



**Christopher E. Gowder**  
Business Development and Planning Manager

May 15, 2019

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

**Re: Ten-Year Site Plan Supplemental Data Request #1 – FMPA Responses**

Dear Sir/Madam:

Pursuant to the Commission's 2019 Data Request #1, dated February 1, 2019, FMPA is hereby filing one electronic copy of its written Response.

Under separate cover, via FedEx, FMPA will submit a copy of the Excel files requested by the Commission as part of this Data Request #1.

If you have any questions, please do not hesitate to contact me at (321) 239-1022.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Chris Gowder', with a long horizontal flourish extending to the right.

Chris Gowder  
Business Development and Planning Manager

Enc.

cc. File

**General Items**

1. Please provide an electronic copy of the Company's 2019–2028 Ten-Year Site Plan (2019 TYSP) in PDF format and the accompanying Schedules 1–10 in Microsoft Excel format.

*The requested information was provided in hard copy and electronically on March 28, 2019.*

2. Please provide all data requested in the attached forms labeled "Appendix A." If any of the requested data is already included in the Company's 2019 TYSP, state so on the appropriate form.

*Data in Appendix A will be provided as requested.*

**Load & Demand Forecasting**

3. **[Investor-Owned Utilities Only]** Please provide, on a system-wide basis, the hourly system load for the period January 1, 2018, through December 31, 2018, in Microsoft Excel format.

*FMPA is not an Investor-owned Utility.*

4. Please provide the monthly peak demand experienced in the period 2016–2018, including the actual peak demand experienced, the amount of demand response activated during the peak, and the estimated total peak if demand response had not been activated. Please also provide the day, hour, and system-average temperature at the time of each monthly peak.

**Historic Peak Demand Timing & Temperature**

Year	Month	Actual Peak Demand	Demand Response Activated	Estimated Peak Demand	Day	Hour	System-Average Temperature
		(MW)	(MW)	(MW)			(Degrees F)
2018	1	1,228	0	1,228	1/18/2018	8	41
	2	901	0	901	2/26/2018	16	76
	3	863	0	863	3/1/2018	16	74
	4	906	0	906	4/4/2018	16	76
	5	1,067	0	1,067	5/11/2018	17	78
	6	1,205	0	1,205	6/4/2018	16	83
	7	1,225	0	1,225	7/2/2018	16	81
	8	1,281	0	1,281	8/8/2018	16	83
	9	1,252	0	1,252	9/18/2018	16	84
	10	1,192	0	1,192	10/17/2018	17	81
	11	1,005	0	1,005	11/7/2018	16	76
	12	913	0	913	12/12/2018	8	51
2017	1	879	0	879	1/9/2017	8	50
	2	847	0	847	2/28/2017	17	74
	3	938	0	938	3/29/2017	17	75
	4	1,128	0	1,128	4/28/2017	17	81
	5	1,198	0	1,198	5/30/2017	17	82
	6	1,203	0	1,203	6/22/2017	16	80
	7	1,243	0	1,243	7/5/2017	16	82
	8	1,263	0	1,263	8/31/2017	16	84
	9	1,178	0	1,178	9/1/2017	15	82
	10	1,146	0	1,146	10/10/2017	16	81
	11	871	0	871	11/7/2017	16	73
	12	917	0	917	12/11/2017	8	50
2016	1	1,015	0	1,015	1/25/2016	8	50
	2	1,019	0	1,019	2/11/2016	8	50
	3	921	0	921	3/16/2016	17	76
	4	1,045	0	1,045	4/29/2016	17	77
	5	1,091	0	1,091	5/31/2016	16	80
	6	1,242	0	1,242	6/14/2016	17	85
	7	1,296	0	1,296	7/6/2016	17	86
	8	1,275	0	1,275	8/22/2016	17	86
	9	1,136	0	1,136	9/9/2016	17	82
	10	1,010	0	1,010	10/5/2016	16	80
	11	859	0	859	11/2/2016	16	74
	12	843	0	843	12/5/2016	19	73

**Notes**

1. System-Average Temperature is the temperature at the Orlando International Airport at the time of the ARP coincident peak.
2. Actual Peak Demand is at the Generation level and includes wholesale obligations to parties other than ARP Participants, if applicable, and transmission losses.

5. Please identify the weather station(s) used for calculation of the system-wide temperature for the Company's service territory. If more than one weather station is utilized, please describe how a system-wide average is calculated.

*FMPA is a wholesale electric utility which provides all requirements service to 13 municipal electric utilities within the state, referred to herein as the All-Requirements Project (ARP) Participants. The City of Lake Worth is a member of the ARP, but no longer purchases capacity and energy from the ARP. FMPA supplies all of the 13 ARP Participants' electric power and energy, transmission and associated services, unless limited by a contract rate of delivery, except for certain excluded resources. The 13 FMPA ARP participants that purchase capacity and energy from FMPA range in location from Gadsden County in the Big Bend to Monroe County, including Key West. As a power supply project, the ARP does not have a service territory. FMPA used the temperature at the Orlando International Airport as a statewide average in responding to Question 4, but in the development of the forecast, various weather stations within or near our participants' service territories are used.*

*For purposes of analyzing and forecasting ARP energy requirements, monthly weather data from the following weather stations are utilized:*

- *Ft. Pierce-St. Lucie County Int'l Airport*
- *Gainesville Regional Airport*
- *Jacksonville Beach*
- *Key West Int'l Airport*
- *Orlando Int'l Airport*
- *Tallahassee Airport*
- *Tampa Airport*
- *West Palm Beach*

*For purposes of analyzing ARP peak demand data, daily weather data from the following weather stations are utilized:*

- *Gainesville Regional Airport*
- *Orlando Int'l Airport*
- *West Palm Beach*

6. Please explain how the Company's load and demand forecasting used in its 2019 TYSP was developed. In your response please include the following information: methodology, assumptions, data sources, third-party consultant(s) involved, and any difference/improvement made compared with the load and demand forecasting used in the Company's 2018 Ten-Year Site Plan.

