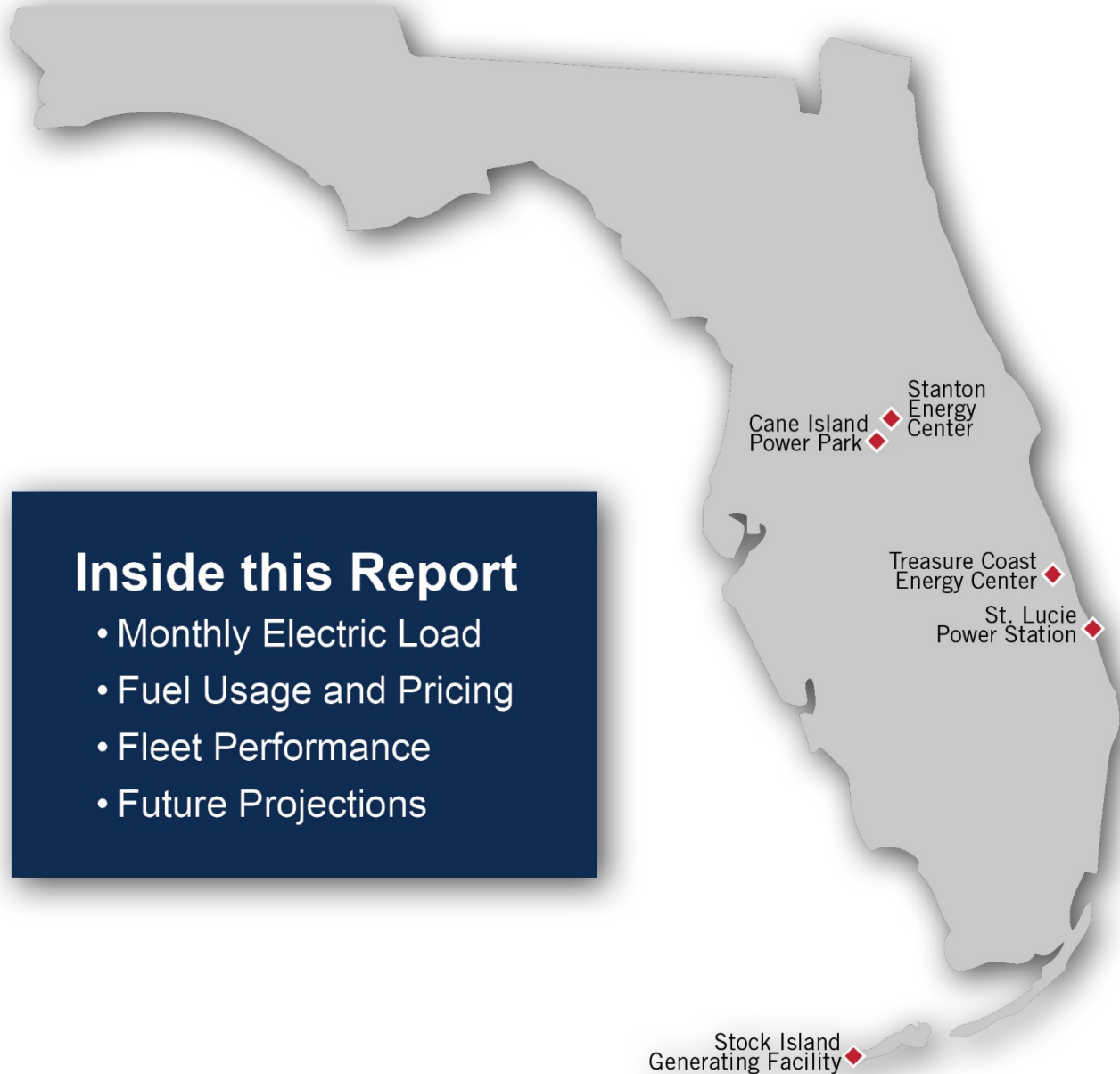


3 Phase Times



Inside this Report

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

FMPA Power Resources
Operations Performance Report
June 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
1,292	64%	\$2.51	100%	80%

*Does not include fixed costs included in FMPA’s ARP demand rate.

