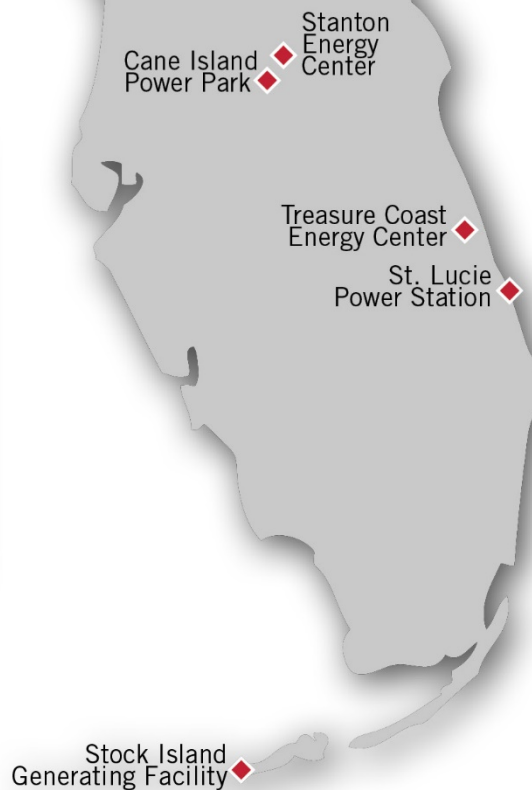


3 Phase Times

Inside this Report

- Monthly Electric Load
- Fuel Usage and Pricing
- Fleet Performance
- Future Projections



FMPA Power Resources
Operations Performance Report
July 2019



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About this Report

This monthly report provides information about the All-Requirements Project's (ARP) system peak, hourly loads, resource fuel mix, natural gas usage, natural gas pricing and more performance information. For analysis purposes, results are a comparison of the actual and the budgeted data.

Questions about this report may be directed to FMPA's System Operations Manager, Joe McKinney at joe.mckinney@fmpa.com or 407-355-7767.

EXECUTIVE SUMMARY

Load		Natural Gas	Fleet Performance (Base Load)	
ARP Peak MW	Load Factor	Average Daily Price per MMBtu	EAF	NCF
1,262	68%	\$2.27	100%	79%

*Does not include fixed costs included in FMPPA's ARP demand rate.

July Highlights

- ARP delivered Net Energy for Load was 618 GWhs, which was 1.5% above the forecast due to warmer weather. Average temperatures were above normal in Orlando and across most of Florida.
- The average ARP natural gas price was \$2.27 per MMBtu, which was \$0.35 (13.4%) below the budget price.
- The ARP's generation mix to supply ARP load and all sales was 75.5% natural gas, 16.5% coal, 5% nuclear¹ and 3% FMPP purchases. Natural gas-fired generation (MWhs) produced 3% more output than budgeted, due to the TECO sale, and pool sales.
- The ARP sold 6% of its generation to the FMPP whereas the budget forecast 10%. This was due to 3rd party sales.
- The ARP's base load units FYTD EAF is 94.3%. Stanton A was offline for 3 days to repair a steam leak. Stanton 1 was de-rated slightly due to deaerator level control valve issues. Stock Island CT4 had an outage for relay adjustments.
- The ARP supplied 2,189 MWhs to Bartow, 7,440 MWhs to Winter Park, 29,760 MWhs to TECO and 39,432 MWhs to Reedy Creek. The non-coincident Peak (NCP) supply for Bartow was 19 MWs.

¹Nuclear is an Excluded Resource; therefore, from an operations perspective in meeting the ARP total load, a portion of the energy to serve load was from nuclear. However, from a rates perspective, there is no nuclear rate determinant in the ARP.

ELECTRIC LOAD

The average temperatures in July were above normal in Orlando and across most of the state. ARP delivered Net Energy for Load was approximately 1.5% above the forecast due to the warmer temperatures.

The All-Requirements Project (ARP) peak load was 1,262 MW, which was 5% above the budget forecast. The ARP coincident peak occurred on July 2nd.

