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April 9, 2021

## ELECTRONIC FILING

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

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

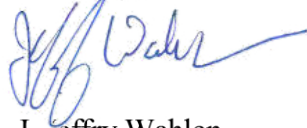
Dear Mr. Teitzman:

Attached for filing on behalf of Tampa Electric Company in the above-referenced docket is the Direct Testimony and Exhibit of Lorraine L. Cifuentes.

Thank you for your assistance in connection with this matter.

(Document 12 of 34)

Sincerely,



J. Jeffry Wahlen

JJW/ne  
Attachment

cc: Richard Gentry, Public Counsel  
Jon Moyle, FIPUG



**BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION**

**DOCKET NO. 20210034-EI  
IN RE: PETITION FOR RATE INCREASE  
BY TAMPA ELECTRIC COMPANY**

**DIRECT TESTIMONY AND EXHIBIT  
OF  
LORRAINE L. CIFUENTES**

1                                   **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2                                   **PREPARED DIRECT TESTIMONY**

3                                   **OF**

4                                   **LORRAINE L. CIFUENTES**

5  
6   **Q.**   Please state your name, business address, occupation, and  
7           employer.

8  
9   **A.**   My name is Lorraine L. Cifuentes. My business address is  
10           702 North Franklin Street, Tampa, Florida 33602. I am  
11           employed by Tampa Electric Company ("Tampa Electric" or  
12           "company") as Director, Load Research and Forecasting in  
13           the Regulatory Affairs department.

14  
15   **Q.**   Please describe your duties and responsibilities in that  
16           position.

17  
18   **A.**   My present responsibilities include the management of Tampa  
19           Electric's customer, peak demand, energy sales, and revenue  
20           forecasts, as well as management of Tampa Electric's Load  
21           Research program and other related activities.

22  
23   **Q.**   Please provide a brief outline of your educational  
24           background and business experience.

25

1     **A.**    In 1986, I received a Bachelor of Science degree in  
2            Management Information Systems from the University of South  
3            Florida. In 1992, I received a Master of Business  
4            Administration degree from the University of Tampa. In  
5            October 1987, I joined Tampa Electric as a Generation  
6            Planning Technician, and I have held various positions  
7            within the areas of Generation Planning, Load Forecasting,  
8            and Load Research. In November 2018, I was promoted to  
9            Director, Load Research and Forecasting.

10  
11            Outside of Tampa Electric, I am also actively involved in  
12            several forecasting-related organizations. I am actively  
13            involved in the Electric Utilities Forecaster Forum  
14            ("EUFF"), which is an organization made up of electric  
15            utility forecasters from across the nation that meet twice  
16            a year to discuss forecasting issues and challenges. I held  
17            the position of President of the EUFF from 2008-2014. In  
18            addition, from 2009-2014 I was the chairperson for the  
19            Florida Reliability Coordinating Council, Inc.'s ("FRCC")  
20            Load Forecast Working Group and coordinated the review of  
21            Florida utilities' load forecasting methodologies and  
22            demand and energy forecasts that support the Peninsular  
23            Florida Load and Resource Plan and reliability assessments.

24  
25     **Q.**    What are the purposes of your direct testimony?

1     **A.**    The purposes of my direct testimony are (1) to describe  
2            Tampa Electric's load forecasting process; (2) to describe  
3            the methodologies and assumptions used for the forecast;  
4            and (3) to present the load forecast used in Tampa  
5            Electric's test year budget that supports its request for  
6            a base rate increase. Additionally, I will demonstrate how  
7            the forecasts are appropriate and reasonable based on the  
8            assumptions provided.

9  
10    **Q.**    Have you prepared an exhibit to support your direct  
11            testimony?

12  
13    **A.**    Yes. I am sponsoring Exhibit No. LLC-1 consisting of 11  
14            documents, prepared under my direction and supervision.  
15            The contents of my exhibit were derived from the business  
16            records of the company and are true and correct to the best  
17            of my information and belief. My exhibit consists of the  
18            following documents:

19  
20            Document No. 1            List of Minimum Filing Requirement  
21                                        Schedules Sponsored or Co-Sponsored by  
22                                        Lorraine L. Cifuentes  
23            Document No. 2            Comparison of 2013 Forecast Versus  
24                                        Current Forecast of Customer Growth  
25                                        and Energy Sales

- 1 Document No. 3 Economic Assumptions Average Annual
- 2 Growth Rate
- 3 Document No. 4 Billing Cycle Based Degree Days
- 4 Document No. 5 Customer Forecast
- 5 Document No. 6 Per-Customer Energy Consumption
- 6 Document No. 7 Retail Energy Sales
- 7 Document No. 8 Per-Customer Peak Demand
- 8 Document No. 9 Peak Demand
- 9 Document No. 10 Firm Peak Demand
- 10 Document No. 11 Firm Peak Load Factor

11

12 **Q.** Are you sponsoring any sections of Tampa Electric's Minimum  
13 Filing Requirements ("MFR") schedules?