June Highlights

- ARP delivered Net Energy for Load was 575 GWhs, which was 6.6% 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 \$2.51 per MMBtu, which was \$0.08 (3.3%) above the budget price.
- The ARP’s generation mix to supply ARP load and all sales was 81% natural gas, 15.4% coal, 2.4% nuclear¹ and 1.3% FMPP purchases. Natural gas-fired generation (MWhs) produced 11% more output than budgeted, due to the TECO sale, pool sales and the St Lucie 1 forced outage.
- The ARP gas fleet heat rate (7,292 Btu/kWh) and the ARP energy generation cost (2.75 cents/kWh or \$27.51/MWh) are among the lowest in the state for the calendar year to date through May (one-month data lag).
- The ARP sold 10% of its generation to the FMPP whereas the budget forecast 8%. This was due to higher loads.
- The ARP’s base load units FYTD EAF is 93.6%. St Lucie 1 was offline through 6/21.
- The ARP supplied 2,171 MWhs to Bartow, 7,200 MWhs to Winter Park, and 28,000 MWhs to TECO. The non-coincident Peak (NCP) supply for Bartow was 20 MWhs.

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 June were above normal in Orlando and across most of the state. ARP delivered Net Energy for Load was approximately 6.6% above the forecast due to the warmer temperatures.

The All-Requirements Project (ARP) set a new summer hourly peak load record (for the current 13 cities) of 1,292 MW, which was 7.5% above the budget forecast. The ARP coincident peak occurred on June 25th.

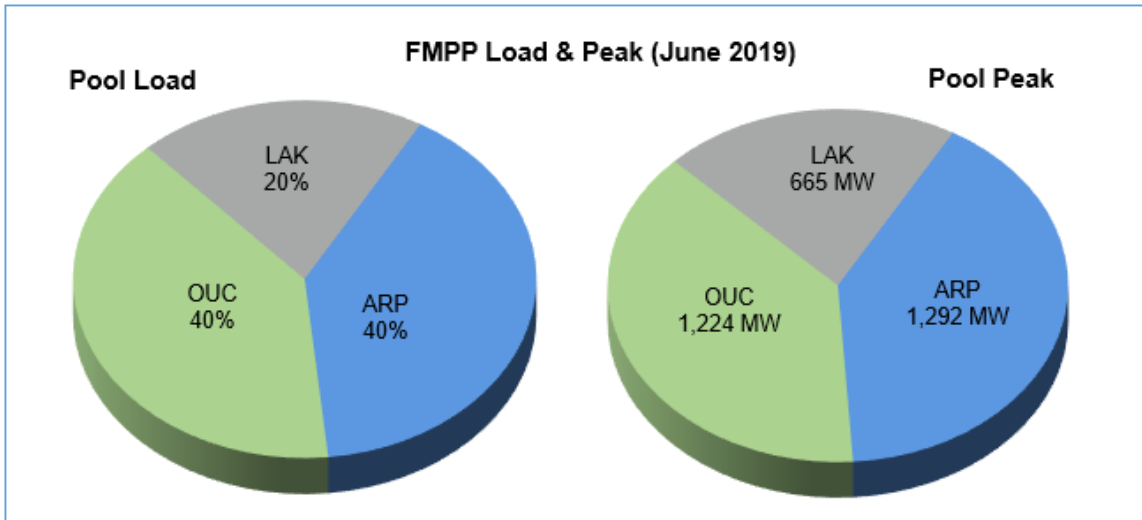
Table 1: ARP Actual and Budget Load

	Budget	Actual	Actual
	Jun-19	Jun-19	Jun-18
ARP Load (GWhs)	565	593	564
ARP Peak (MW)	1,202	1,292	1,165
Load Factor	65%	64%	67%

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 \$2.68 /MMBtu in June, which represents the market price for delivered gas (Table 2). The actual average natural gas price for the ARP was \$2.51 /MMBtu, which was \$0.08 or 3.3% above budget (Table 3). Natural gas burn/usage was 14.5% more than budgeted due to higher loads, increased sales and the St Lucie 1 forced outage.