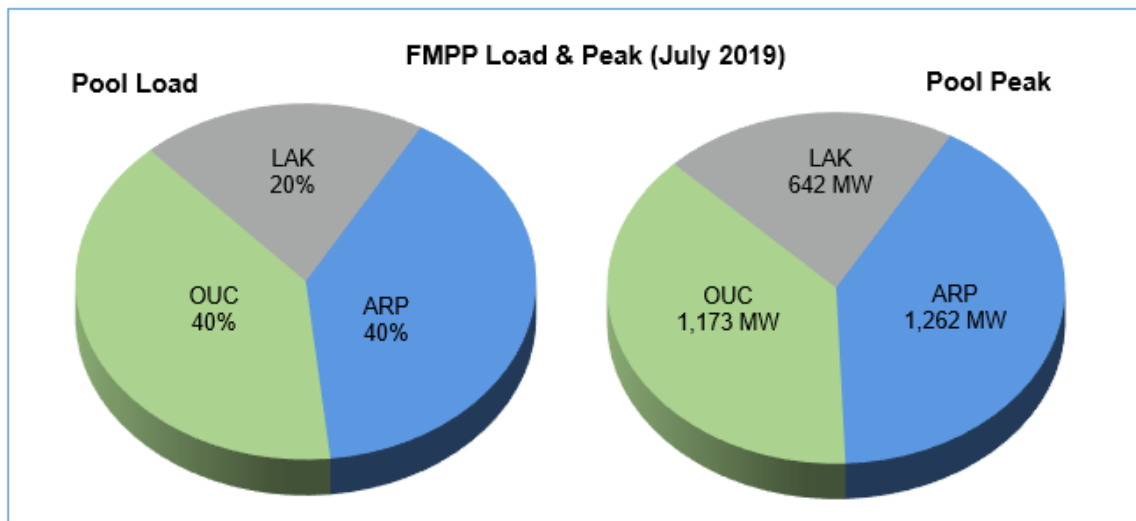
Table 1: ARP Actual and Budget Load

	Budget	Actual	Actual
	Jul-19	Jul-19	Jul-18
ARP Load (GWhs)	608	617	585
ARP Peak (MW)	1,203	1,262	1,148
Load Factor	68%	66%	68%

Florida Municipal Power Pool Load

The chart below shows the ARP Net Energy for Load (NEL) and peak hourly load in relation to other FMPP member loads and peaks.

Chart 1: FMPP Member Loads and Peaks



Note: Network transmission losses are not included in the Pool load.

NATURAL GAS

Natural Gas Market Pricing

The average natural gas price for the FMPP dispatch was \$2.60 /MMBtu in July, which represents the market price for delivered gas (Table 2). The actual average natural gas price for the ARP was \$2.27 /MMBtu, which was \$0.35 or 13.4% below budget (Table 3). Natural gas burn/usage was 4.5% more than budgeted due to higher loads and increased sales.

Table 2: Monthly Average Platt's Gas Daily Index Prices

	Henry Hub	FGT Zone 3	FMPP Dispatch
Natural Gas Market Prices	\$2.30	\$2.34	\$2.60

Natural Gas Usage and Prices

Natural gas usage is the gas burned at Treasure Coast, Cane Island Units 1 – 4, Oleander 5 and FMPP's share of the Indian River CTs. The natural gas is delivered by FGU and reported by FGU.

Table 3: Natural Gas Price and Usage in July

	Budget July 2019	Actual July 2019	Actual July 2018
Natural Gas Cost (\$/MMBTU)	\$2.62	\$2.27	\$2.99
Natural Gas usage (MMBTU)	3,698,146	3,866,145	3,623,053

Natural Gas production average

The following chart shows natural gas production in the U.S. over the past several years through July 2019. The total US natural gas production has increased significantly since the middle of 2017, with some levelling off over the past few months. This has been offsetting below average gas storage levels and had helped stabilize pricing. Based on the current forward NYMEX curve, prices are expected to remain below \$2.50/MMBtu through the summer and top out at \$2.90/MMBtu during the coming winter 2019/20 due to impending LNG exports. FGU is projecting monthly average delivered Natural Gas pricing of around \$2.45 /MMBtu for the next three months.