14

15 **A.** Yes. I sponsor or co-sponsor the MFR schedules shown in  
16 Document No. 1 of my exhibit.

17

18 **FORECAST RESULTS**

19 **Q.** Please summarize the forecast results.

20

21 **A.** In my direct testimony I present forecasts that reflect  
22 the recent growth trends in the company's service  
23 territory. The company sales trends are consistent with  
24 the sales trends of other utilities in Florida.

25

1 The company expects customer growth to increase at an  
2 average annual growth rate ("AAGR") of 1.3 percent over  
3 the next ten years (2021-2030); however, we project the  
4 average customer use to decline during that period. Since  
5 2011, per-customer consumption has declined at an AAGR of  
6 0.9 percent, and we expect it to decline at an AAGR of 0.5  
7 percent (0.4 percent excluding the volatile Phosphate  
8 sector) over the next ten years. Given the forecasts for  
9 1.3 percent customer growth and 0.5 percent average per-  
10 customer use decline, the company expects retail energy  
11 sales to increase at an AAGR of 0.8 percent during the  
12 forecast horizon.

13  
14 **Q.** Please explain the company's experience with load growth  
15 and customer growth since the last base rate proceeding was  
16 filed in 2013.

17  
18 **A.** The company's experience over the past eight years has not  
19 been very different from the projections in the company's  
20 last base rate proceeding. Customer growth on an actual  
21 basis averaged 1.7 percent versus the projection of 1.5  
22 percent. Consumption per-customer declined at the same rate  
23 that was projected in the last rate proceeding (-0.7 percent  
24 AAGR) for an overall annual average increase in energy sales  
25 of 1.0 percent versus the projection of 0.8 percent. During

1 this period, the company's annual peak demand increased  
2 from 3,892 MW to 4,255 MW, or by an average of 1.1 percent  
3 per year.

4  
5 Although actual energy sales have been in line with the  
6 projections of the last base rate proceeding on average,  
7 2020 is an exception. The unprecedented COVID-19 pandemic  
8 had a negative impact on energy sales starting in March  
9 2020 and bottoming out around May 2020. Since then, there  
10 has been some improvement, but energy sales are still not  
11 back to normal levels. We expect conditions to continue to  
12 improve but not return to a more normal level until a  
13 vaccine is widely available. I discuss the impacts of COVID-  
14 19 in greater detail later in my direct testimony.

15  
16 Document No. 2 of my exhibit shows the trends in customer  
17 growth and retail energy sales compared to the projections  
18 from the company's last base rate proceeding and for the  
19 forecasts presented in my direct testimony.

20  
21 The average annual growth rates over the forecast horizon  
22 (2021-2030) for customers and energy sales are 1.3 percent  
23 and 0.8 percent, respectively. The process Tampa Electric  
24 uses to prepare its load forecast and the steps it has  
25 taken to ensure the forecast is reasonable are discussed



1 later in my testimony.

2

3 **Q.** What were the impacts of COVID-19 on energy sales in 2020?

4

5 **A.** Between March and December, residential energy sales  
6 volumes were approximately 2.2 percent above normal as the  
7 result of COVID-19. As more household members worked and  
8 attended school from home, there was an increased demand  
9 in appliance loads. The Shelter-In-Place order issued in  
10 April 2020 by Governor DeSantis, which mandated people to  
11 stay home and non-essential businesses to close, had  
12 adverse effects on the non-residential sectors. Between  
13 March and December, Commercial, Industrial, and  
14 Governmental/Public Authorities sector energy sales  
15 volumes decreased below normal levels by an estimated six  
16 percent, four percent, and four percent, respectively. In  
17 total, the COVID-19 impact to energy sales is a decline of  
18 approximately 1.4 percent from expectations.

19

20 **TAMPA ELECTRIC'S FORECASTING PROCESS**

21 **Q.** Please describe Tampa Electric's load forecasting process.

22

23 **A.** Tampa Electric uses econometric models and Statistically  
24 Adjusted End-use Forecasting ("SAE") models, which are  
25 integrated to develop projections of customer growth,

1 energy consumption, and peak demands. The econometric  
2 models measure past relationships between economic  
3 variables, such as population, employment, and customer  
4 growth. The SAE models, which incorporate an end-use  
5 structure into an econometric model, are used for  
6 projecting average per-customer consumption. These models  
7 have consistently been used by Tampa Electric since 2003,  
8 and the modeling results have been submitted to the  
9 Commission for review and approval in past regulatory  
10 proceedings. MFR Schedule F-5, which I co-sponsor, provides  
11 a more detailed description of the forecasting process.

12  
13 **Q.** Which assumptions were used in the base case analysis of  
14 customer growth?