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

	Henry Hub	FGT Zone 3	FMPP Dispatch
Natural Gas Market Prices	\$2.34	\$2.35	\$2.68

Natural Gas Usage and Prices

Natural gas usage is the gas burned at Treasure Coast, Cane Island Units 1 – 4, Oleander 5 and FMPA'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 June

	Budget June 2019	Actual June 2019	Actual June 2018
Natural Gas Cost (\$/MMBTU)	\$2.43	\$2.51	\$2.99
Natural Gas usage (MMBTU)	3,312,670	3,793,902	3,371,197

Table 4: ARP Natural Gas Price Comparison CY 2019 through End of May

CY 2019 through May	FMPA	FPL	DUKE	TECO
Natural Gas Cost (\$)	\$64,827,353	\$1,091,353,694	\$438,912,466	\$203,546,072
Generation from NG(MWH)	2,356,211	34,863,576	13,411,847	6,865,523
Gas Burned (MMBtu)	17,182,286	251,551,631	100,125,137	55,535,522
Gas cost (\$/MCF)	\$3.85	\$4.43	\$4.47	\$3.74
Gas cost (\$/MMBtu)	\$3.77	\$4.34	\$4.38	\$3.67
Heat Rate (Btu/kWh)	7,292	7,215	7,465	8,089
Generated Cost(cents/kWh)	2.75	3.13	3.27	2.96
Savings compared to Others		\$8,930,415.53	\$12,281,368.61	\$5,028,576.67

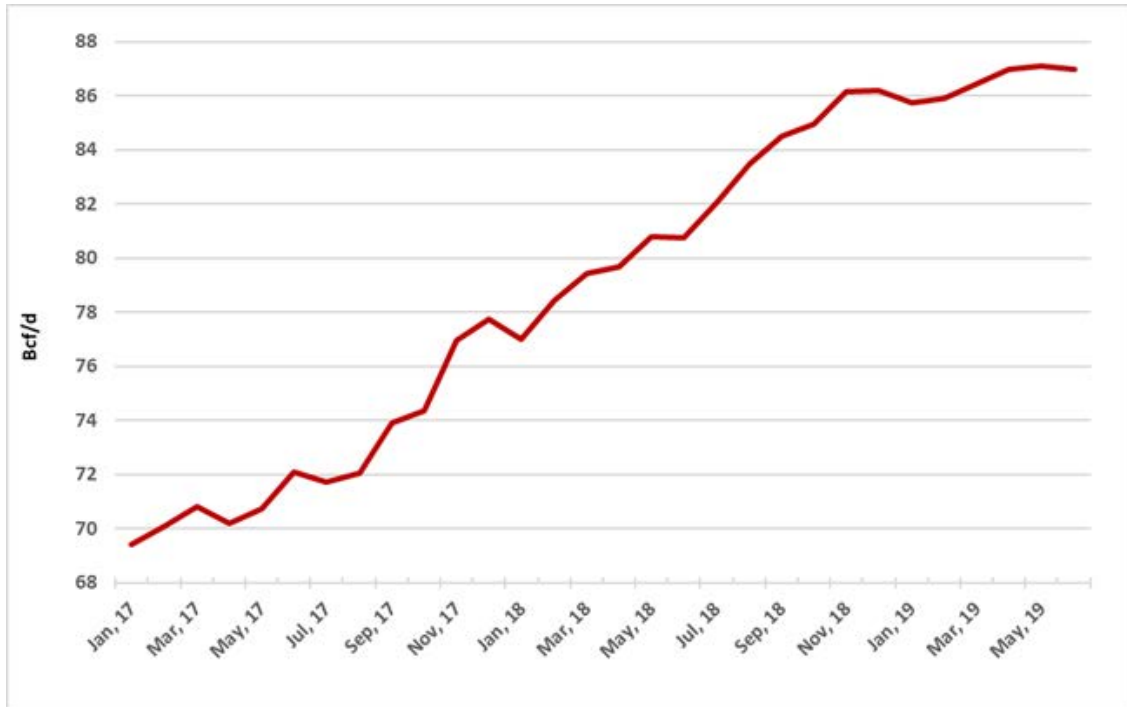
Source: IOUs data from Public Service Commission (PSC) filing

