Gulf Power

Rhonda J. Alexander
Manager
Regulatory, Forecasting & Pricing

One Energy Place
Pensacola, FL 32520-0780
850 444 6743 tel
850 444 6026 fax
rjalexad@southernco.com

September 5, 2018

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

Re: Docket No. 20180000-OT

Dear Ms. Stauffer:

Attached is Gulf Power Company's response to Staff's Second Data request concerning Gulf's 2018 Ten Year Site Plan.

Sincerely,

Rhonda J. Alexander
Regulatory, Forecasting and Pricing Manager

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Attachments

cc :   Florida Public Service Commission
            Takira Thompson, Division of Engineering
        Gulf Power Company
            Jeffrey A. Stone, Esq., General Counsel
        Beggs & Lane
            Russell Badders, Esq.

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1.   Please refer to Schedule 3.1 History and Forecast of Summer Peak Demand –
        MW Base Case, Column (2) Total, presented in Gulf Power Company's (Gulf or
        Company) 2017 TYSP, page 31, and 2018 TYSPs, page 32, respectively.
        Please explain why each of the forecasted total summer peak demand levels
        presented in 2018 TYSP is lower than what had been forecasted in Gulf's 2017
        TYSP (e.g., 2,887 MW vs. 2,958 MW for 2018), given that actual level of the
        peak demand does not show a significant decrease (e.g., 2017 actual 2,319 MW
        vs. 2017 TYSP forecasted 2,932 MW).

RESPONSE:

The actual 2017 total summer peak demand, as reported in Schedule 3.1 of Gulf's 2018
TYSP is not adjusted for weather, whereas the forecasted total summer peak demand
in Schedule 3.1 of Gulf's 2017 TYSP assumes normal weather. Therefore, a
comparison of the 2017 actual summer peak demand against the forecasted summer
peak demand is not a meaningful indicator of changes in forecasted peak demand
growth trends. The forecasted summer peak demand forecasts in Gulf's 2018 TYSP
are lower than those in Gulf's 2017 TYSP due to lower projected energy sales to
residential, commercial, and industrial customers.

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2.   With respect to the forecasting methodology, procedures, and models developed associated with Winter and Summer Peak Demand, please specify all the differences/ modifications/ improvements, if any, between what used in Gulf's 2018 Ten Year Site Plan (TYSP) and Gulf's 2017 TYSP.

RESPONSE:

The peak demand forecast used in Gulf's 2018 Ten Year Site Plan incorporated routine updates to include more recent historical data and to incorporate updated energy projections. No other changes were made to the methodology, procedures, or models.

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3.   For its 2018 TYSP, please identify and explain the measures and/or criteria, if any, Gulf used to ensure the models of peak demand adequately explain historical volatility and to enhance the forecasting accuracy.

RESPONSE:

Gulf does not have measures to address specifically the historical volatility or forecast accuracy of the peak demand forecasts. However, to enhance the accuracy of the peak demand forecast, Gulf incorporates more recent historical load shapes into its peak demand models. Additionally, the measures routinely employed by Gulf to improve the energy forecasts would result in improvements to the peak demand forecasts because the energy forecasts are a key driver of the peak demand forecasts.

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4.   Please identify and explain the new measures, if any, Gulf used to address the uncertainty inherent in the process of peak demand forecasting for its 2018 TYSP.

RESPONSE:

Gulf did not implement any new measures to address specifically the uncertainty in the peak demand forecast. However, Gulf has and continues to employ routine measures to enhance the accuracy of its peak demand forecasts, such as incorporating more recent historical loadshapes into its peak demand models and continually improving the energy forecasts, which are key drivers of its peak demand forecasts.

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5.   Please provide the Historical Forecast Accuracy associated with Gulf's Winter Peak Demand for the period 12-13 through 16-17 and Summer Peak Demand for 2013-2017.

RESPONSE:

Please note that the actual peak demands are not adjusted for weather, whereas the forecasted peaks assume normal weather.
Positive forecast to actual percentages indicate forecast was higher than actual.

