	R3
	R5
	S0
	S4
	S5
	SQ

b. Please see Tampa Electric's response to Staff's Third Data Request No. 34 (a), above.

c. Please see Tampa Electric's response to Staff's Third Data Request No. 34 (a), above.

d. Please see Tampa Electric's response to Staff's Third Data Request No. 34 (a), above.

e. Please see Tampa Electric's response to Staff's Third Data Request No. 34 (a), above.