- FMPA's ARP gas fleet heat rate of 7,292 Btu/kWh is among the lowest in the state for the calendar year to date through May (one-month data lag).
- The ARP's energy cost (including pipeline capacity costs) of 2.75 cents/kWh is the lowest in the state for the calendar year to date through May.
- FMPA's Natural gas cost includes the ARP gas cost and the gas cost of OUC assets as allocated to the ARP.

Natural Gas production average

The following chart shows natural gas production in the U.S. over the past several years through June 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 \$2.85/MMBtu through the summer and top out at \$3.10/MMBtu during the coming winter 2019/20 due to impending LNG exports. FGU is projecting monthly average delivered Natural Gas pricing of around \$2.70 /MMBtu for the next three months.

Chart 2: Natural Gas Production Average



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

Natural Gas Pipeline Alerts

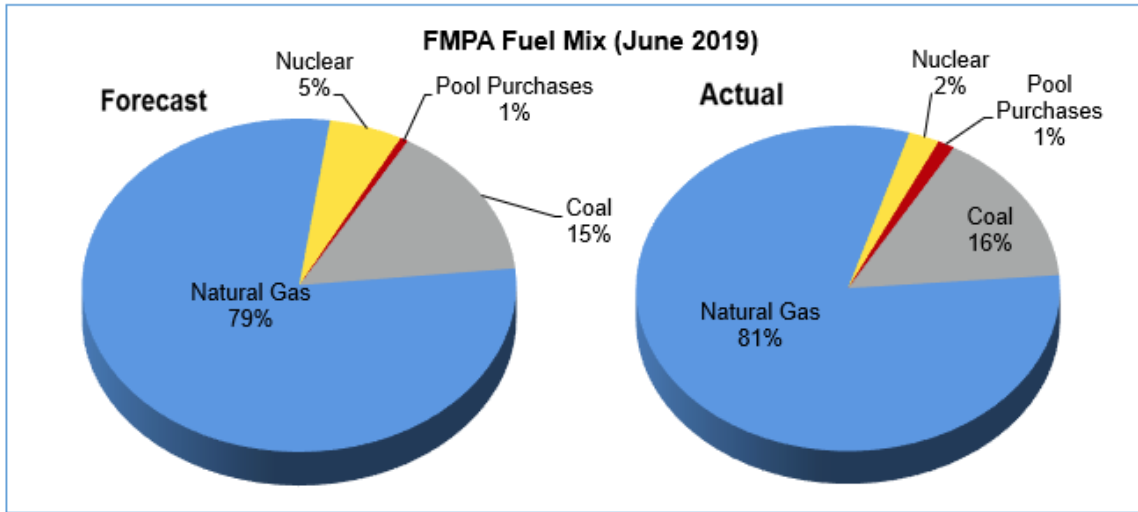
There were seven alerts on the Florida Gas Transmission (FGT) pipeline in June. There were none on the Gulfstream pipeline. This means there were some restrictions or constraints on the flow of natural gas to generation facilities. Pipeline alerts typically result from high gas demand caused by hot or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