- a. *Third Party Consultants: FMPA contracted with nFront Consulting LLC to prepare the load forecast.*
- b. *Methodology: FMPA bases its forecast of demand and energy for the ARP on econometric models that have been developed over the years to correlate each of*

*FMPA's All Requirements Project (ARP) Participant's historical energy requirements with demographic and economic variables associated with each ARP Participant's service territory, while also reflecting local issues and trends. These models, when supplied with economic and demographic data forecasts as input, produce a forecast of monthly energy usage by ARP Participant. FMPA then adds the anticipated losses across the relevant transmission systems used by FMPA to deliver capacity and energy to its All-Requirements Customers to the monthly energy usage by ARP Participant to produce a Net Energy for Load (NEL) at the generation level. Peak demand is then derived based on an analysis of historical load factors.*

*c. Data Sources and assumptions:*

- i. Historical Participant retail sales, customer accounts, electric sales, and revenues are gathered and analyzed. Within this process, data on the estimated impact of the ARP Conservation Program for each Participant are collected and tracked. Similarly, the level of activity and estimated impacts of the ARP Net Metering Program are tracked and projected. Estimated Conservation and Net Metering Program impacts are compared to a planning threshold for potential incorporation of such impacts explicitly into the forecast.*
- ii. Historical and projected economic and demographic data were also provided by the Bureau of Economic and Business Research at the University of Florida and Woods & Poole Economics, Inc. (both nationally recognized providers of such data).*
- iii. Weather data was provided by the National Oceanic and Atmospheric Administration (NOAA) for a variety of weather stations in close proximity to the ARP Participants and was used to produce the forecast on a weather-normalized basis. That is, we assume that weather conditions in the future will be the same as the 30-year normal weather, which is similar to average weather conditions over the latest 30 year period (1981-2010) as reported by the NOAA.<sup>1</sup> For purposes of comparing actual data to forecast data, we weather-normalize (i.e., mathematically adjust) actual energy usage data to estimate energy requirements had the weather been normal.*
- iv. Real Electricity Price Data was derived from the information gathered in item i (above).*

*d. General assumptions:*

- i. The future influence on energy sales of the economic, demographic, and weather factors, on which the econometric models are based, was assumed to be similar to the estimated influence of such factors generally over the period 1992 through 2017.*

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<sup>1</sup> The primary weather determinants used in the forecast are heating and cooling degree days, which measure differences in daily average temperature from 65 degrees Fahrenheit (dF). Cooling degree days are the summation of positive differences in daily average temperature from 65 dF; heating degree days are the summation of the absolute value of negative differences.

- ii. Although the econometric models implicitly account for the historical relationships between energy usage and the following factors to the extent they have occurred in the past, the 2018 Load Forecast does not explicitly reflect extraordinary potential future effects of: (a) increases in appliance design efficiency or building insulation standards; (b) significant conservation efforts, including those funded by the ARP, the state of Florida, and the federal government, that are not a function of changes in electricity or natural gas prices; (c) development of substitute energy sources, or demand-side generation; (d) consumers switching to traditional or new types of electrical appliances from other alternatives (e.g., electric vehicles); (e) consumers switching from electrical appliances to other alternatives; or (f) variations in load that might result from legal, legislative, regulatory, or policy actions.*
- iii. The recent average historical relationships between annual summer and winter non-coincident demands and annual NEL and between monthly NCP demands and annual winter and summer NCP demands were assumed to represent reasonable approximations of future load relationships between demands and energy requirements.*
- iv. The Contract Rate of Demand ("CROD") for Lake Worth is zero. An estimate of the CROD for Green Cove Springs, effective January 1, 2020, has been reflected in the forecast. Additionally, the CROD for Ft. Meade has been updated to reflect a supplemental power sales agreement between the ARP and Ft. Meade, which results in the ARP serving all of Ft. Meade's load as if Ft. Meade had not effectuated CROD, said estimate for which was included in the 2019 TYSP evaluations and associated schedules over the TYSP forecast horizon.*
- v. Data regarding the historical impacts of load management resources operated by the Participants and reported to FMPA are assumed to be accurate (note: Participants' peak load management activities have ceased, effective September 30, 2015).*
- vi. The data regarding the ARP Conservation Program, including historical participation and marginal impacts, are assumed to be accurate. nFront Consulting LLC has independently reviewed and assisted in the development of the marginal impact estimates of the programs and believes them to be reasonable. As discussed previously, nFront Consulting LLC has prepared, with FMPA's assistance, simplified projections of Conservation Program activity and load impacts, which reflect that projected load impacts will not exceed FMPA's threshold for explicit inclusion in the Load Forecast of 0.5 percent of load over the 20-year planning horizon. To the extent the Conservation Program expands in a significant way relative to these projections, the future impacts may have a significant impact on future loads to be served by the ARP not captured herein.*
- vii. Data regarding installed distributed generation as part of FMPA's Net Metering Program are assumed to be accurate and represent all distributed generation (other than certain generation resources utilized by the*

*Participants for emergency purposes). As discussed previously, nFront Consulting LLC has prepared, with FMPA's assistance, a simplified projection of impacts from FMPA's Net Metering Program, which reflect that load impacts will not exceed FMPA's threshold for explicit inclusion in the Load Forecast of 0.5 percent of load over the 20-year planning horizon. To the extent activity in the Net Metering Program expands in a significant way relative to these projections, the future impacts may have a significant impact on future loads to be served by the ARP not captured herein.*

7. Please identify all closed and opened FPSC dockets and all non-docketed FPSC matters which were/are based on the same load forecast used in the Company's 2019 TYSP.

*FMPA does not have any open or closed FPSC dockets, or non-docketed FPSC matters currently based on the load forecast used in the 2019 TYSP.*

8. **[Investor-Owned Utilities Only]** Does your Company review the accuracy of its customer, load, and demand forecasts presented in its TYSP by comparing the actual data for a given year to the data forecasted one, two, three, four, five, or six years prior?
  - a. If the response is affirmative, please explain the method used in such review.
  - b. If the response is affirmative, please provide the results of such review for each forecast presented in the TYSPs filed, or to be filed, to the Commission from 2001 to 2019 with supporting workpapers in Microsoft Excel format.
  - c. If the response is negative, please explain why not.