15  
16 **A.** The primary economic drivers for the customer forecast are  
17 Hillsborough County population estimates, Hillsborough  
18 County Commercial and Manufacturing employment, building  
19 permits, and time-trend variables. The population forecast  
20 is the starting point for developing the customer and  
21 energy projections. The population forecast is based upon  
22 the projections of the University of Florida's Bureau of  
23 Economic and Business Research ("BEBR"). We supplement  
24 these sources with Moody's Analytics projections of  
25 employment by major sectors and residential building

1 permits. These economic growth projections drive the  
2 forecasted number of customers in each sector. For example,  
3 an increase in the number of households results in a need  
4 for additional services, restaurants, and retail  
5 establishments. Additionally, projections of residential  
6 building permits are a good indicator of expected increases  
7 or decreases in local construction activity. Similarly,  
8 commercial and industrial employment growth is a good  
9 indicator of expected activity in those respective sectors.  
10 The ten-year historical and forecasted average annual  
11 growth rates for these economic indicators are shown in  
12 Document No. 3 of my exhibit.

13  
14 **Q.** Which assumptions were used in the base case analysis of  
15 energy sales growth?

16  
17 **A.** Customer growth and per-customer consumption growth are  
18 the primary drivers for growth in energy sales. We base  
19 the average per-customer consumption for each revenue class  
20 on the SAE modeling approach. The SAE models have three  
21 components. The first component includes assumptions of  
22 the long-term saturation and efficiency trends in end-use  
23 equipment. The second component captures changes in  
24 economic conditions, such as increases in real household  
25 income, changes in number of persons per household, the

1 price of electricity, and how these factors affect a  
2 residential customer's consumption level. I provide a  
3 complete list of the critical economic assumptions used in  
4 developing these forecasts in Document No. 3 of my exhibit.  
5 The third component captures the seasonality of energy  
6 consumption. Heating and cooling degree day assumptions  
7 allocate the appropriate monthly weather impacts and are  
8 based on Monte Carlo simulations for weather patterns over  
9 the past 20 years. Historical and projected heating and  
10 cooling degree days are shown in Document No. 4 of my  
11 exhibit. MFR Schedules F-7 and F-8 provide a description  
12 and the historical and projected values of each assumption  
13 used in the development of the 2022 test year retail energy  
14 sales.

15  
16 **Q.** Which assumptions were used in the base case analysis of  
17 peak demand growth?

18  
19 **A.** Peak demand growth is affected by long-term appliance  
20 trends, economic conditions, and weather conditions. The  
21 end-use and economic conditions are integrated into the  
22 peak demand model from the energy sales forecast. The  
23 weather variables are heating and cooling degree days at  
24 the time of the peak, for the 24-hour period of the peak  
25 day, and the day prior to the peak day. Weather variables

1 provide seasonality to the monthly peaks. By incorporating  
2 both temperature variables, the model accounts for cold or  
3 heat buildup that contributes to determining the peak day  
4 demand. Temperature assumptions are based on an analysis  
5 of 20 years of peak day temperatures. For the peak demand  
6 forecast, the design temperature at the time of winter and  
7 summer peaks is 31 and 92 degrees Fahrenheit, respectively.  
8

9 **Q.** Does Tampa Electric assess the reasonableness of these base  
10 case assumptions?  
11

12 **A.** Yes. We evaluate the base case economic assumptions by  
13 comparing the historical average annual growth rates to  
14 the projected average annual growth rates for the forecast  
15 period. In addition, we compare each economic data series  
16 to an alternate source and evaluate it for consistency.  
17 The alternate sources Tampa Electric uses for comparisons  
18 are the Office of Economic and Demographic Research, which  
19 is part of the Florida Legislature, the U.S. Energy  
20 Information Administration, and the University of Central  
21 Florida's Institute for Economic Forecasting. I found that  
22 the projections between the sources vary slightly, but the  
23 timing of the expected economic rebounds is consistent.  
24 Therefore, it is reasonable to conclude that the Moody's  
25 Analytics economic growth assumptions for Hillsborough

1 County are also reasonable.

2

3 **Q.** Were the forecasts for population growth also evaluated  
4 for reasonableness?

5

6 **A.** Yes. We compared county and state level projections and  
7 evaluated them for consistency. We also compared the  
8 Moody's Analytics and BEBR population forecasts and  
9 evaluated them for consistency. The BEBR 2022 population  
10 growth projections are slightly higher than Moody's. BEBR's  
11 growth rates are more aligned with Tampa Electric's recent  
12 customer growth levels.

13

14 **Q.** Please describe the historical accuracy of Tampa Electric's  
15 retail customer and energy sales forecasts.

16

17 **A.** Since the last rate proceeding in 2013, the average  
18 accuracy of the customer forecasts has been remarkable;  
19 the seven-year average accuracy is 0.1 percent below the  
20 actuals.

21

22 The average accuracy of per-customer consumption over the  
23 past seven years was 1.1 percent below the actuals,  
24 primarily due to hotter weather in recent years. However,  
25 when adjusting for weather, the average per-customer

1 consumption forecasts have been overstated by 1.0 percent  
2 on average.