Chart 2: Natural Gas Production Average



Source: U.S. Energy Information Administration (EIA)

Natural Gas Pipeline Alerts

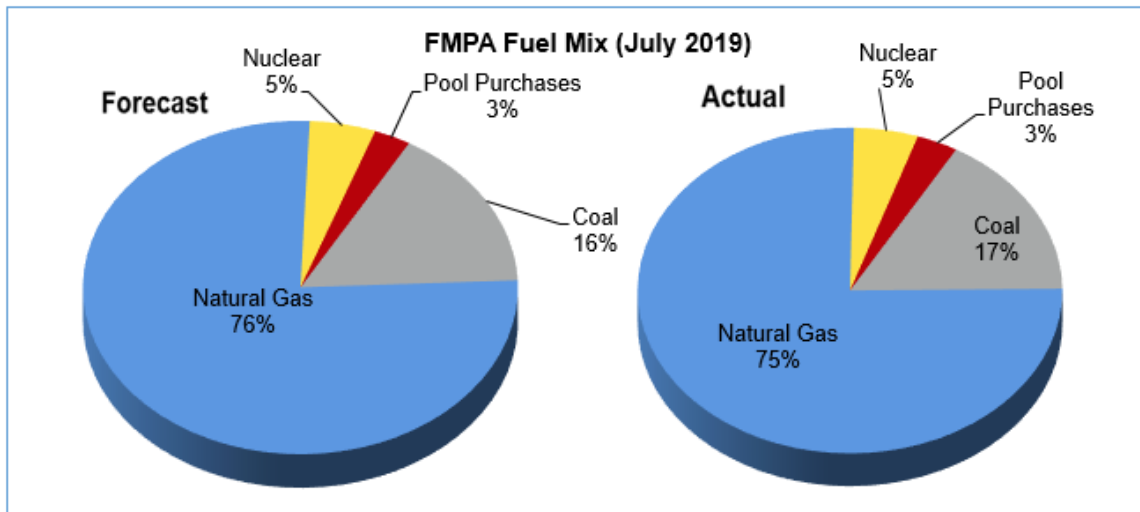
There were three alerts on the Florida Gas Transmission (FGT) pipeline in July. There were none on the Gulfstream pipeline. This means there were some restrictions or constraints on the flow of natural gas to generation facilities. Pipeline alerts typically result from high gas demand caused by hot or cold weather in Florida and usually coincide with higher gas prices.

FLEET DISPATCH AND POOL OPERATIONS

Fuel Mix

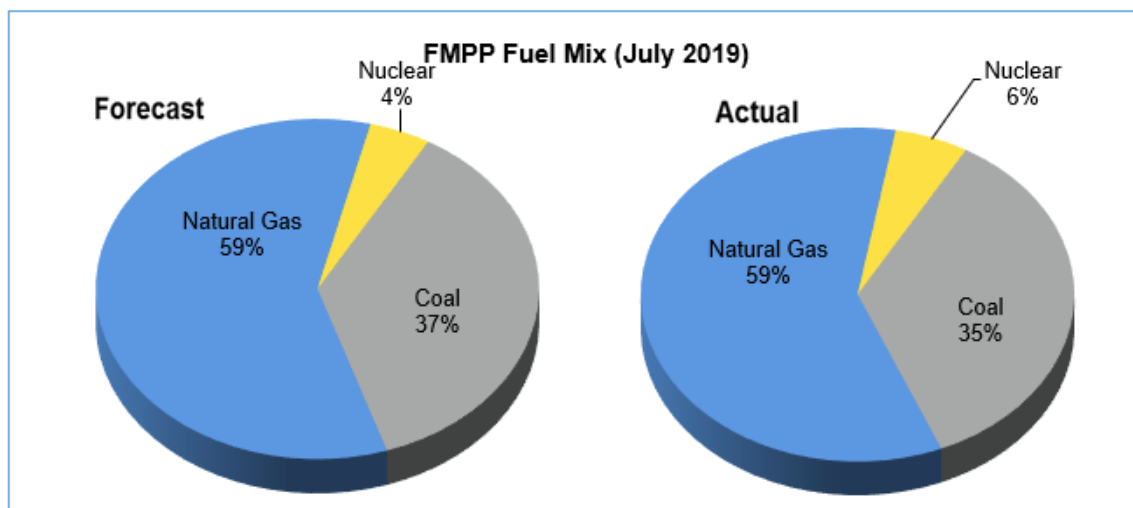
The ARP's natural gas-fired generation (MWhs) was 3.3% more than budgeted due to warmer weather and increased external sales. The budget forecast sales of 10% of the ARP's generation to the FMPP; the actual sales were 6%. The Pool generated 3% more from coal-fired units than budgeted.