*FMPA is not an Investor-owned Utility.*

9. Please explain any recent and forecasted trends in customer growth, by customer type (residential, commercial, industrial) and as a whole.

*Over the past 5 fiscal years, ARP Participants experienced positive growth in both residential and non-residential customer counts (in aggregate). We anticipate customer growth to be the primary driver of overall projected load growth for the majority of the ARP Participants.*

10. Please explain any recent and forecasted trends in electricity use per customer, by customer type (residential, commercial, industrial) and as a whole.

*In aggregate, usage has been flat to declining in both the residential and non-residential sectors after controlling for weather variation from normal conditions. There are countervailing factors that influence usage. In general, declines in electricity prices, improvements in the employment situation, increased average income, and reductions in vacancy rates and under-occupied accounts have a small upward impact on usage.*

*Concurrently, the lingering effects of the recent recession in terms of reduced propensity to spend, a continued orientation to conservation, and continued improvement in energy efficiency, driven primarily from technological advances, equipment standards, and building codes, places downward pressure on average usage. FMPA continually monitors usage trends across our Members as part of our load forecasting process.*

11. Please explain any recent and forecasted trends in peak demand by the sources of peak demand appearing in Schedule 3.1 of the 2019 TYSP.

*As mentioned above, the ARP provides wholesale service to 13 municipals spread throughout the state. We have seen a similar turn-around in summer peak demand as discussed above. Many of the same influences discussed above are no doubt impacting peak demand. However, given the more granular time-specific factors and weather conditions impacting peak demand, it is more difficult to separate out these influences. This is particularly challenging given the disaggregated nature of the retail service areas of the 13 municipals served at wholesale by the ARP.*

12. **[Investor-Owned Utilities Only]** If not included in the Company's 2019 TYSP to be filed by April 1, 2019, please provide load forecast sensitivities (high band, low band) to account for the uncertainty inherent in the base case forecasts in the following TYSP schedules, as well as the methodology used to prepare each forecast:
- a. Schedule 2.1 – History and Forecast of Energy Consumption and Number of Customers by Customer Class
  - b. Schedule 2.2 - History and Forecast of Energy Consumption and Number of Customers by Customer Class
  - c. Schedule 2.3 - History and Forecast of Energy Consumption and Number of Customers by Customer Class
  - d. Schedule 3.1 - History and Forecast of Summer Peak Demand
  - e. Schedule 3.2 - History and Forecast of Winter Peak Demand
  - f. Schedule 3.3 - History and Forecast of Annual Net Energy for Load
  - g. Schedule 4 - Previous Year and 2-Year Forecast of Peak Demand and Net Energy for Load by Month.

*FMPA is not an Investor-owned Utility.*

13. Please discuss whether the Company included plug-in electric vehicle (PEV) loads in its demand and energy forecasts for the 2019 TYSP. If so, how were these impacts accounted for in the modeling and forecasting process?

*As part of our on-going load forecast process for the ARP, FMPA inquires about load characteristics, new customers and new initiatives associated with demand and energy for load in the ARP Participants' territories. As Participants become aware of plug-in electric vehicle market saturation in their service territories, FMPA will incorporate these*

*estimations into the load forecast for the ARP. FMPA has recently conducted a meta-analysis of electric vehicle market potential and energy impacts in the FRCC region, and we plan to update our market evaluation as conditions warrant. While our analysis suggests that market uptake will be protracted and is unlikely to result in material changes to electric demand over the ten-year planning horizon that would be indigenous to the ARP Participants, we continually monitor a variety of trends that could impact load growth or contraction, and consequently, future forecasts may reflect an evolving understanding of such factors.*

14. Please discuss the methodology and the assumptions (or, if applicable, the source(s) of the data) used to estimate the number of PEVs operating in the Company's service territory and the methodology used to estimate the cumulative impact on system demand and energy consumption.

*The All-Requirements Project is a wholesale power supply project and as such, does not have a service territory. As Participants become aware of significant plug-in electric vehicle market saturation in their service territories, FMPA will incorporate these estimations in the demand and energy forecasts for the Ten-Year Site Plan.*

15. Please include the following information within the Utility’s service territory: an estimate of the number of PEVs, an estimate of the number of public PEV charging stations, an estimate of the number of public “quick-charge” PEV charging stations (i.e., charging stations requiring a service drop greater than 240 volts and/or using three-phase power), and the estimated demand and energy impacts of the PEVs by year. As part of this response, please provide an electronic version of the table below in Microsoft Excel format.

*The All-Requirements Project is a wholesale power supply project and as such, does not have a service territory. FMPA does not collect this information on behalf of the ARP Participants.*

**Electric Vehicle Charging Impacts**

Year	Number of PEVs	Number of Public PEV Charging Stations	Number of Public “Quick-charge” PEV Charging Stations	Cumulative Impact of PEVs		
				Summer Demand	Winter Demand	Annual Energy
				(MW)	(MW)	(GWh)
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						
2028						
<b>Notes</b>						
(Include Notes Here) <i>The All-Requirements Project is a wholesale power supply project and as such, does not have a service territory. FMPA does not collect this information on behalf of the ARP Participants.</i>						

16. Please describe any Company programs or tariffs currently offered to customers relating to PEVs, and describe whether any new or additional programs or tariffs relating to PEVs will be offered to customers within the 2019–2028 period.

- a. Of these programs or tariffs, are any designed for or do they include educating customers on electricity as a transportation fuel?
- b. Does the Company have any programs where customers can express their interest or expectations for electric vehicle infrastructure as provided for by the Utility, and if so, please describe in detail.

*The All-Requirements Project is a wholesale power supply project and as such, does not have programs or tariffs for retail customers.*

17. Please describe how the Company monitors the installation of PEV public charging stations in its service area?

*The All-Requirements Project is a wholesale power supply project and as such, does not have a service territory. FMPA does not collect this information on behalf of the ARP Participants.*

18. Please describe any instances since January 1, 2018, in which upgrades to the distribution system were made where PEVs were a contributing factor.