3  
4 The resulting average accuracy of the retail energy sales  
5 forecasts is 1.2 percent below actual use and 0.8 percent  
6 above actual consumption when weather adjusted.

7  
8 **Q.** Have Tampa Electric's forecasting models used in developing  
9 the customer, demand, and energy forecasts been reviewed  
10 for reasonableness?

11  
12 **A.** Yes. In 2009 and 2013, Itron, Inc. ("Itron"), an industry  
13 leader that provides utility forecasting software and  
14 methodologies to more than 160 utilities and energy  
15 companies, reviewed Tampa Electric's forecasting models  
16 and assumptions. During each review, Itron concluded that  
17 the forecast models were theoretically sound with excellent  
18 model statistics and that the modeling errors were  
19 reasonable and consistent with other utilities. Since then,  
20 Tampa Electric has not made any significant changes to its  
21 forecasting models and equations.

22  
23 **TAMPA ELECTRIC'S FORECASTED GROWTH**

24 **Q.** How many customers does Tampa Electric have?

25

1 **A.** Tampa Electric's current customer count is shown in  
2 Document No. 5 of my exhibit. Tampa Electric had an average  
3 of 786,048 retail accounts in 2020.

4 **Q.** What is Tampa Electric's projected customer growth?  
5

6 **A.** Customer growth in 2020 was 1.8 percent, while projections  
7 for 2021 and 2022 are 1.7 percent and 1.6 percent,  
8 respectively. Tampa Electric projects an average annual  
9 increase of 11,013 (1.3 percent) new customers over the  
10 next ten years (2021-2030). Historical and projected  
11 customer counts are shown in Document No. 5 of my exhibit.  
12

13 **Q.** How do Tampa Electric's projected customer growth rates  
14 compare with historical growth rates?  
15

16 **A.** Historical ten-year AAGR for customers is 1.7 percent and  
17 projected customer growth rates are 1.3 percent. This  
18 projected growth rate represents customer growth of 1.7  
19 percent in 2021, slowing to 1.0 percent by 2030. BEBR's  
20 population projections drive the lower projected growth  
21 rates. The moderation of growth rates over the forecast  
22 horizon is not uncommon; it is a consistent trend seen in  
23 the company's past Ten-Year Site Plans, as well as in other  
24 Florida utilities' Ten-Year Site Plans.  
25



1 Q. Please describe Tampa Electric's energy sales forecast.

2

3 A. The primary driver of the increase in the energy sales  
4 forecast is customer growth. The impact of per-customer  
5 consumption, which is expected to decrease at an average  
6 annual rate of 0.5 percent over the next ten years  
7 (2021-2030), offsets some of the customer growth as shown  
8 in Document No. 6 of my exhibit. Combining the forecasted  
9 customer growth and per-customer consumption trends, we  
10 expect retail energy sales to increase at an average annual  
11 rate of 0.8 percent over the next ten years (2021-2030). I  
12 provide historical and forecasted energy sales in Document  
13 No. 7 of my exhibit.

14

15 Q. What are the primary drivers of the projected decline in  
16 average usage?

17

18 A. The primary drivers of declining average use are  
19 improvements in end-use efficiency resulting from  
20 appliance and equipment replacement; new end-use  
21 standards, such as the new lighting standards that are  
22 expected to have a significant impact on residential sales;  
23 economy-induced conservation; and demand-side management  
24 ("DSM") program activity.

25

1    **Q.**    How do the 2022 test year projections for retail energy  
2           sales compare to the same year projections that were  
3           prepared and filed in Tampa Electric's 2013 base rate case?

4    **A.**    The current 2022 projection for energy sales growth is 1.0  
5           percent, compared to 1.1 percent in the projection for the  
6           year 2022 that was filed in the 2013 rate case.

7

8    **Q.**    What is Tampa Electric's peak demand forecast?

9

10   **A.**    We project summer and winter peak usage per customer will  
11           decrease at an average annual rate of 0.3 percent. Document  
12           No. 8 of my exhibit shows historical and forecasted peak  
13           usage per customer for summer and winter peaks. The  
14           increase in customers and the decrease in per-customer  
15           demand results in an average annual growth rate of 1.0  
16           percent over the next ten years for both the winter and  
17           summer peaks, as shown in Document No. 9 of my exhibit.  
18           Summer and winter firm peak demands, which have been  
19           reduced by curtailable load such as load management and  
20           interruptible loads, are shown in Document No. 10 of my  
21           exhibit.

22

23   **Q.**    Are conservation and demand-side management impacts  
24           accounted for in the energy sales and peak demand  
25           forecasts?

1 **A.** Yes. Tampa Electric develops energy and demand forecasts  
2 for each conservation and DSM program. The aggregated  
3 incremental energy savings and demand impact projections  
4 are then subtracted from the forecasts.

5  
6 **Q.** Are the impacts of rooftop solar generation accounted for  
7 in the energy sales and peak demand forecasts?