FLEET DISPATCH AND POOL OPERATIONS

Fuel Mix

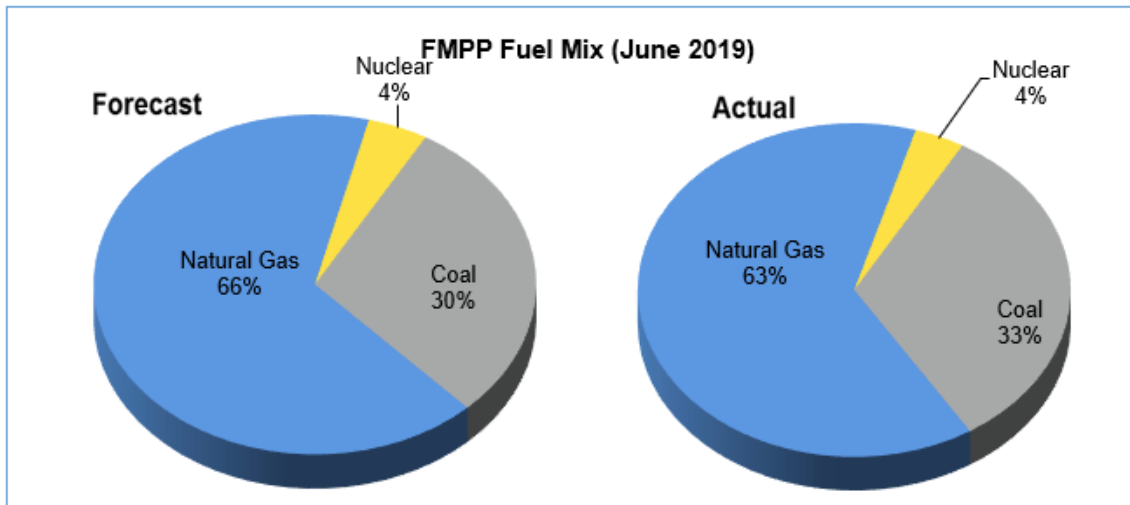
The ARP’s natural gas-fired generation (MWhs) was 11% more than budgeted due to warmer weather, increased external sales and the St Lucie 1 forced outage. The budget forecast sales of 10% of the ARP’s generation to the FMPP; the actual sales were 8%. The Pool generated 6% more from coal-fired units than budgeted.

Chart 3: FMPA Fuel Mix and Purchases for June 2019



NOTE: FMPA’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 FMPA.

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



POWER GENERATION FLEET PERFORMANCE

FMPA Fleet Performance

Stanton A steam turbine generator tripped following a lightning strike. Stanton 1 was de-rated due to deaerator level control valve issues and had a planned de-rate for dry sorbent injection system issues. The unit tripped due to turbine control issues and primary air duct issues. St Lucie 1 returned from it's forced outage in late June.

Table 7. FMPA ARP Generating Fleet Performance – June 2019

Unit	Capacity* (MW)	Heat Rate (Btu/kWh)	Equivalent Availability Factor	Capacity Factor	Notes
Treasure Coast	300	7,283	100.0%	79.3%	0
Cane Island Unit 4	300	7,494	100.0%	79.8%	0
Cane Island Unit 3	240	7,260	100.0%	82.3%	0
Cane Island Unit 2	109	8,030	100.0%	36.8%	0
Stanton A	122	7,422	99.9%	65.7%	Trip
Stanton 1	112	10,761	89.9%	62.0%	Derate/Trip
Stanton 2	102	9,514	100.0%	77.0%	0
St. Lucie	48	10,250	66.8%	66.8%	0
Peaking Units**	386	11,132	100.0%	0.8%	0