*The All-Requirements Project is a wholesale power supply project and as such, does not have a service territory. FMPA does not collect this information on behalf of the ARP Participants.*

19. Has the Company conducted or contracted any research to determine demographic and regional factors that influence the adoption of electric vehicles applicable to its service territory? If so, please describe in detail the methodology and findings.

*FMPA has recently conducted a meta-analysis of electric vehicle market potential and energy impacts in the FRCC region, and we plan to update our market evaluation as conditions warrant. While our analysis suggests that market uptake will be protracted and is unlikely to result in material changes to electric demand over the ten-year planning horizon that would be indigenous to the ARP Participants, we continually monitor a variety of trends that could impact load growth or contraction, and consequently, future forecasts may reflect an evolving understanding of such factors. Notwithstanding such research, the All-Requirements Project is a wholesale power supply project and as such, does not have a service territory.*

20. What processes or technologies, if any, are in place that allow the Utility to be notified when a customer has established an electrical vehicle charging station in the home?

*The All-Requirements Project is a wholesale power supply project and as such, does not have a service territory. FMPA does not collect this information on behalf of the ARP Participants.*

21. **[FEECA Utilities Only]** For each source of demand response, use the table below to provide the customer participation information listed on an annual basis. Please also provide a summary of all sources of demand response using the chart below. As part of this response, please provide an electronic version of the table below in Microsoft Excel format.

*FMPA is not a FEECA Utility.*

[Demand Response Source or All Demand Response Sources]									
Year	Beginning Year: Number of Customers	Available Capacity (MW)		New Customers Added	Added Capacity (MW)		Customers Lost	Lost Capacity (MW)	
		Sum	Win		Sum	Win		Sum	Win
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									
<b>Notes</b>									
(Include Notes Here)									

22. **[FEECA Utilities Only]** For each source of demand response, use the table below to provide the usage information listed on an annual basis. Please also provide a summary of all demand response using the chart below. As part of this response, please provide an electronic version of the table below in Microsoft Excel format.

*FMPA is not a FEECA Utility.*

[Demand Response Source or All Demand Response Sources]										
Year	Summer					Winter				
	Number of Events	Average Event Size		Maximum Event Size		Number of Events	Average Event Size		Maximum Event Size	
		(MW)	Number of Customers	(MW)	Number of Customers		(MW)	Number of Customers	(MW)	Number of Customers
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
<b>Notes</b>										
(Include Notes Here)										

23. **[FEECA Utilities Only]** For each source of demand response, use the table below to provide the seasonal peak activation information listed on an annual basis. Please also provide a summary of all demand response using the chart below. As part of this response, please provide an electronic version of the table below in Microsoft Excel format.

*FMPA is not a FEECA Utility.*

[Demand Response Source or All Demand Response Sources]							
Year	Average Number of Customers	Summer Peak			Winter Peak		
		Activated During Peak?	Number of Customers Activated	Capacity Activated	Activated During Peak?	Number of Customers Activated	Capacity Activated
		(Y/N)		(MW)	(Y/N)		(MW)
2009							
2010							
2011							
2012							
2013							
2014							
2015							
2016							

<b>2017</b>							
<b>2018</b>							
<b>Notes</b>							
(Include Notes Here)							

**Generation & Transmission**

24. Please identify and describe each existing utility-owned renewable resource as of December 31, 2018, that delivered energy during the year. Please include the facility’s name, unit type, fuel type, its installed capacity (AC-rating for photovoltaic (PV) systems), its net firm capacity or contribution during peak demand (if any), capacity factor for 2018 based off of the installed capacity, and its in-service date. For multiple small distributed renewable resources (<250 kW per installation), such as rooftop solar panels, please include a single combined entry for the resources that share the same unit & fuel type. As part of this response, please provide an electronic version of the table below in Microsoft Excel format.

**Existing Utility-Owned Renewable Resources**

Facility Name	Unit Type	Fuel Type	Installed Capacity (MW)		Net Firm Capacity (MW)		Capacity Factor	In-Service Date
			Sum	Win	Sum	Win	(%)	(MM/YYYY)
<i>Orange County Landfill [1]</i>	<i>ST</i>	<i>LFG - Methane gas is used as a supplemental fuel source at the Stanton Energy Center</i>	<i>[1]</i>	<i>[1]</i>	<i>0</i>	<i>0</i>	<i>[1]</i>	<i>04/1998</i>
<i>NOAA Eco-Discovery Center [2]</i>	<i>PV</i>	<i>SUN</i>	<i>0.03</i>	<i>0.03</i>	<i>0</i>	<i>0</i>	<i>18</i>	<i>12/2009</i>
<b>Notes</b>								
[1] OUC’s Stanton Energy Project receives landfill gas from the Orange County Landfill. FMPA’s ARP is a joint owner in OUC’s Stanton Energy Project Units 1 and 2. These units burn land fill gas as only a supplemental fuel and on an “As Available” basis and there is no additional capacity as a result from this fuel resource. [2] The NOAA Discovery Center is a joint partnership between the National Oceanic and Atmospheric Administration (NOAA) and FMPA. FMPA receives 62% of the energy generated from the solar PV System.								