Chart 3: FMPP Fuel Mix and Purchases for July 2019



NOTE: FMPP's fuel mix represents ARP generation and purchases to serve native load, losses, obligations and sales to the FMPP. Forecasted pool purchases are based on the 4-month forecast prepared by FMPP.

Chart 4: FMPP Fuel Mix for July 2019 (excludes purchases)



POWER GENERATION FLEET PERFORMANCE

FMPA Fleet Performance

Stanton A had a three day maintenance outage to repair a steam leak. Stanton 1 had deaerator level control valve issues causing a slight de-rate. Stock Island CT4 had a planned outage for relay adjustments.

Table 4. FMPA ARP Generating Fleet Performance – July 2019

Unit	Capacity* (MW)	Heat Rate (Btu/kWh)	Equivalent Availability Factor	Capacity Factor	Notes
Treasure Coast	300	7,317	100.0%	77.5%	
Cane Island Unit 4	300	7,454	100.0%	78.2%	
Cane Island Unit 3	240	7,280	100.0%	80.9%	
Cane Island Unit 2	109	8,188	100.0%	39.3%	
Stanton A	122	7,355	93.0%	56.1%	Outage
Stanton 1	112	10,578	97.6%	74.0%	De-rate
Stanton 2	102	9,514	100.0%	80.0%	
St. Lucie	48	10,250	100.0%	101.5%	
Peaking Units**	386	11,100	99.9%	0.0%	Outage

*Capacity is Net Summer Capacity from the FMPA 10 Year Site Plan. **Peaking Units include Cane 1, FMPA's share of Indian River CTs, Keys generation and Oleander 5.

Chart 5: Equivalent Availability Factor – FY 2019 YTD

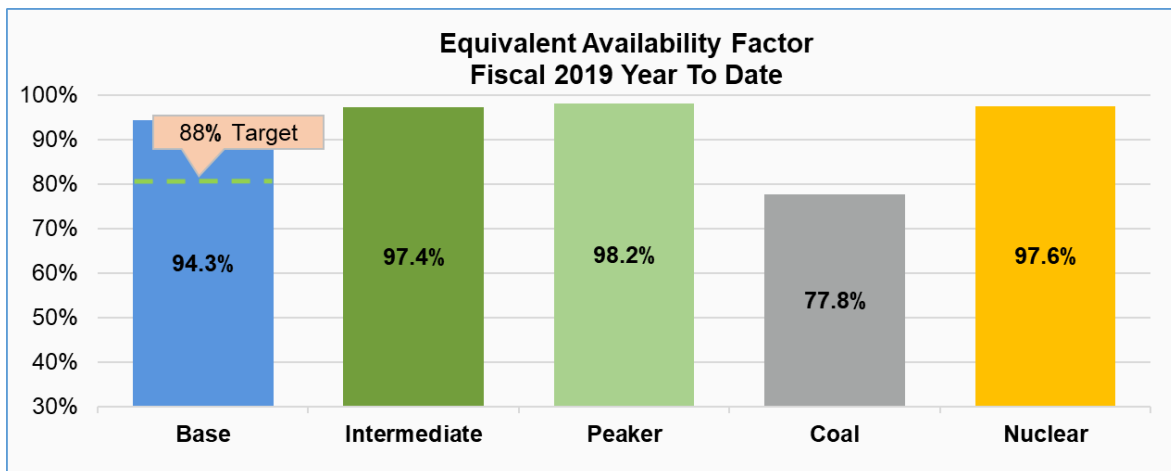
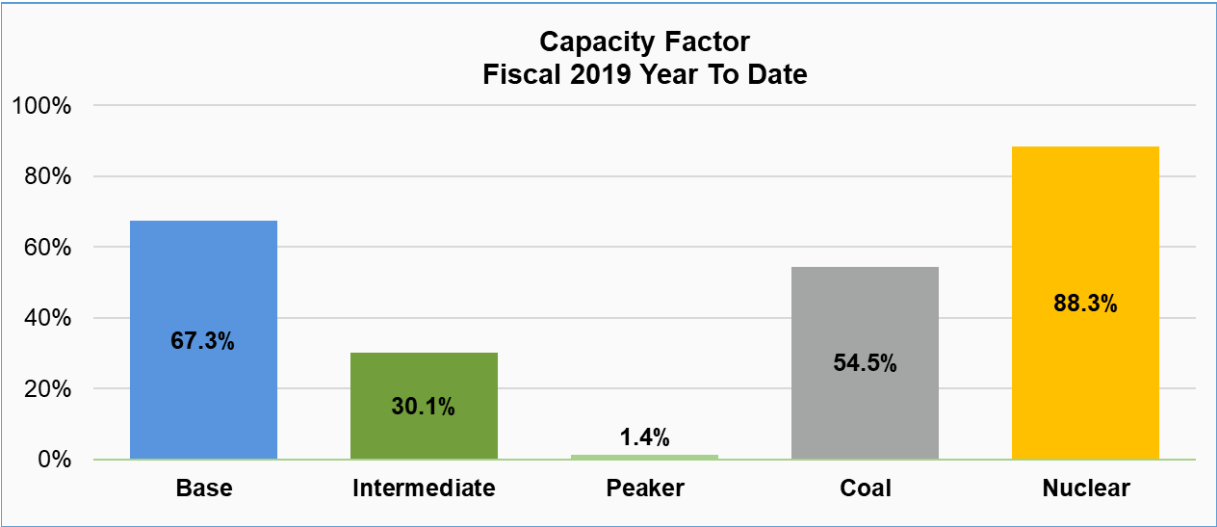


