



October 1, 2018

Carlotta Stauffer
Florida Public Service Commission
Office of Commission Clerk
2540 Shumard Oak Blvd
Tallahassee, Florida 32399-0850

Subject: Orlando Utilities Commission Response to Review of the 2018 Ten-Year Site Plans for Florida's Electric Utilities Supplemental Data Request #4

Dear Ms. Stauffer,

Attached please find the Orlando Utilities Commission (OUC) response to the subject data request.

If you have any questions about this response, please do not hesitate to contact me.

Respectfully submitted,

/s/ 

Bradley Kushner
Executive Consultant
nFront Consulting LLC
BradKushner@nFrontConsulting.com
(816) 547-1637

1. 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 OUC's 2017 and 2018 Ten-Year Site Plans (TYSP).

OUC Response:

The forecast methodology has not changed. Peaks are derived using a linear regression model that relates demand to underlying customer end-use sales. End-use sales calculated from customer class sales forecast models are combined with peak producing weather conditions to construct peak model variables. The peak model is based on historical monthly peak demands. Separate models are estimated for OUC and St. Cloud. The system peak (OUC and St Cloud) is determined by integrating their individual demands into hourly load forecasts and aggregating the hourly load forecasts. The combined peak is determined by finding the maximum annual and monthly peaks. Economic and demographic data supplied by IHS Global Insights is used in the 2018 sales models and where appropriate, county level data is used. Data supplied by Moody's Economy.Com for the Orlando Metropolitan Area was used in the 2017 TYSP forecast. The 2018 forecast is based on end-use intensities from the Energy Information Administration (EIA) 2017 Annual Energy Outlook. The 2017 forecast incorporated 2016 EIA end-use intensity forecasts. Sales, customers, system hourly loads, and weather data are updated through 2017. Normal monthly and peak-day HDD and CDD are updated to reflect weather through the end of 2017.

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

OUC Response:

Monthly peak forecast models are estimated using MetrixND – Itron's modeling and forecasting application. Model variables include baseload, heating and cooling variables; heating and cooling variables are derived by interacting peak-day weather conditions with cooling and heat requirements. Baseload, heating, and cooling load requirements are derived from the customer class sales forecast models. Models explain historical peak demand growth and variation well as measured by in-sample model statistics. For OUC, model Adjusted R-Squared is 0.93 with a Mean Absolute Percent Error (MAPE) of 2.6%. The St. Cloud model fit is not quite as strong with an Adjusted R-Squared of 0.87 and MAPE of 4.9%. The estimated coefficients for the primary model variables are highly significant for both models with T Statistics varying from a low of 11.1 to a high of 87.5.

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

OUC Response:

No new measures have been identified relating to uncertainty in the peak process.

4. Please provide the Historical Forecast Accuracy associated with OUC’s Winter Peak Demand for the period 2012/13 through 2016/17 and Summer Peak Demand for the period 2013 through 2017.

OUC Response:

The tables below have been constructed using the data from the TYSP schedules 3.1 and 3.2. The % variance is increased because the jurisdiction peaks are not coincident. The actual peaks are under ambient conditions at the time the peak was recorded. Additionally, some firm wholesale customers are winter peaking while the OUC native load is summer peaking.

Table 1. Accuracy of OUC’s Winter Peak Demand Forecasts

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	–
2012/13	21.8%	11.8%	12.6%	23.9%	19.1%	17.8%
	2009 TYSP	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	–
2013/14	6.6%	6.6%	21.7%	12.6%	3.1%	10.1%
	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	2014 TYSP	–
2014/15	1.2%	11.8%	7.3%	-3.0%	-0.2%	3.4%
	2011 TYSP	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	–
2015/16	19.1%	14.6%	2.7%	6.7%	6.0%	9.8%
	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	2016 TYSP	–
2016/17	29.7%	9.6%	20.2%	20.2%	20.9%	20.1%

Table 2. Accuracy of OUC’s Summer Peak Demand Forecasts

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	2.7%	-1.0%	-0.1%	6.7%	3.0%	2.2%
	2009 TYSP	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	–
2014	-4.2%	-3.7%	2.7%	-0.4%	-9.8%	-3.1%
	2010 TYSP	2011 TYSP	2012 TYSP	2013TYSP	2014 TYSP	–
2015	-3.4%	2.9%	0.1%	-10.3%	-3.0%	-2.8%
	2011 TYSP	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	–
2016	-0.6%	-3.0%	-13.8%	-6.4%	-7.1%	6.2%
	2012 TYSP	2013 TYSP	2014 TYSP	2015 TYSP	2016 TYSP	–
2017	-2.1%	-17.9%	-5.7%	-6.6%	-2.0%	-6.8%