25. Please identify and describe each planned utility-owned renewable resource for the period 2019–2028. Please include each proposed facility’s name, unit type, fuel type, its installed capacity (AC-rating for PV systems), its net firm capacity or anticipated contribution during peak demand (if any), anticipated typical capacity factor, and projected in-service date. For



Seller Name	Facility Name	Unit Type	Fuel Type	Installed Capacity (MW)		Contracted Firm Capacity (MW)		In-Service Date	Contract Term (MM/YY)	
<i>US Sugar</i>	<i>US Sugar</i>	<i>ST</i>	<i>AB</i>	<i>48</i> <i>[1]</i>	<i>48</i> <i>[1]</i>	<i>0</i>	<i>0</i>	<i>09/2004</i>	<i>04/1990</i>	<i>On-going with 90 days cancellation notice</i>
<b>Notes</b>										
<i>[1] US Sugar has 3 generators. The first generator was installed in September 2004 (14 MW), the second, in November 2006 (20 MW) and the third in 2007 (14 MW) for a total of 48 MW on-site generation. The facility uses 45MW in-house which leaves 3MW available for the market on-peak. There is a 20 MW transformer at the site which limits the total amount of generation available to sell to the grid to a maximum of 20 MW at any time. This biomass facility is a non-firm resource and energy is received on an “As Available” basis. The contract is on-going but may be terminated with a 90 day cancellation notice.</i>										

29. Please identify and describe each purchased power agreement with a renewable generator that is anticipated to begin delivering renewable energy to the Company during the period 2019–2028. Provide the name of the seller, the name of the generation facility associated with the contract, the unit type of the facility, the fuel type, the facility’s installed capacity (AC-rating for PV systems), the amount of contracted firm capacity (if any), and the start and end dates of the purchased power agreement.

**Renewable Purchased Power Agreements**

Seller Name	Facility Name	Unit Type	Fuel Type	Installed Capacity (MW)		Contracted Firm Capacity (MW)		In-Service Date (MM/YY)	Contract Term (MM/YY)	
				Sum	Win	Sum	Win		Start	End
<i>Florida Renewable Partners</i>	<i>Holopaw</i>	<i>PV</i>	<i>SUN</i>	<i>74.5</i>	<i>74.5</i>	<i>40.5</i> <i>[1]</i>	<i>40.5</i> <i>[1]</i>	<i>06/20</i>	<i>06/20</i>	<i>06/40</i>
<i>Florida Renewable Partners</i>	<i>Poinsett</i>	<i>PV</i>	<i>SUN</i>	<i>74.5</i>	<i>74.5</i>	<i>17.5</i> <i>[1]</i>	<i>17.5</i> <i>[1]</i>	<i>06/20</i>	<i>06/20</i>	<i>06/40</i>
<b>Notes</b>										
<i>[1] FMPPA, on behalf of the ARP, will purchase a 58 MW share from two larger solar facilities. The ARP will receive its pro-rata amount of energy based on the actual output of the facilities, and does not intend to consider any amount of these PPAs as contributing to meeting seasonal peaks for reliability purposes.</i>										

30. Please refer to the list of renewable purchased power agreements that are anticipated to begin delivering capacity and/or energy to the Company during the period 2019–2028. Discuss the current status of each project.

*In March 2018, the FMPA Executive Committee approved a 20-year power purchase agreement (among other enabling agreements) for a total of 58 MW-AC of solar energy as an ARP resource. The ARP expects to purchase this solar energy from Florida Renewable Partners beginning in summer of 2020.*

*FMPA has included the estimated impact on the ARP’s energy mix related to this PPA in our 2019 TYSP schedules.*

31. Please list and discuss any renewable purchased power agreements within the past year that were cancelled, expired, delayed, or modified. What was the primary reason for the changes? What, if any, were the secondary reasons?

*There have been no cancellations, expirations, delays or modifications of any renewable PPAs within the past year.*

32. Please provide the actual and projected annual output for all renewable resources on the Company’s system, including utility-owned resources (firm, non-firm, and co-firing), purchases (firm, non-firm, and co-firing), and customer-owned generation, for the period 2019–2028.

**Renewable Generation by Source**

Renewable Source	Annual Renewable Generation (GWh)										
	Actual	Projected									
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Utility - Firm	26	22	22	22	22	22	22	22	22	22	22
Utility - Non-Firm											
Utility - Co-Firing											
Purchase - Firm											
Purchase - Non-Firm	12	10	11	179	179	251	252	251	250	249	246
Purchase - Co-Firing											
Customer - Owned											
<b>Total</b>											
<b>Notes</b>											
[1] Utility - Non-Firm renewable source is two parts: 1) FMPA's share of generation from landfill gas that is combusted in the Stanton Units 1 and 2; and 2) Energy from FMPA's share of the PV system on the roof of the NOAA Eco-Discovery Center.											
[2] Purchase - Non-Firm source is generation from bagasse combusted by US Sugar and sold to FMPA plus the energy purchased under the future solar PPA with Florida Renewable Partners.											

33. Please complete the table below, providing a list of all of the Company’s plant sites that are potential candidates for utility-scale (>2 MW) solar installations. As part of this response, please provide the plant site’s name, approximate land area available for solar installations, potential installed capacity rating of a PV installation, and a description of any major obstacles that could affect utility-scale solar installations at any of these sites, such as land devoted to other uses or other requirements.

**Candidate Sites - Solar**

Plant Name	Land Available (Acres)	Installed Capacity (MW)	Potential Issues
<i>At this time, FMPA has not considered any of our plant sites as potential candidates for utility scale solar installations.</i>			

34. Please complete the table below, providing a list of all of the Company’s plant sites that are potential candidates for utility-scale wind installations. As part of this response, please provide the plant site’s name, approximate land area available, potential installed capacity rating of a wind farm installation, and a description of any major obstacles that could affect utility-scale wind installations at any of these sites, such as land devoted to other uses or other requirements.

**Candidate Sites - Wind**

Plant Name	Land Available (Acres)	Installed Capacity (MW)	Potential Issues
<i>At this time, FMPA has not considered any of our plant sites as potential candidates for utility scale wind installations.</i>			

35. Please describe any actions the Company engages in to encourage production of renewable energy within its service territory.

*The All-Requirements Project is a wholesale power supply project and as such, does not have a service territory or retail customers. FMPA has developed net metering and feed-in tariff policies to support the programs of the ARP Participants.*

36. **[Investor-Owned Utilities Only]** Please discuss whether the Company has been approached by renewable energy generators during 2018 regarding constructing new renewable energy resources. If so, please provide the number and a description of the type of renewable generation represented.

*FMPA is not an Investor-owned Utility.*

37. Does the Company consider solar PV to contribute to one or both seasonal peaks for reliability purposes? If so, please provide the percentage contribution and explain how the Company developed the value.