Forecast Actual	Winter Peak Demand Forecast Error Rate (%)					Average
	Forecasting Period Prior					
	5	4	3	2	1	
	2008 TYSP	2009 TYSP	2010 TYSP	2011 TYSP	2012 TYSP	–
12-13	46%	48%	31%	36%	34%	39%
	2009 TYSP	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	–
13-14	-1%	-15%	-9%	-11%	-14%	-10%
	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	2014 TYSP	–
14-15	-6%	-2%	-2%	-8%	-8%	-5%
	2011 TYSP	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	–
15-16	20%	20%	15%	14%	3%	14%
	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	2016 TYSP	–
16-17	12%	7%	6%	-3%	-3%	4%

Forecast Actual	Summer Peak Demand Forecast Error Rate (%)					Average
	Forecasting Period Prior					
	5	4	3	2	1	
	2008 TYSP	2009 TYSP	2010 TYSP	2011 TYSP	2012 TYSP	–
2013	19%	21%	9%	13%	11%	15%
	2009 TYSP	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	–
2014	20%	5%	11%	9%	3%	10%
	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	2014 TYSP	–
2015	5%	9%	8%	2%	0%	5%
	2011 TYSP	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	–
2016	9%	8%	3%	1%	-1%	4%
	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	2016 TYSP	–
2017	13%	7%	5%	3%	2%	6%

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Fuel Forecast

6.   Please refer to Gulf's 2018-2027 Ten Year Site Plan (2018 TYSP). Did Gulf
        develop high and low case scenarios of forecasted fuel prices as part of its 2018
        TYSP filing? If so, please explain the methodology used and detail any analysis
        results.

RESPONSE:

No.

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Customer Forecasts

7.   Please refer to Gulf's responses to Staff's 2018 TYSP First Supplemental Data Request, No. 6, and Gulf's 2018 TYSP, pages 15, and pages 29-31. Please explain, with specificity, how Gulf forecasts its expected population and number of customers for 2018-2027.

RESPONSE:

Population Forecast
For Gulf's 2018 TYSP, the forecast of population in Gulf's service area is the population forecast for the Pensacola, Crestview-Fort Walton, and Panama City Metropolitan Statistical Areas (MSAs) from Moody's Analytics (Moody's).

Residential Customer Forecast
For Gulf's 2018 TYSP, the forecast of residential non-lighting customers for year 2018 was provided by Gulf's field marketing managers who rely on direct communications with community, business, and other local organizations to gain insights into the various factors affecting customer growth.

The forecast of residential non-lighting customers for year 2019 was provided by Gulf's field marketing managers who received a draft projection of residential customer growth based on the household growth forecast from Gulf's forecasting team and then modified the draft projections based on their knowledge of the local economy, real estate markets, and other factors affecting customer growth.

The forecast of residential non-lighting customers for years 2020 to 2027 was developed by Gulf's forecasting team using the household growth forecast from Moody's.

The forecast of residential lighting customers for years 2018 to 2027 was provided by Gulf's lighting business team who relies on knowledge of the various factors affecting lighting customer growth.

Commercial Customer Forecast
The forecast of commercial non-lighting customers for year 2018 was provided by Gulf's field marketing managers who rely on direct communications with community, business, and other local organizations to gain insights into the various factors affecting customer growth.

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The forecast of commercial non-lighting customers for years 2019 to 2027 was developed by Gulf's forecasting team using the residential customer growth rate.

The forecast of commercial lighting customers for years 2018 to 2027 was provided by Gulf's lighting business team who relies on knowledge of the various factors affecting lighting customer growth.

Industrial Customer Forecast
The forecast of industrial non-lighting customers for years 2018 to 2027 was developed by Gulf's field marketing managers who rely on direct communications with community, business, and other local organizations along with Gulf's major accounts group to identify known industrial customer changes.

Other Customer Forecast
The forecast of other customers shown in Gulf's 2018 TYSP, page 31, is the number of street & highway lighting class customers plus wholesale customers. The forecast of street & highway lighting customers was provided by Gulf's lighting business team who relies on knowledge of the various factors affecting lighting customer growth.

The forecast of wholesale customers was developed by Gulf's forecasting team based on the expected number of wholesale customers.

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8.   Did Gulf perform high and low forecasts (or sensitivity analyses) of its expected number of customers? If so, please explain the methodology used and detail any analysis results.

RESPONSE:

No.