Chart 6: Capacity Factor – FY 2019 YTD



MONTHLY WEATHER

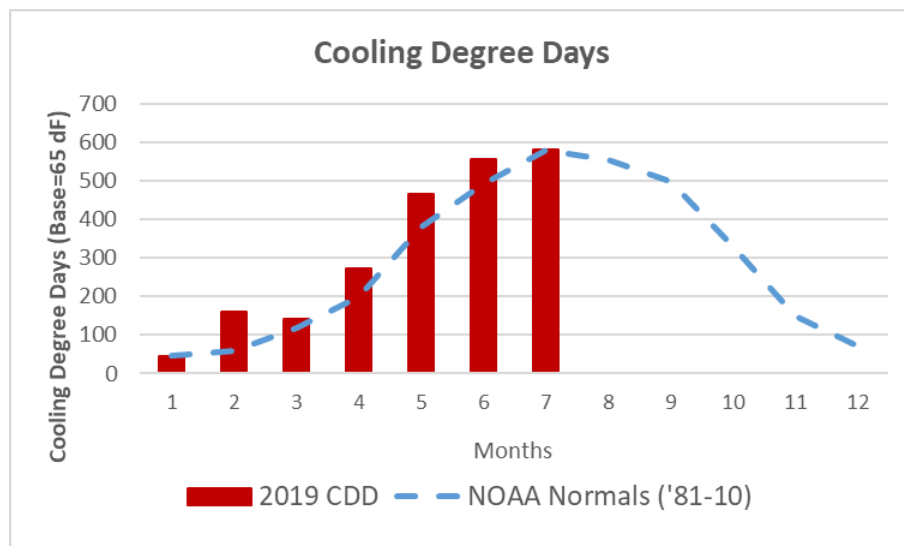
The average temperatures in July were above normal in Orlando (Table 5). Rainfall across most of the state was mixed. It was below normal in the Orlando area. The cooling degree days were about normal in Orlando (Chart 7).

Table 5: Temperatures in Central Florida

Month	Average Temperature	Avg. High	Avg. Low
June-19	83.2	92.5	73.9
June-18	81.8	91	72.6
Historical Average*	81.4	90.7	72

*Historical Average (30 years) Normal data from the National Oceanic and Atmospheric Administration (NOAA) monthly climate report for Orlando.

Chart 7: Cooling Degree Days in the Orlando Area (MCO)



Source: National Weather Service (NWS)

PROJECTIONS FOR NEXT TWO MONTHS

Weather Forecast

Temperatures in Florida are expected to be above normal in August and September. ARP natural gas usage is expected to be higher than the annual ARP budget projections due to off system sales.