*Currently, FMPA does not consider solar PV as contributing to seasonal peaks for reliability purposes.*

38. Please identify whether a declining trend in costs of energy storage technologies has been observed by the Company.

*While FMPA is aware of cost declines in storage technologies, our recent analysis of the benefits of utility-scale energy storage suggest that the costs of energy arbitrage (storing*

*energy when it is less needed for strategic discharge during peak periods to avoid peaking resources that would otherwise serve load) continue to outweigh the benefits, and that other ancillary services that are offered by storage technologies are offered in a cost-competitive fashion by native/existing resources. As the amount of utility-scale solar on the grid increases over time, FMPA will continue to evaluate the cost and performance of available storage technologies that may be operationally advantageous (e.g. due to quick start/response capabilities or shaping/firming of solar energy) to the ARP.*

39. Briefly discuss any progress in the development and commercialization of non-lithium battery storage technology the Company has observed in recent years.

*FMPA recently retained Burns & McDonnell to prepare a market characterization and presentation to the FMPA Board of Directors on storage. Burns & McDonnell summarized estimated costs and technology trends related to competing battery storage technologies, which included a matrix detailing the optimal operational parameters (or "use cases") for each type of battery technology and the level of commercialization and prior successful deployment for each option. The presentation generally concluded that lithium-ion technology represents the most attractive combination of cost, commercialization, and flexibility to support key use cases.*

40. Briefly discuss any considerations reviewed in determining the optimal positioning of energy storage technology in the Company's system. (e.g. Closer to/further from sources of load, generation, or transmission/distribution capabilities.)

*FMPA recently released a request for proposals for additional solar generation for our Members that included a bolt-on storage option. We anticipate this procurement process to provide bidder descriptions of current best-in-class, least cost storage solutions based on our anticipated use cases. FMPA has not performed any independent evaluations of optimal storage positioning.*

41. Please provide whether ratepayers have expressed interest in energy storage technologies. If so, how have their interests been addressed?

*The All-Requirements Project is a wholesale power supply project and as such, does not have retail customers or ratepayers. FMPA does not collect this information on behalf of ARP Participants.*

42. Please complete the table below, identifying all energy storage technologies that are currently either part of the Company's system portfolio or are part of a pilot program sponsored by the Company. As part of this response, please identify the project to which the energy storage technology is associated with, whether this project is a pilot program or not, the in-service date or pilot start date associated with the energy storage technology, and the maximum

capacity output and maximum energy stored of/by the energy storage technology under normal operating conditions.

Project Name	Pilot Program (Y/N)	In-Service/ Pilot Start Date	Max Capacity Output (MW)	Max Energy Stored (MWh)
<b>Notes</b>				
<i>FMPA does not currently include energy storage technologies as part of the ARP system portfolio.</i>				

43. Please identify and describe the objectives and methodologies of all energy storage pilot programs currently running or in development with an anticipated launch date within the next 10 years. If the Company is not currently participating in or developing energy storage pilot programs, has it considered doing so? If not, please explain.
- Please discuss any pilot program results, addressing all anticipated benefits, risks, and operational limitations when such energy storage technology is applied on a utility scale (> 2 MW) to provide for either firm or non-firm capacity and energy.
  - Please provide a brief assessment of how these benefits, risks, and operational limitations may change over the next 10 years.
  - Please identify and describe any plans to periodically update the Commission on the status of your energy storage pilot programs.

*FMPA is not currently participating in or developing energy storage pilot programs on behalf of ARP Participants. As noted above, FMPA, on a recurring basis, interfaces with technology providers and vendors to monitor cost declines in available storage technologies and will continue to evaluate the cost and performance of available storage technologies that may be operationally advantageous to the ARP. Additionally, as described above, FMPA's most recent RFP for solar includes a bolt-on storage option that will be evaluated to determine if such an investment is beneficial to our Members from a cost and performance perspective.*

44. If the Company utilizes non-firm generation sources in its system portfolio, please detail whether it currently utilizes or has considered utilizing energy storage technologies to provide firm capacity. If not, please explain.

*FMPA's recent solar RFP includes an option for bolt-on storage to better manage the output of intermittent (non-firm) generation. We anticipate this procurement process to provide bidder descriptions of current best-in-class, least cost storage solutions based on our anticipated use cases. Such evaluations notwithstanding, FMPA does not rely on non-firm generation sources for capacity.*

45. Please identify and describe any programs you offer that allow your customers to contribute towards the funding of specific renewable projects, such as community solar programs.
- Please describe any such programs in development with an anticipated launch date within the next 10 years.

*The All-Requirements Project is a wholesale power supply project and as such, does not have retail customers. A portion of FMPA's Members offer individual solar subscription programs, and FMPA is actively engaged in supporting our Members with development of new such programs to coincide with the anticipated online date of our utility scale solar resources (summer 2020).*

46. Please identify and discuss the Company's role in the research and development of utility power technologies. As part of this response, please describe any plans to implement the

results of research and development into the Company's system portfolio and discuss how any anticipated benefits will affect your customers.

*FMPA has not participated in the research and development of utility power technologies.*

47. **[Investor-Owned Utilities Only]** Provide, on a system-wide basis, the historical annual average as-available energy rate in the Company’s service territory for the period 2009–2018. If the Company uses multiple areas for as-available energy rates, please provide a system-average rate as well. Also, provide the projected annual average as-available energy rate in the Company’s service territory for the period 2019–2028.

*FMPA is not an Investor-owned Utility.*

**As-Available Energy Rates**

Year		As-Available Energy (\$/MWh)	On-Peak Average (\$/MWh)	Off-Peak Average (\$/MWh)
<b>Actual</b>	2009			
	2010			
	2011			
	2012			
	2013			
	2014			
	2015			
	2016			
	2017			
	2018			
<b>Projected</b>	2019			
	2020			
	2021			
	2022			
	2023			
	2024			
	2025			
	2026			
	2027			
	2028			
<b>Notes</b>				
(Include Notes Here)				

48. Please complete the following table detailing planned unit additions, including information on capacity and in-service dates. Please include only planned conventional units with an in-service date past January 1, 2018. For each planned unit, provide the date of the Commission’s Determination of Need and Power Plant Siting Act certification (if applicable), and the anticipated in-service date.