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Load Forecast

9.   Please refer to Gulf's 2018 TYSP, page 30. The industrial class "Average No. of Customers" for the years 2018-2027 appears to be held constant at 255. Please explain how the Company forecasts its expected number of industrial customers and why there is no change in the total number of industrial customers assumed over the 10-year period.

RESPONSE:

Gulf's industrial customer forecast only reflects known customer changes and there are no known customer changes for the 10-year period shown in Gulf's 2018 TYSP.

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10. On page 12, Gulf's 2018 TYSP states that there is "potential for inflation to accelerate due to tightening in the labor markets." Please describe the impact, if any, that potential inflation acceleration in the national economy on Gulf's load forecasts in the 2018 TYSP.

RESPONSE:

On page 12, Gulf's 2018 TYSP states, "The May 2017 economic projection assumed the Federal Reserve would continue the gradual normalization of monetary policy. U.S. real gross domestic product (GDP) was expected to grow 2.2% in 2017 and 2.6% in 2018. The U.S. economy was projected to reach full employment by the end of 2017 with the potential for inflation to accelerate due to tightening in the labor markets." This statement regarding the assumptions underlying Moody's May 2017 economic projection was intended to provide additional information regarding the broader macroeconomic factors assumed in that forecast. Gulf's 2018 TYSP load forecast did not incorporate a direct impact on Gulf's energy sales due to potential inflation acceleration in the national economy.

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11.   On page 16, Gulf's 2018 TYSP states that residential energy sales forecasts ("monthly use per customer billing day") were based on historical data, normal weather, national energy efficiency standards, and price of electricity. In Gulf's 2017 TYSP, all these variables plus real disposable income per household were included in this forecast. If real disposable income per household was not included in Gulf's 2018 residential energy sales forecast, please provide the rationale for why it is no longer used for that purpose.

RESPONSE:

Real disposable income per household was not included in Gulf's 2018 residential regression model because real disposable income per household was no longer a statistically significant driver of residential usage, as indicated by a p-value of 30%. The p-value indicates the statistical significance of that variable and p-values range from 0 to 100 percent, with low p-values indicating statistical significance. The p-value of 30% indicates real disposable income per household is not a statistically significant driver of residential usage and, therefore, was not included in the residential model.

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12.   On page 16, Gulf's 2018 TYSP states that residential energy sales forecasts
        ("monthly use per customer billing day") were based on historical data, normal
        weather, national energy efficiency standards, and price of electricity. In Gulf's
        2017 TYSP, all these variables plus real disposable income per household were
        included in this forecast. Gulf acknowledges in the response to question 6 of
        Staff's First Data Request that, relative to the 2017 models, the 2018 residential
        short-term energy sales forecasts benefit from "shortening the historical period to
        12 years from 20 years, removing the real disposable income per household
        variable, and adjusting certain binary variables" which improved the model fit "as
        measured by adjusted R-squared and Mean Absolute Percent Error (MAPE)."
        Please identify the specific differences between the 2017 and 2018 new model fit
        statistics listed. Additionally, please provide a rationale for excluding a proxy for
        consumer income from Gulf's short-term energy sales model, and explain how
        variations in consumer income is otherwise taken into account in the 2018
        models.

RESPONSE:

Gulf's 2018 residential regression model had an adjusted R-squared of 0.990 and Mean
Absolute Percent Error (MAPE) of 1.75%, while the corresponding statistics in Gulf's
2017 residential regression model were 0.987 and 1.91%. Adjusted R-squared values
range from 0 to 1 and improved model fit is indicated by a higher adjusted R-squared
value. MAPE values range from 0 percent to no upper limit and improved model fit is
indicated by a lower MAPE. These excellent model statistics indicate Gulf's residential
regression model reliably captures changes in residential customer usage.

Gulf's 2018 residential regression model does not directly take into account variations in
consumer income because changes in residential usage are explained by the variables
included in the residential regression model, as indicated by the adjusted R-squared
and MAPE.

A proxy for consumer income would be expected to have historical trends similar to
those for consumer income. As discussed in the response to Item No. 11, the
consumer income variable, real disposable income per household, was removed from
the residential regression model because it was no longer a statistically significant driver
of residential energy sales. Because consumer income is no longer a statistically
significant driver of residential energy sales, a proxy for consumer income would likely
not be a statistically significant driver of residential energy sales.