*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

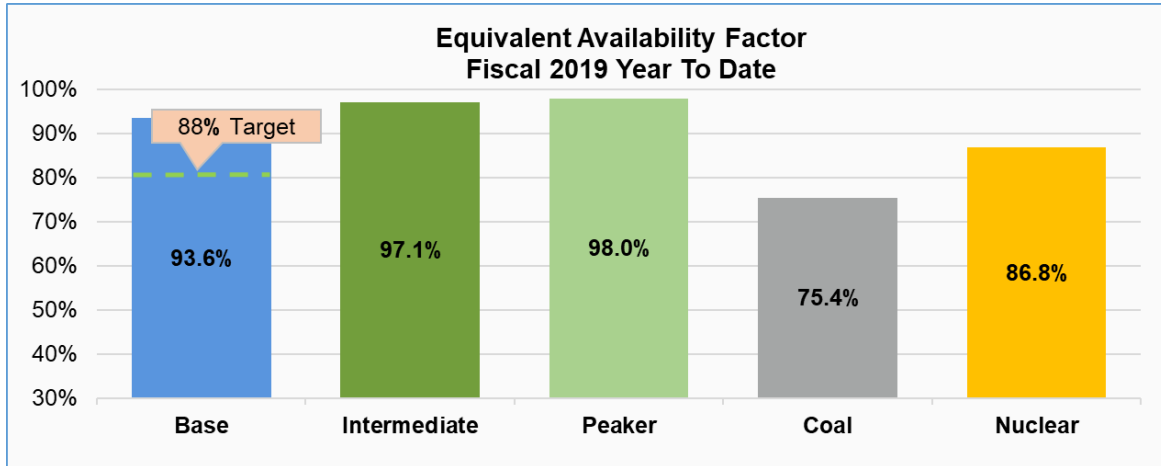
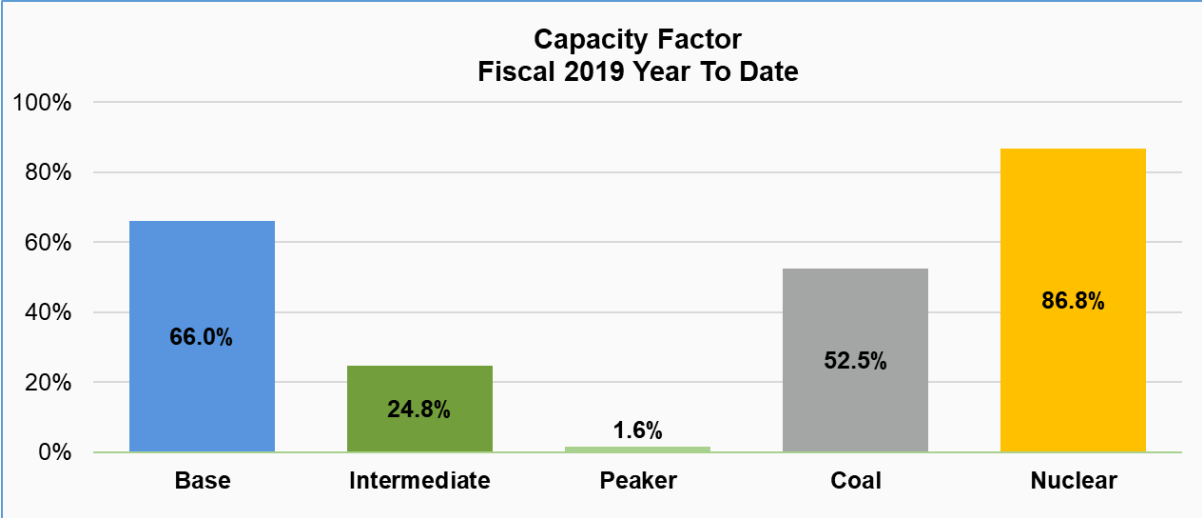


