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March 6, 2018

VIA: ELECTRONIC FILING

Ms. Carlotta S. Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Petition for a limited proceeding to approve first solar base rate adjustment
(SoBRA) effective September 1, 2018; FPSC Docket No. 20170260-EI

Dear Ms. Stauffer:

Attached for filing on behalf of Tampa Electric Company are revised responses to Staff's First Data Request Nos. 1 (6 pages) and 6 (1 page) marked REVISED: March 6, 2018. These responses are revised to reflect the effects of tax reform, as the company's prepared direct testimony was revised after the filing of these responses. We would appreciate your distributing these to the recipients of Tampa Electric's earlier responses filed February 2, 2018 so that they may be substituted in place of the earlier filing.

Thank you for your assistance in connection with this matter.

Sincerely,


James D. Beasley

JDB/pp
Attachment

**TAMPA ELECTRIC COMPANY
DOCKET NO. 20170260-EI
STAFF'S FIRST DATA REQUEST
REQUEST NO. 1
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FILED: FEBRUARY 2, 2018
REVISED: MARCH 6, 2018**

1. Please refer to the Direct Testimony of TECO witness R. James Rocha, page 16, lines 11-25.
 - a. Please fully explain how the Company developed the \$205.3 million projected value of fuel savings presented in this section of testimony.
 - b. Please identify the source and date of TECO's fuel price forecast used in developing the Current Present Value of Revenue Requirements (CPVRR) analysis of the proposed First Solar Base Rate Adjustment (SoBRA) Transaction.
 - c. Please identify the date, if known, of TECO's next/updated fuel price forecast that will be used for Company/business planning purposes.
 - d. Please discuss TECO's fuel forecast methodology. Please also remark on approximate the length of a time TECO has employed this same or very similar fuel forecasting methodology for company planning purposes.
 - e. Please fully explain how TECO developed the \$12 million projected value of (reduced) emissions presented in this section of testimony. Please also specify what particular "emissions" are being referred to and associate a dollar figure to the specific emission type.
 - f. Please identify the sources and dates of all environmental compliance cost related forecasts TECO used in developing its CPVRR analysis of the proposed First SoBRA Transaction.
 - g. Please discuss TECO's environmental compliance cost related forecast methodology. Please also remark on approximate the length of a time TECO has employed this same or very similar methodology.
 - h. Please provide a detailed explanation of the sensitivity analyses TECO performed with regard to forecasted fuel prices and forecasted market prices for carbon dioxide (CO₂) in testing the robustness of the projected cost savings.

- A. The requested information is provided below.
 - a. Using the company's Integrated Resource Planning process, a long term base case model was prepared without the first tranche of solar generation. Next, starting from this base case, a change case model was prepared with the first tranche, 145 MW of solar generation in-service September 2018. Both the base case and change case were run with the production cost modeling software to determine fuel costs for both cases. The change case system fuel cost was then

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subtracted from the base case system fuel cost equating to \$198.5 million in savings to customers.

- b.** The fuel forecast used in the CPVRR analysis for the first tranche of solar is the same fuel forecast used in preparing the 2018 projected costs and cost recovery factors approved in Docket No. 20170001-EI.
- c.** The fuel price forecast will be updated in Summer 2018 to prepare the 2019 projected fuel cost recovery factors.
- d.** Tampa Electric has used the same methodology to forecast fuel commodity prices for approximately the last ten years. The methodology is consistent across commodities. It uses market indicators (e.g., NYMEX futures contracts) to estimate the near-term price (one to three years). The methodology then uses a commercially available, published fuel commodity price forecast from an independent energy consulting firm (e.g., PIRA, Wood MacKenzie) for the mid-term (two to twenty years). The final long-term portion of the fuel price forecast is then escalated using an independent source for the annual price changes (e.g., EIA Long Term Energy Outlook). Blending of sources is used to transition between time periods. The forecast is produced early each summer to support the late-summer fuel clause actual-estimate and projection filings and is used for one year until the next official forecast is produced. The specific sources, time periods and blending approach has changed occasionally over the past ten years, but the fundamental approach of using independent sources for the forecast period that they are most appropriate has not changed.
- e.** A long-term base case model was prepared without the first tranche of solar. Next, starting from this base case, a change case model was prepared with the first tranche, 145 MW of solar in-service September 2018. Both the base case and change case were run with the production cost modeling software to determine CO₂ and NO_x volumes for both cases using the company's emission factors. Tampa Electric then calculated the avoided emissions between these two cases and multiplied them by a CO₂ price forecast from a global consulting services company, ICF International, Inc., and an estimated NO_x cost estimated using a previous sale of Tampa Electric's NO_x Ozone Season allowances. These calculations

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resulted in \$11.4 million of projected value of reduced emissions from NO_x and CO₂, approximately \$10.7 million of CO₂ and \$0.7 million of NO_x forecasted. Several policies and regulations relating to emissions valuation are in various stages of development and/or litigation and the anticipated value of emission reductions is captured in the forecast.