8  
9 **A.** Yes. Tampa Electric energy sales and peak demand forecasts  
10 include the impacts of rooftop solar generation.

11  
12 **Q.** Are electric vehicle impacts accounted for in the energy  
13 sales and peak demand forecasts?

14  
15 **A.** Yes, we included electric vehicles in the energy sales and  
16 peak demand forecasts.

17  
18 **Q.** Does the forecast include the expected impacts of the  
19 COVID-19 pandemic? If so, what methodology was used?

20  
21 **A.** Yes, our forecast includes the impacts of the COVID-19  
22 pandemic in energy consumption per-customer. An out-of-  
23 model adjustment factor was used to capture the short-term  
24 behavioral changes that the economic data cannot fully  
25 explain, including customer-specific behavioral changes

1 such as staying at home and decisions to close or open  
2 educational institutions and non-essential businesses. We  
3 applied the adjustment factors to August 2020 through  
4 December 2021 data. By the 2022 test year, these factors  
5 are no longer included, and we capture the remaining impacts  
6 of COVID-19 in the projected economic variables just as any  
7 effects from other economic upturns or downturns would be  
8 captured.

9  
10 **Q.** Has the company performed any sensitivity analyses on its  
11 load forecast?

12  
13 **A.** Yes. We tested the base case scenario for sensitivity to  
14 varying economic conditions and customer growth rates. The  
15 high and low peak demand and energy sales scenarios  
16 represent an alternative to the company's base case  
17 outlook. The high scenario represents more optimistic  
18 economic conditions in the areas of customers, employment,  
19 and income. The low band represents less optimistic  
20 scenarios in the same areas. Compared to the base case,  
21 the expected customer and economic growth rates are 0.5  
22 percent higher in the high scenario and 0.5 percent lower  
23 in the low scenario.

24  
25 **Q.** Does Tampa Electric conclude that the forecasts of

1 customers, energy sales, and demand are appropriate and  
2 reasonable?

3

4 **A.** Yes. The customer, demand, and energy sales forecasts are  
5 based on assumptions developed by industry experts and are  
6 the most recent assumptions available at the time the  
7 forecasts were prepared. We used theoretically and  
8 statistically sound methods that were previously reviewed  
9 and accepted by the Commission to develop the forecasts.  
10 In addition, we compared the average annual growth rates  
11 for per-customer demand and energy usage for consistency  
12 with historical growth rates. We reviewed summer and winter  
13 load factors to ensure proper integration of the peak and  
14 energy models. The results show that the load factors are  
15 reasonable when compared to historical years. The load  
16 factors are shown in Document No. 11 of my exhibit. The  
17 customer, energy sales, and demand forecasts are  
18 appropriate and reasonable for planning purposes.

19

20 **BILLING DETERMINANTS**

21 **Q.** The methodology and forecasts described in your direct  
22 testimony are on a customer class basis, so how are these  
23 forecasts converted to a tariff rate schedule basis for  
24 rate design analysis?

25

1     **A.**    We convert the output of our customer class models to the  
2            tariff rate schedules by conversion models which use  
3            billing determinant distribution factors. The exception is  
4            the Interruptible Service rate schedules; since they are  
5            forecasted at the customer level there is no need to apply  
6            distribution factors.

7

8     **Q.**    Please explain the term billing determinants.

9

10    **A.**    Billing determinants are the parameters to which prices  
11            are applied to derive billed revenues. They include 1) the  
12            number of customers (*i.e.*, bills) to which the customer  
13            charges are applied, 2) the amount of energy or kilowatt-  
14            hours ("kWh") sold to which the energy charges are applied,  
15            and 3) the amount of demand or kilowatts ("kW") to which  
16            the demand charges are applied. They also include the  
17            number of units to which any additional charges, discounts,  
18            and/or penalties are applied.

19

20    **Q.**    How are billing determinant distribution factors derived?

21

22    **A.**    The first step is to calculate the historical distribution  
23            factors (e.g., the percentage of total residential class  
24            customers and energy that are in each residential rate  
25            schedule). Next, we analyze the trends in these percentages

1 for each rate schedule and base the future distribution  
2 factors on the most recent trends. Similarly, we base rate  
3 schedules that have billing demand charges on historical  
4 load factors.

5  
6 **Q.** How are these billing determinants used?

7  
8 **A.** We apply the forecasted billing determinants to current  
9 and proposed rates to calculate the base revenues from the  
10 sale of electricity for the 2022 test year. Tampa Electric  
11 witness William R. Ashburn discusses this process in his  
12 direct testimony.

13  
14 **SUMMARY**

15 **Q.** Please summarize your direct testimony.

16  
17 **A.** The population of Tampa Electric's service area will  
18 continue to grow at a steady pace over the forecast  
19 horizon. The company expects an average increase in  
20 customers of 1.3 percent a year, which is an increase of  
21 almost 112,402 by 2030. We expect per-customer demand and  
22 energy consumption to continue to decline over the next  
23 ten years. As a result, we project retail energy sales will  
24 increase at an average annual rate of 0.8 percent (0.9  
25 percent excluding the declining Phosphate sector) over the

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next ten years.