<b>Planned Unit Additions</b>				
<b>Generating Unit Name</b>	<b>Summer Capacity (MW)</b>	<b>Certification Dates (if Applicable)</b>		<b>In-Service Date</b>
		<b>Need Approved (Commission)</b>	<b>PPSA Certified</b>	
<b>Nuclear Unit Additions</b>				
<i>None</i>				
<b>Combustion Turbine Unit Additions</b>				
<b>Combined Cycle Unit Additions</b>				
<b>Steam Turbine Unit Additions</b>				
<b>Notes</b>				
<i>Notes: FMPA currently has no planned conventional unit additions for the period 2019 through 2028.</i>				

49. For each of the planned generating units contained in the Company’s 2019 TYSP, please discuss the “drop dead” date for a decision on whether or not to construct each unit. Provide a time line for the construction of each unit, including regulatory approval, and final decision point.

*FMPA currently has no planned unit additions for the period 2019 through 2028.*

50. Please provide an estimate of the revenue requirements of the Company based upon the 2019 TYSP’s planned generating units.

*FMPA currently has no planned unit additions for the period 2019 through 2028.*

51. For each of the planned generating units contained in the Company’s 2019 TYSP, please identify the next best alternative that was rejected for each unit. Provide information similar to Schedule 9 regarding each of the next best alternative unit(s). As part of this response, please also provide the additional revenue requirement that would have been associated with the next best alternative compared to the planned unit.

*FMPA currently has no planned generating units identified in the 2019 Ten-Year Site Plan.*

52. For each existing and planned unit on the Company’s system, provide the following data based upon historic data from 2018 and projected capacity factor values for the period 2019–2028. Please complete the tables below and provide an electronic copy in Microsoft Excel format.

**Projected Unit Information – Capacity Factor (%)**

Plant	Unit #	Unit Type	Fuel Type	Actual	Projected									
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<i>Cane Island</i>	<i>1</i>	<i>GT</i>	<i>NG</i>	<i>0.5</i>	<i>3.1</i>	<i>2.9</i>	<i>2.9</i>	<i>3.9</i>	<i>3.7</i>	<i>4.3</i>	<i>4.5</i>	<i>4.7</i>	<i>5.3</i>	<i>3.5</i>
<i>Cane Island</i>	<i>2</i>	<i>CC</i>	<i>NG</i>	<i>20.1</i>	<i>4.1</i>	<i>7.0</i>	<i>9.4</i>	<i>10.8</i>	<i>10.2</i>	<i>12.8</i>	<i>13.7</i>	<i>12.9</i>	<i>13.8</i>	<i>5.6</i>
<i>Cane Island</i>	<i>3</i>	<i>CC</i>	<i>NG</i>	<i>56.2</i>	<i>51.9</i>	<i>51.4</i>	<i>52.5</i>	<i>56.4</i>	<i>56.9</i>	<i>65.6</i>	<i>65.7</i>	<i>63.0</i>	<i>67.5</i>	<i>54.5</i>
<i>Cane Island</i>	<i>4</i>	<i>CC</i>	<i>NG</i>	<i>62.8</i>	<i>67.3</i>	<i>68.6</i>	<i>69.1</i>	<i>69.6</i>	<i>70.1</i>	<i>68.8</i>	<i>68.9</i>	<i>68.5</i>	<i>68.7</i>	<i>66.1</i>
<i>Stock Island</i>	<i>CT 1</i>	<i>GT</i>	<i>DFO</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.2</i>	<i>0.1</i>	<i>0.2</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>
<i>Stock Island</i>	<i>CT 2</i>	<i>GT</i>	<i>DFO</i>	<i>0.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<i>Stock Island</i>	<i>CT 3</i>	<i>GT</i>	<i>DFO</i>	<i>0.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<i>Stock Island</i>	<i>GT 4</i>	<i>GT</i>	<i>DFO</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<i>Stock Island</i>	<i>MSD1</i>	<i>IC</i>	<i>DFO</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<i>Stock Island</i>	<i>MSD2</i>	<i>IC</i>	<i>DFO</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>
<i>Stock Island</i>	<i>EP2</i>	<i>IC</i>	<i>DFO</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
<i>Treasure Coast</i>	<i>1</i>	<i>CC</i>	<i>NG</i>	<i>70.2</i>	<i>68.3</i>	<i>69.0</i>	<i>69.3</i>	<i>68.7</i>	<i>68.8</i>	<i>69.9</i>	<i>69.9</i>	<i>69.6</i>	<i>69.8</i>	<i>67.4</i>
<i>St. Lucie</i>	<i>2</i>	<i>NP</i>	<i>UR</i>	<i>[1]</i>	<i>97.0</i>	<i>90.0</i>	<i>90.2</i>	<i>97.0</i>	<i>90.0</i>	<i>90.3</i>	<i>96.9</i>	<i>89.9</i>	<i>90.2</i>	<i>97.1</i>
<i>Indian River</i>	<i>CT A</i>	<i>GT</i>	<i>NG</i>	<i>[2]</i>	<i>0.1</i>	<i>0.4</i>	<i>0.4</i>	<i>0.1</i>	<i>0.3</i>	<i>0.1</i>	<i>0.0</i>	<i>0.5</i>	<i>0.2</i>	<i>0.0</i>
<i>Indian River</i>	<i>CT B</i>	<i>GT</i>	<i>NG</i>	<i>[2]</i>	<i>0.2</i>	<i>0.4</i>	<i>0.4</i>	<i>0.1</i>	<i>0.3</i>	<i>0.1</i>	<i>0.0</i>	<i>0.5</i>	<i>0.1</i>	<i>0.0</i>
<i>Indian River</i>	<i>CT C</i>	<i>GT</i>	<i>NG</i>	<i>[2]</i>	<i>0.5</i>	<i>0.8</i>	<i>0.8</i>	<i>0.6</i>	<i>0.7</i>	<i>0.7</i>	<i>0.7</i>	<i>1.0</i>	<i>1.0</i>	<i>0.2</i>
<i>Indian River</i>	<i>CT D</i>	<i>GT</i>	<i>NG</i>	<i>[2]</i>	<i>0.5</i>	<i>0.8</i>	<i>0.7</i>	<i>0.5</i>	<i>0.6</i>	<i>0.5</i>	<i>0.5</i>	<i>0.6</i>	<i>0.7</i>	<i>0.1</i>
<i>Stanton Energy Center</i>	<i>1</i>	<i>ST</i>	<i>BIT</i>	<i>[2]</i>	<i>28.1</i>	<i>37.5</i>	<i>35.5</i>	<i>35.3</i>	<i>34.3</i>	<i>38.5</i>	<i>40.7</i>	<i>40.2</i>	<i>40.7</i>	<i>29.4</i>
<i>Stanton Energy Center</i>	<i>2</i>	<i>ST</i>	<i>BIT</i>	<i>[2]</i>	<i>37.9</i>	<i>31.7</i>	<i>31.5</i>	<i>32.5</i>	<i>31.5</i>	<i>33.2</i>	<i>34.1</i>	<i>33.4</i>	<i>34.0</i>	<i>29.3</i>
<i>Stanton Energy Center</i>	<i>A</i>	<i>CC</i>	<i>NG</i>	<i>[3]</i>	<i>69.4</i>	<i>70.6</i>	<i>71.0</i>	<i>71.0</i>	<i>74.0</i>	<i>71.9</i>	<i>72.5</i>	<i>71.9</i>	<i>72.1</i>	<i>69.5</i>
<i>Oleander</i>	<i>OG5</i>	<i>GT</i>	<i>NG</i>	<i>[4]</i>	<i>0.2</i>	<i>0.5</i>	<i>0.6</i>	<i>0.4</i>	<i>0.3</i>	<i>0.2</i>	<i>0.2</i>	<i>0.5</i>	<i>0.5</i>	
<b>Notes</b>														