Chart 6: Capacity Factor – FY 2019 YTD



MONTHLY WEATHER

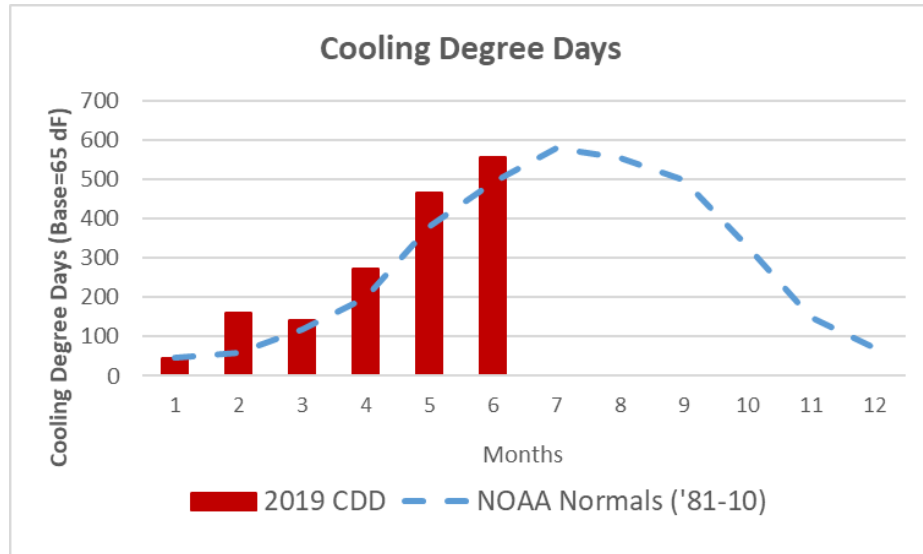
The average temperatures in June were above normal in Orlando (Table 8). Rainfall across most parts of the state was mixed. It was above normal in the Orlando area. The cooling degree days were above normal in Orlando (Chart 8).

Table 8: 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 8: 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 July and August. 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 9: Weather Forecast – July 2019

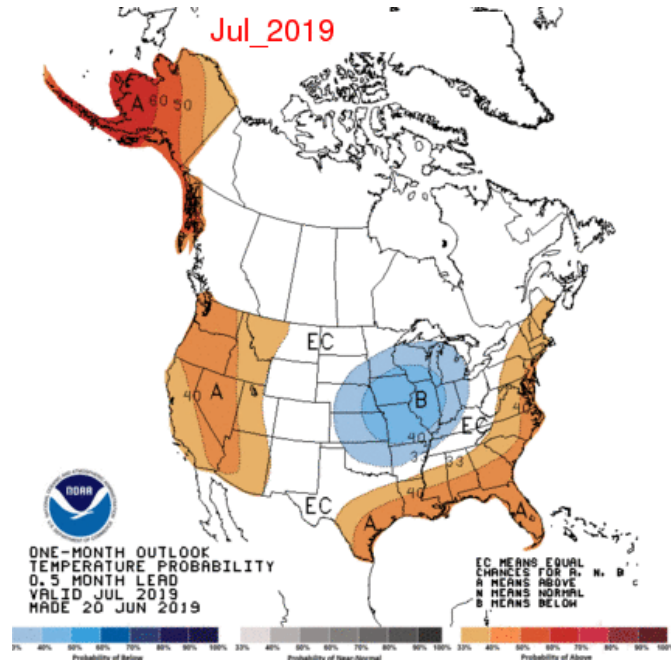
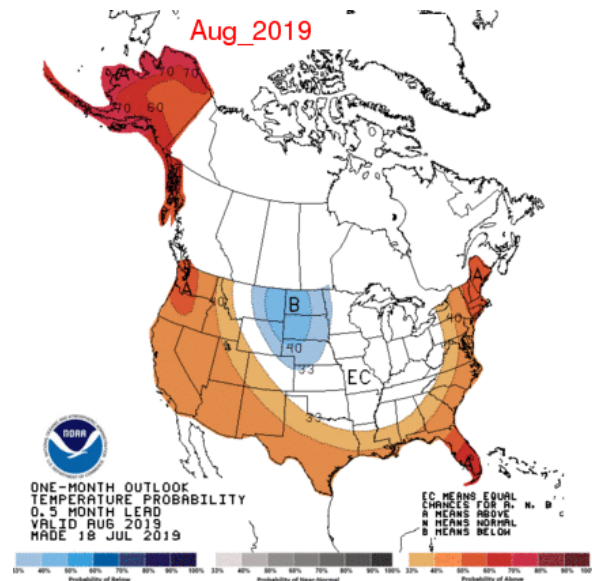