We conducted reviews of actual energy sales results versus the company's most current forecast for the period August 2020 to February 2021 and the forecast for energy sales was 0.2 percent above actual energy sales adjusted for weather. These results confirm that the company's forecast is a reliable representation of projected sales. This forecast is the same forecast used for the 2022 test year projections. We used industry "best practice" methods and appropriate and reasonable assumptions to develop our customer, energy sales, and demand forecasts, and they are reasonable for use in this proceeding.

**Q.** Does this conclude your direct testimony?

**A.** Yes, it does.



TAMPA ELECTRIC COMPANY  
DOCKET NO. 20210034-EI  
WITNESS: CIFUENTES

**EXHIBIT**

**OF**

**LORRAINE L. CIFUENTES**

**Table of Contents**

<b>DOCUMENT NO.</b>	<b>TITLE</b>	<b>PAGE</b>
1	List of Minimum Filing Requirement Schedules Sponsored or Co-Sponsored by Lorraine L. Cifuentes	25
2	Comparison of 2013 Forecast Versus Current Forecast of Customer Growth and Energy Sales	27
3	Economic Assumptions Average Annual Growth Rate	29
4	Billing Cycle Based Degree Days	30
5	Customer Forecast	31
6	Per-Customer Energy Consumption	32
7	Retail Energy Sales	33
8	Per-Customer Peak Demand	34
9	Peak Demand	35
10	Firm Peak Demand	36
11	Firm Peak Load Factor	37

LIST OF MINIMUM FILING REQUIREMENT SCHEDULES  
SPONSORED OR CO-SPONSORED BY LORRAINE L. CIFUENTES

MFR Schedule	Title
C-33	Performance Indices
C-34	Statistical Information
C-35	Payroll and Fringe Benefit Increases Compared to CPI
C-36	Non-Fuel Operation and Maintenance Expense Compared to CPI
C-40	O&M Compound Multiplier Calculation
E-11	Development of Coincident and Non-Coincident Demands for Cost Study
E-12	Adjustment To Test Year Revenue
E-15	Projected Billing Determinants - Derivation
E-16	Customers by Voltage Level
E-17	Load Research Data
E-18	Monthly Peaks
E-19a	Demand and Energy Losses
E-19b	Energy Losses
E-19c	Demand Losses
F-05	Forecasting Models
F-06	Forecasting Models-Sensitivity of Output To

TAMPA ELECTRIC COMPANY  
DOCKET NO. 20210034-EI  
EXHIBIT NO. \_\_\_\_ (LLC-1)  
WITNESS: CIFUENTES  
DOCUMENT NO. 1  
PAGE 2 OF 2  
FILED: 04/09/2021

MFR Schedule	Title
	Changes In Input Data
F-07	Forecasting Models - Historical Data
F-08	Assumptions

**Tampa Electric Company  
Customer Forecast**

	Actual		Prior Rate Case Forecast		Current Rate Case Forecast	
2002	590,199					
2003	604,901	2.5%				
2004	619,536	2.4%				
2005	635,747	2.6%				
2006	653,705	2.8%				
2007	666,354	1.9%				
2008	667,266	0.1%				
2009	666,750	-0.1%				
2010	670,991	0.6%				
2011	675,799	0.7%				
2012	684,235	1.2%	683,952	1.2%		
2013	694,734	1.5%	692,125	1.2%		
2014	706,161	1.6%	701,415	1.3%		
2015	718,713	1.8%	712,504	1.6%		
2016	730,504	1.6%	724,281	1.7%		
2017	744,690	1.9%	735,481	1.5%		
2018	756,253	1.6%	746,489	1.5%		
2019	771,960	2.1%	757,528	1.5%		
2020	786,048	1.8%	768,510	1.4%	786,048	1.8%
2021			778,819	1.3%	799,337	1.7%
2022			788,686	1.3%	812,436	1.6%
2023			798,322	1.2%	825,047	1.6%
2024			807,766	1.2%	837,099	1.5%
2003-2012		1.5%				
2013-2020		1.7%		1.5%		
2021-2024				1.3%		1.6%

**Tampa Electric Company  
Total Energy Sales (GWH)**

	Actual		Prior Rate Case Forecast		Current Rate Case Forecast	
2002	17,925					
2003	18,230	1.7%				
2004	18,437	1.1%				
2005	18,915	2.6%				
2006	19,025	0.6%				
2007	19,533	2.7%				
2008	18,990	-2.8%				
2009	18,774	-1.1%				
2010	19,213	2.3%				
2011	18,564	-3.4%				
2012	18,412	-0.8%	18,550	-0.1%		
2013	18,418	0.0%	18,202	-1.9%		
2014	18,526	0.6%	18,370	0.9%		
2015	19,006	2.6%	18,550	1.0%		
2016	19,235	1.2%	18,793	1.3%		
2017	19,187	-0.2%	19,039	1.3%		
2018	19,632	2.3%	19,287	1.3%		
2019	19,784	0.8%	19,529	1.3%		
2020	19,954	0.9%	19,749	1.1%	19,954	0.9%
2021			19,963	1.1%	19,589	-1.8%
2022			20,189	1.1%	19,781	1.0%
2023			20,413	1.1%	19,972	1.0%
2024			20,650	1.2%	20,116	0.7%
2003-2012		0.3%				
2013-2020		1.0%		0.8%		
2021-2024				1.1%		0.2%