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13.   On page 17, Gulf's 2018 TYSP states that commercial energy sales forecast estimates are "based upon historical data, normal weather, changes in average lighting efficiencies, and price of electricity." In the 2017 TYSP, these variables were all included, except these models included "MSA-level GDP per capita" instead of "changes in average lighting efficiencies." Although Gulf acknowledges in their response to question 6 of Staff's First Data Request that, relative to the 2017 forecast models, the 2018 commercial small and large short-term commercial energy sales models "removed the real GDP per capita variable" and "add[ed] an energy efficiency variable based on changes in lighting technology," please provide an explanation for how Gulf's commercial energy sales forecasts are able to take into account variation in customer income when forecasting commercial energy sales.

RESPONSE:

Gulf's commercial regression models do not directly take into account variations in customer income because changes in commercial usage are explained by the variables included in the commercial regression models, as indicated by the adjusted R-squared and MAPE. The large commercial model had an adjusted R-squared of 0.984 and MAPE of 1.39% while the small commercial model had an adjusted R-squared of 0.979 and MAPE of 2.09%. These excellent model statistics indicate Gulf's commercial regression models reliably capture changes in commercial customer usage.

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14.   On page 19, Gulf's 2018 TYSP states that wholesale energy forecasts are based
        upon historical data, normal weather, national energy efficiency standards, and
        county-level population. In the 2017 TYSP, these variables were all included,
        except "MSA-level GDP" was included instead of "national energy efficiency
        standards" and "county-level population." Please provide a qualitative
        explanation for why including energy efficiency standards improves the reliability
        of Gulf's wholesale energy forecasts.

RESPONSE:

A model with improved model statistics, such as adjusted R-squared and MAPE, is
expected to provide more reliable forecasts. Gulf's 2018 wholesale regression model
had an adjusted R-squared of 0.959 and MAPE of 2.30%, while the corresponding
statistics in Gulf's 2017 wholesale regression model were 0.953 and 2.62%. The
inclusion of energy efficiency standards, along with the other model refinements, results
in improved model statistics which are expected to provide more reliable forecasts of
Gulf's wholesale energy sales.

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15. Please provide a comparison of Gulf's 2017 and 2018 TYSPs, identifying any notable differences.

RESPONSE:

The residential energy sales forecast used in Gulf's 2018 TYSP incorporated routine updates to include more recent historical data and updated economic projections. As described in Gulf's response to Staff's First Data Request, Item No. 6, additional refinements were made to the residential regression model specifications and weather variables. No other changes were made to the methodology or data sources.

The commercial energy sales forecasts used in Gulf's 2018 TYSP incorporated routine updates to include more recent historical data and updated economic projections. As described in Gulf's response to Staff's First Data Request, Item No. 6, additional refinements were made to specifications of both commercial regression models and their respective weather variables. No other changes were made to the methodology or data sources.

The industrial energy sales forecasts used in Gulf's 2018 TYSP incorporated routine updates to include more recent projections of expected load changes from Gulf's industrial account representatives. No other changes were made to the methodology or data sources.

The street & highway lighting energy sales forecasts used in Gulf's 2018 TYSP incorporated routine updates to include more recent projections of expected load changes from Gulf's lighting business manager. No other changes were made to the methodology or data sources.

The territorial wholesale energy sales forecast used in Gulf's 2018 TYSP incorporated routine updates to include more recent historical data and updated economic projections. As described in Gulf's response to Staff's First Data Request, Item No. 6, additional refinements were made to the wholesale regression model specifications. No other changes were made to the methodology or data sources.

The peak demand forecast used in Gulf's 2018 TYSP incorporated routine updates to include more recent historical data and updated energy projections. No other changes were made to the methodology or data sources.

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16.   Has Gulf taken solar capacity degradation into account in its planning process? If so, please explain how degraded capacity values are calculated, what assumptions are required for calculating degraded capacity values, if solar degradation is taken into account in Gulf's cost-effectiveness evaluations, and what causes solar capacity degradation. If not, why not?

RESPONSE:

Yes, Gulf Power has taken solar capacity degradation into account in its planning process. The Company assumes a 0.5% reduction in DC capacity annually.