Chart 10: Weather Forecast – August 2019



Source: National Centers for Environmental Prediction (NCEP)

Load Projections

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

Table 9. Load Projections

	July		August	
	Peak (MW)	Load (MWhs)	Peak (MW)	Load (MWhs)
FMPA	1,203	607,909	1,245	616,751
FMPP	3,388	1,730,502	3,355	1,762,575

Natural Gas Usage Projections

Natural gas usage and pricing projections are shown in Table 10. We are expecting the actual natural gas prices to be lower than the ARP budget forecast.

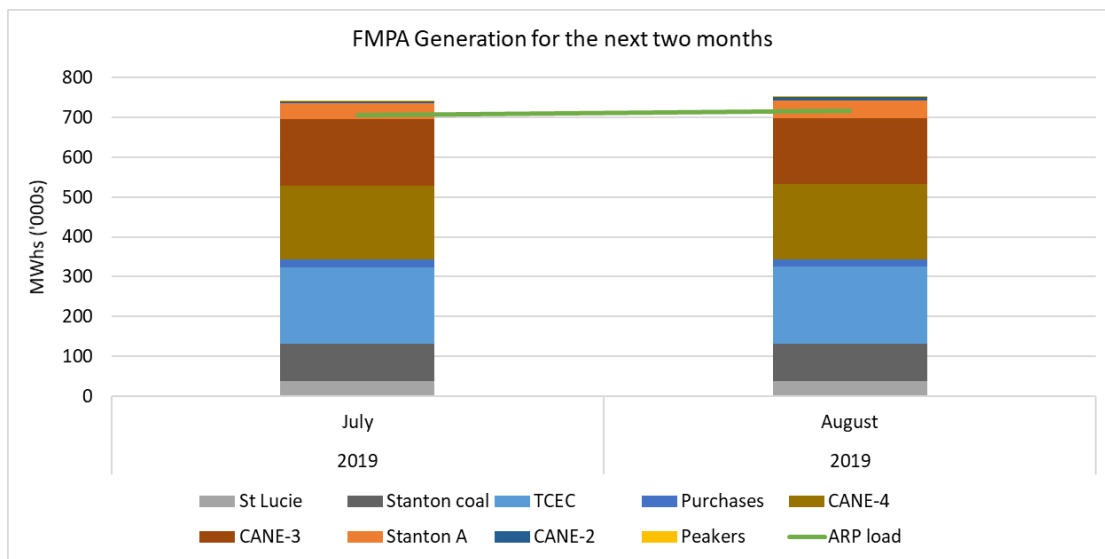
Table 10. Natural Gas Uses & Prices Projections

Projected Florida City Gate Natural Gas Prices and FMPA Volumes		
	July	August
\$/MMBTU (latest projection)	\$2.715	\$2.761
\$/MMBTU (budget projection)	\$3.59	\$3.31
MMBTUs required (latest projection)	4,345,885	4,427,804
MMBTUs required (budget projection)	3,914,504	4,052,116

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

Fleet Dispatch Projections (Based on current fuel price projections)

Chart 11: FMPA ARP Fleet Dispatch Projections



FMPP Generator Planned Outages

Table 11. FMPP Scheduled Generator Outages (July 2019 – August 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

*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 June or June 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 FMPA, 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. FMPA'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