**Economic Assumptions  
 Average Annual Growth Rates**

	Hillsborough County Population (Millions)	Residential Real Price of Electricity (\$/MWH)	Hillsborough County Real Household Income	Hillsborough County Persons Per Household	Hillsborough County Commercial Real Gross Output (Millions)	Hillsborough County Manufacturing Real Gross Output (Millions)	Hillsborough County Government Real Gross Output (Millions)	Hillsborough County Commercial Employment (Thousands)	Hillsborough County Manufacturing Employment (Thousands)	Hillsborough County Construction Permits (Number of Units)
2011	1,243	\$67.58	\$114,149	2.6	\$52,161	\$3,304	7,990	461	23.5	4,004
2012	1,260	\$64.04	\$108,999	2.6	\$54,024	\$3,296	8,025	475	24.4	5,473
2013	1,282	\$61.87	\$104,374	2.6	\$55,786	\$3,480	8,019	489	25.0	7,242
2014	1,307	\$61.80	\$106,829	2.6	\$57,456	\$3,766	7,920	505	26.1	6,795
2015	1,331	\$62.41	\$111,500	2.6	\$60,168	\$3,832	7,769	528	25.6	7,698
2016	1,358	\$61.03	\$111,362	2.6	\$63,152	\$4,112	7,860	548	26.8	9,787
2017	1,386	\$59.01	\$113,826	2.6	\$65,838	\$4,366	7,955	562	27.6	10,737
2018	1,417	\$57.75	\$116,276	2.6	\$68,478	\$4,571	8,010	577	28.1	10,422
2019	1,451	\$56.06	\$115,686	2.6	\$71,584	\$4,708	8,097	594	29.0	12,168
2020	1,480	\$54.31	\$116,132	2.6	\$66,534	\$4,527	7,967	568	29.1	12,755
2021	1,509		\$109,947							
2022	1,537		\$112,694							
2023	1,565		\$115,983							
2024	1,591		\$117,871							
2025	1,616		\$119,118							
2026	1,640		\$120,943							
2027	1,663		\$123,287							
2028	1,684		\$126,102							
2029	1,705		\$128,958							
2030	1,725		\$131,802							

**Average Annual Growth Rates**

2011-2020	2.0%	-2.4%	0.2%	0.1%	2.7%	3.6%	0.0%	2.4%	2.4%	13.7%
2021-2030	1.5%	-1.6%	2.0%	-0.6%	3.6%	1.9%	2.1%	2.2%	-0.1%	3.7%

**Tampa Electric Company  
Billing Cycle Based Degree-Days**

	<u>Heating Degree Days</u>	<u>Cooling Degree Days</u>
2000	496	3,497
2001	613	3,505
2002	545	3,775
2003	687	3,545
2004	547	3,490
2005	532	3,467
2006	499	3,513
2007	381	3,906
2008	433	3,602
2009	458	3,825
2010	1000	3,642
2011	575	3,846
2012	243	3,944
2013	408	3,780
2014	555	3,484
2015	357	4,290
2016	350	4,152
2017	177	4,349
2018	409	4,292
2019	309	4,263
2020	279	4,518
2021	461	3,835
2022	461	3,835
2023	461	3,835
2024	461	3,835
2025	461	3,835
2026	461	3,835
2027	461	3,835
2028	461	3,835
2029	461	3,835
2030	461	3,835
<b>Average Annual Degree Days</b>		
2000-2020	469	3,842
2021-2030	461	3,835



**Tampa Electric Company  
Customer Forecast**

	<u>Number of Customers</u>
2011	675,799
2012	684,235
2013	694,734
2014	706,161
2015	718,713
2016	730,504
2017	744,690
2018	756,253
2019	771,960
2020	786,048
2021	799,337
2022	812,436
2023	825,047
2024	837,099
2025	848,596
2026	859,362
2027	869,699
2028	879,663
2029	889,277
2030	898,450