- f.** The CO₂ price forecast used in the cost effectiveness analysis for the first tranche of solar was purchased from a global consulting services company, ICF International, Inc., and developed in the third quarter of 2017. The NO_x price forecast is estimated using an actual sale of Tampa Electric's NO_x Ozone Season allowances in 2016 and escalated by one percent a year after 2017.
- g.** Tampa Electric has been tracking CO₂ impacts since the initial Clean Power Plan talks began around June 2014. Since that time, the company has assessed carbon emissions as a below-the-line consideration for each project.
- h.** The fuel forecast sensitivities used in the CPVRR analysis for the first tranche of solar are from the same fuel forecast used in preparing the 2018 projected cost recovery factors approved in Docket No. 20170001-EI. The high and low fuel forecasts were prepared contemporaneously with the base fuel forecast and are shown in the company's response to Data Request No. 9. The results of the high and low fuel forecast sensitivities are shown in the following tables.

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Delta CPWRR Revenue Requirements - Base Fuel Sensitivity (2017 \$000)	Cost/(Savings) (\$ millions)
Capital RR - Other New Units	(\$129.5)
Capital RR - Solar New Arrays (w/Interconnect)	\$164.3
RR of Land for Solar	\$26.5
System VOM	(\$9.7)
FOM - Other Future Units	(\$5.0)
FOM - Solar Future Arrays	\$15.3
System Fuel	(\$198.5)
Sub Total w/o NO_x or CO₂ Cost	(\$136.6)
Plus Emissions Costs	
CO ₂ - Base	(\$10.7)
CO ₂ - High	(\$39.7)
CO ₂ - Low	\$0.0
NO _x - Base	(\$0.7)
Total w/ CO₂ (Base) & NO_x Cost	(\$148.0)
Total w/ CO₂ (High) & NO_x Cost	(\$177.0)
Total w/ CO₂ (Low) & NO_x Cost	(\$137.3)

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Delta CPWRR Revenue Requirements - High Fuel Sensitivity (2017 \$000)	Cost/(Savings) (\$ millions)
Capital RR - Other New Units	(\$129.5)
Capital RR - Solar New Arrays (w/Interconnect)	\$164.3
RR of Land for Solar	\$26.5
System VOM	(\$9.3)
FOM - Other Future Units	(\$5.0)
FOM - Solar Future Arrays	\$15.3
System Fuel	(\$260.8)
Sub Total w/o NOX or CO2 Cost	(\$198.4)
Plus Emissions Costs	
CO2 - Base	(\$10.6)
CO2 - High	(\$39.0)
CO2 - Low	\$0.0
NOX - Base	(\$0.4)
Total w/ CO2 (Base) & NOX Cost	(\$209.4)
Total w/ CO2 (High) & NOX Cost	(\$237.8)
Total w/ CO2 (Low) & NOX Cost	(\$198.8)

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Delta CPWRR Revenue Requirements - Low Fuel Sensitivity (2017 \$000)	Cost/(Savings) (\$ millions)
Capital RR - Other New Units	(\$129.5)
Capital RR - Solar New Arrays (w/Interconnect)	\$164.3
RR of Land for Solar	\$26.5
System VOM	(\$10.3)
FOM - Other Future Units	(\$5.0)
FOM - Solar Future Arrays	\$15.3
System Fuel	(\$145.7)
Sub Total w/o NOX or CO2 Cost	(\$84.4)
Plus Emissions Costs	
CO2 - Base	(\$11.9)
CO2 - High	(\$43.9)
CO2 - Low	\$0.0
NOX - Base	(\$1.0)
Total w/ CO2 (Base) & NOX Cost	(\$97.3)
Total w/ CO2 (High) & NOX Cost	(\$129.2)
Total w/ CO2 (Low) & NOX Cost	(\$85.4)

The sensitivity analyses of CO₂ emissions costs were performed by using the dollars per ton of ICF's 2017 Q3 forecast for the high, low and base sensitivities. These dollars per ton were then multiplied by the actual tons of CO₂ emitted in each run. The delta of the emissions costs from the change case to the base case equates to the estimated reduction in CO₂ emissions costs. The CO₂ emissions cost sensitivities were applied separately from the fuel sensitivities.

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- 6.** Please refer to the Direct Testimony of TECO witness Rocha, page 16, lines 14-18. If the \$155.9 million customer savings figure presented in this section of testimony includes costs related to CO₂ emission, please provide an alternative CPVRR assuming zero CO₂ costs throughout the analysis term.

- A.** On February 14, 2018, Tampa Electric filed the revised direct testimony of Rocha, Exhibit No. RJR-1, Revised Document No. 4, which includes updates for tax reform legislation passed at the end of 2017. The \$155.9 million customer savings figure shown on Document No. 4 was accordingly revised to \$148.0 million. Based on these updated figures, Revised Document No. 4 shows the differential CPVRR is favorable for customers by \$136.6 million before any value for reduced emissions is included. The estimated emissions reductions in Tampa Electric's analysis are \$10.7 million of CO₂ and \$0.7 million of NO_x forecasted (\$11.4 million after rounding). The differential CPVRR is favorable for customers by \$137.3 million without CO₂ emission reductions and including the value of reduced NO_x emissions.