Probability of Deviation from normal scale (%)

Chart 8: Weather Forecast –August 2019

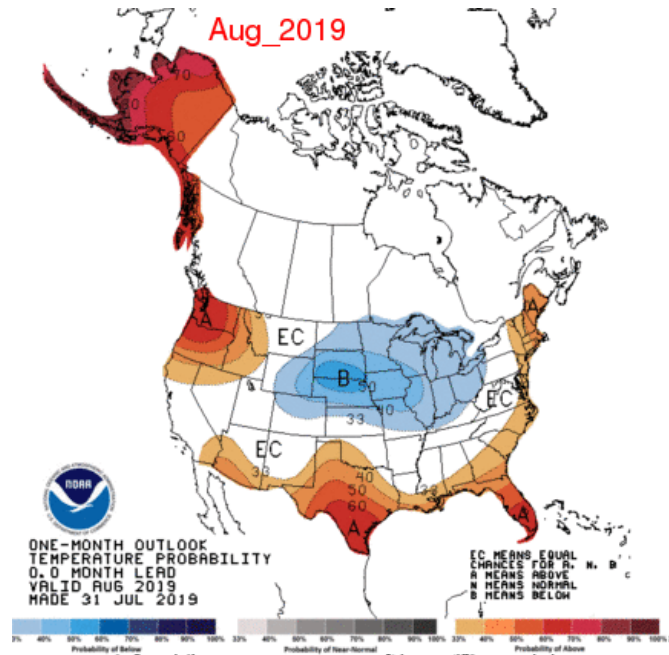
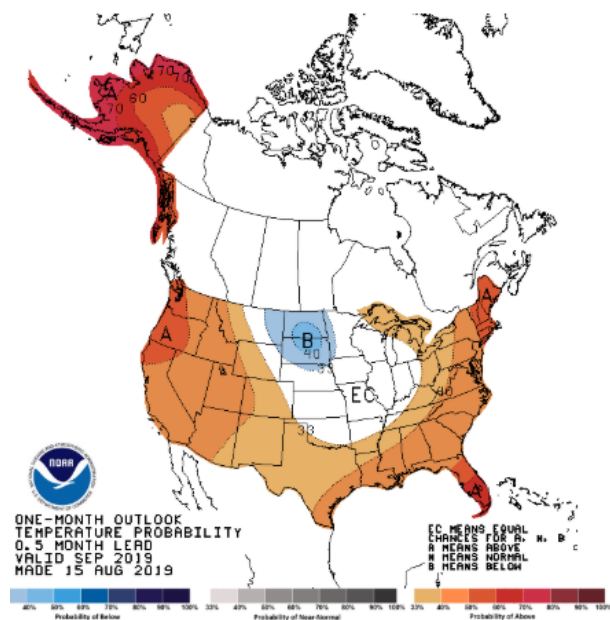


Chart 9: Weather Forecast – September 2019



Load Projections

All load projections are based on the FY 2019 ARP budget load forecast.

Table 6. Load Projections

	August		September	
	Peak (MW)	Load (MWhs)	Peak (MW)	Load (MWhs)
FMPA	1,245	616,751	1,142	548,247
FMP	3,355	1,762,575	3,166	1,585,474

Natural Gas Usage Projections

Natural gas usage and pricing projections are shown in Table 7. We are expecting the actual natural gas prices to be lower than the ARP budget forecast.

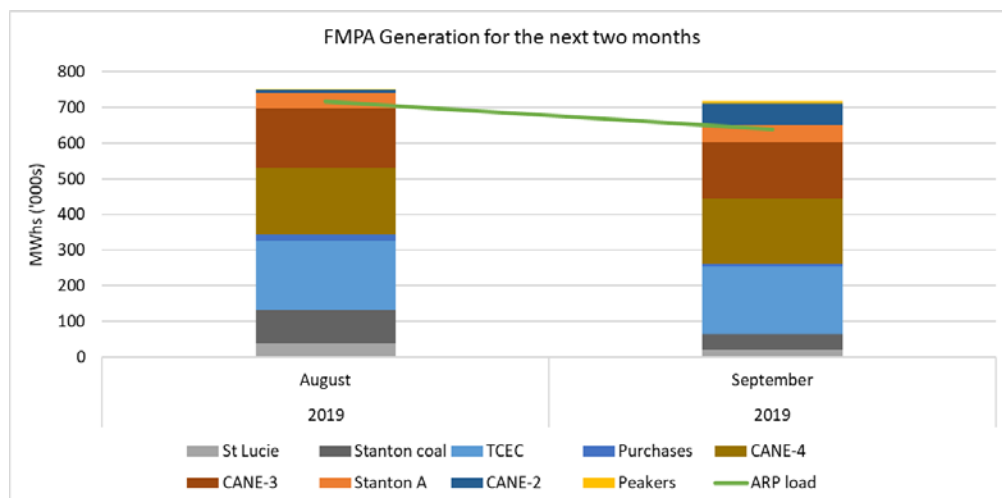
Table 7. Natural Gas Uses & Prices Projections