**Average Annual Growth Rates**

2011-2020	1.7%
2021-2030	1.3%

**Average Absolute Growth**

2011-2020	12,250
2021-2030	11,013

**Tampa Electric Company  
Per-Customer Energy Consumption  
(kWh/Customer)**

	Total <u>Retail</u>	Total Excluding <u>Phosphate</u>
2011	27,469	26,388
2012	26,909	25,576
2013	26,510	25,222
2014	26,234	25,191
2015	26,445	25,534
2016	26,331	25,433
2017	25,764	24,766
2018	25,960	24,986
2019	25,628	24,621
2020	25,385	24,517
2021	24,507	23,682
2022	24,348	23,589
2023	24,207	23,488
2024	24,031	23,388
2025	23,887	23,253
2026	23,759	23,133
2027	23,654	23,036
2028	23,584	22,972
2029	23,531	22,926
2030	23,472	22,874

**Average Annual Growth Rates**

2011-2020	-0.9%	-0.8%
2021-2030	-0.5%	-0.4%

**Average Absolute Growth**

2011-2020	-232	-208
2021-2030	-115	-90

**Tampa Electric Company  
Retail Energy Sales  
(GWH)**

	Total Retail	Total Excluding Phosphate
2011	18,564	17,832
2012	18,412	17,499
2013	18,418	17,522
2014	18,526	17,788
2015	19,006	18,351
2016	19,235	18,579
2017	19,187	18,443
2018	19,632	18,896
2019	19,784	19,006
2020	19,954	19,271
2021	19,589	18,929
2022	19,781	19,164
2023	19,972	19,378
2024	20,116	19,578
2025	20,270	19,732
2026	20,418	19,880
2027	20,572	20,034
2028	20,746	20,208
2029	20,925	20,387
2030	21,089	20,551

**Average Annual Growth Rates**

2011-2020	0.8%	0.9%
2021-2030	0.8%	0.9%

**Average Absolute Growth**

2011-2020	154	160
2021-2030	167	180

**Tampa Electric Company  
Per-Customer Peak Demand  
(kW/Customer)**

	<u>Winter</u>	<u>Summer</u>
2011	5.93	5.82
2012	5.14	5.69
2013	4.61	5.57
2014	4.67	5.74
2015	5.02	5.58
2016	4.69	5.65
2017	4.21	5.53
2018	5.35	5.34
2019	4.24	5.57
2020	4.50	5.41
2021	5.53	5.22
2022	5.49	5.19
2023	5.48	5.17
2024	5.46	5.15
2025	5.45	5.12
2026	5.43	5.10
2027	5.42	5.09
2028	5.41	5.08
2029	5.40	5.07
2030	5.40	5.06

**Average Annual Growth Rates**

2011-2020	-3.0%	-0.8%
2021-2030	-0.3%	-0.3%

**Average Absolute Growth**

2011-2020	-0.16	-0.04
2021-2030	-0.01	-0.02

**Tampa Electric Company  
Peak Demand  
(MW)**

	<u>Winter</u>	<u>Summer</u>
2011	4010	3931
2012	3517	3892
2013	3203	3873
2014	3300	4054
2015	3609	4013
2016	3424	4131
2017	3138	4115
2018	4044	4037
2019	3272	4298
2020	3538	4255
2021	4423	4173
2022	4463	4220
2023	4521	4267
2024	4571	4307
2025	4623	4348
2026	4669	4387
2027	4714	4426
2028	4760	4467
2029	4806	4507
2030	4851	4545

**Average Annual Growth Rates**

2011-2020	-1.4%	0.9%
2021-2030	1.0%	1.0%

**Average Absolute Growth**

2011-2020	-52	36
2021-2030	48	41

**Tampa Electric Company  
Firm Peak Demand  
(MW)**

	<u>Winter</u>	<u>Summer</u>
2011	3725	3699
2012	3237	3677
2013	2918	3614
2014	3079	3757
2015	3390	3784
2016	3171	3907
2017	2905	3905
2018	3883	3798
2019	3071	4079
2020	3290	4053
2021	4211	3956
2022	4255	4007
2023	4315	4056
2024	4371	4103
2025	4422	4143
2026	4468	4182
2027	4512	4221
2028	4558	4261
2029	4603	4301
2030	4648	4339

**Average Annual Growth Rates**

2011-2020	-1.4%	1.0%
2021-2030	1.1%	1.0%

**Average Absolute Growth**

2011-2020	-48	39
2021-2030	49	43

**Tampa Electric Company  
Firm Peak Load Factor  
(%)**

	<u>Winter</u>	<u>Summer</u>
2011	56.9%	57.3%
2012	64.9%	57.2%
2013	72.1%	58.2%
2014	68.7%	56.3%
2015	64.0%	57.3%
2016	69.2%	56.2%
2017	75.4%	56.1%
2018	57.7%	59.0%
2019	73.5%	55.4%
2020	69.2%	56.2%
2021	53.1%	56.5%
2022	53.1%	56.3%
2023	52.8%	56.2%
2024	52.5%	56.0%
2025	52.3%	55.8%
2026	52.2%	55.7%
2027	52.0%	55.6%
2028	52.0%	55.6%
2029	51.9%	55.5%
2030	51.8%	55.5%

**Average Annual Growth Rates**

2011-2020	2.2%	-0.2%
2021-2030	-0.3%	-0.2%