Projected Florida City Gate Natural Gas Prices and FMPA Volumes		
	August	September
\$/MMBTU (latest projection)	\$2.59	\$2.45
\$/MMBTU (budget projection)	\$3.31	\$2.92
MMBTUs required (latest projection)	4,427,804	4,754,633
MMBTUs required (budget projection)	4,052,116	3,876,441

Note: Natural gas requirement includes gas burned in FMPA shared units, including coal units.

Fleet Dispatch Projections (Based on current fuel price projections)

Chart 10: FMPA ARP Fleet Dispatch Projections



FMPP Generator Planned Outages

Table 8. FMPP Scheduled Generator Outages (August 2019 – September 2019)

Generating Unit	Unavailable Capacity	Start Date	End Date
*McIntosh 2 (LAK)	112 MW	04/26/2017	12/31/2019
Larsen 2 (LAK)	14 MWs	1/1/2019	12/31/2019
Stanton 2	453 MWs	8/31/2019	9/27/2019
St Lucie 1	65 MWs	9/2/2019	10/1/2019
Indian River A	31 MWs	9/30/2019	10/6/2019
Stanton B (OUC)	300 MWs	9/30/2019	10/15/2019

*McIntosh 2 most likely will not return

GLOSSARY AND ACRONYMS

Capacity Factor – Measures asset utilization. Calculated by taking the average hourly output over a time period and dividing it by the capacity of the unit during that time period. A capacity factor in the 80% range indicates a base load unit, less than 10% range a peaking unit, and in between would be indicative of an intermediate unit.

CHP - The Clearinghouse Price (CHP50) is a Member agreed to methodology to price energy that FMPP Members buy and sell to each other. The hourly CHP price is the weighted average of the incremental energy cost of the Pool's highest cost resource/s online subject to exclusions as agreed by the FMPP, that are able to ramp down by 50 MWs in a given hour. CHP 50 may or may not be comprised of more than one unit or transaction.

Cooling degree days - Degree-days are derived by comparing the average daily temperature and a base temperature, typically 65 degrees Fahrenheit, the base relied on herein. To the extent the average daily temperature exceeds the base, the difference between that average temperature and the base is the number of cooling degree days for the day in question.

EIA – U.S. Energy Information Administration

Equivalent Availability Factor (EAF): Measures reliability. Calculated by the amount of time that it is able to produce electricity over a certain period, divided by the amount of the time in the period. As a frame of reference, industry average EAF for combined cycle units has been about 83% on an annual basis.

FGU – Florida Gas Utility is a non-profit joint action agency that provides natural gas management services to its municipal utility members.

FMPP – Florida Municipal Power Pool, or the Pool for short. FMPP members are FMPPA, OUC and Lakeland.

GWh – Gigawatt-hour; one billion watt hours.

Heating degree days – Degree-days are derived by comparing the average daily temperature and a base temperature, typically 65 degrees Fahrenheit, the base relied on herein. To the extent the average daily temperature is below the base, the difference between that average temperature and the base is the number of heating degree days for the day in question.

Heat Rate – Measures the efficiency of the generator. The lower the heat rate, the better. For comparison, a typical heat rate for an automobile is 14,000 BTUs/kWh. FMPPA's base load combined cycle fleet is twice as efficient with a heat rate of approximately 7,000 BTUs/KWh.

Load Factor – Measures how variable the load is. Calculated by taking the average hourly energy use over a time period (in this report monthly) and dividing it by the peak hourly usage over that time period.

MMBTU – One million British Thermal Units, a measure of energy in the form of heat.

MW – Megawatt; one million watts, a measure of electrical power, 1MW = 1,341 horsepower.

MWh – Megawatt-hour; one million watt hours, a measure of electrical energy, a typical household uses between 1 and 2 MWhs per month.

TCEC – Treasure Coast Energy Center