[1] Historical operating data for this unit is available from Florida Power and Light.  
 [2] Historical operating data for this unit is available from Orlando Utilities Commission.  
 [3] Historical operating data for this unit is available from Nextera Energy Resources.  
 [4] FMPA has a PPA with Nextera Energy Resources for Oleander Unit 5. Historical operating data for the unit is available from Nextera Energy Resources.  
 [5] Projected capacity factors are based on production modeling using assumptions suitable for long-term planning purposes.

53. For each existing unit on the Company’s system, please provide the planned retirement date. If the Company does not have a planned retirement date for a unit, please provide an estimated lifespan for units of that type and a non-binding estimate of the retirement date for the unit.

Plant	Unit #	Unit Type	Fuel Type	Commercial In-Service Date MM/YY	Estimated Lifespan	Possible Retirement Date based on Lifespan
Cane Island	1	GT	NG	01/95	[1]	[1]
Cane Island	2	CC	NG	06/95	[1]	[1]
Cane Island	3	CC	NG	01/02	[1]	[1]
Cane Island	4	CC	NG	08/11	[1]	[1]
Stock Island	CT 1	GT	DFO	11/78	[1]	[1]
Stock Island	CT 2	GT	DFO	06/99	[1]	[1]
Stock Island	CT 3	GT	DFO	06/99	[1]	[1]
Stock Island	GT 4	GT	DFO	06/06	[1]	[1]
Stock Island	MSD1	IC	DFO	06/91	[1]	[1]
Stock Island	MSD2	IC	DFO	06/91	[1]	[1]
Stock Island	EP2	IC	DFO	07/12	[1]	[1]
Treasure Coast	1	CC	NG	05/08	[1]	[1]
St. Lucie	2	NP	UR	08/83	[2]	[2]
Indian River	CT A	GT	NG	06/89	[3]	[3]
Indian River	CT B	GT	NG	07/89	[3]	[3]
Indian River	CT C	GT	NG	08/92	[3]	[3]
Indian River	CT D	GT	NG	10/92	[3]	[3]
Stanton Energy Center	1	ST	BIT	07/87	[3]	[3]
Stanton Energy Center	2	ST	BIT	06/96	[3]	[3]
Stanton Energy Center	A	CC	NG	10/03	[4]	[4]

[1] FMPA does not currently have planned retirement dates for any unit on FMPA’s system, and no estimate of lifespan can be given at this time. Any estimates that FMPA would provide in response to this Supplemental Data Request #1 would not be based on any policy decision, practice, or book-life data used by FMPA.

*[2] FMPA defers to FPL for a response*

*[3] FMPA defers to OUC for a response.*

*[4] FMPA defers to Nextera Energy Resources for a response.*

54. Please complete the table below, providing a list of all of the Company’s steam units that are potential candidates for repowering to operation as Combined Cycle units. As part of this response, please provide the unit’s current fuel type, summer capacity rating, in-service date, and what potential conversion, fuel-switching, or repowering would be most applicable. Also include a description of any potential issues that could affect repowering efforts at any of these sites, related to such things as unit age, land availability, or other requirements.

**Repowering Candidate Units - Steam**

Plant Name	Fuel Type	Summer Capacity (MW)	In-Service Date	Potential Conversion	Potential Issues
<i>None</i>					
<b>Notes</b>					
<i>FMPA has no steam units in our wholly owned and/or assigned generating fleet. FMPA has a minority ownership interest in OUC’s Stanton Units 1 and 2; for those units, FMPA defers to the response submitted by OUC as the Majority Owner and Operator.</i>					

55. Please identify each of the Company’s existing (as of December 31, 2018) and planned (between 2019–2028) power purchase contracts, including firm capacity imports reflected in Schedule 7 of the Company’s 2019 TYSP. Provide the seller, the term of the contract, amount of seasonal capacity purchased, the primary fuel (if applicable, such as with a unit purchase), whether it is included in the Utility’s firm peak capacity, and a description of the source of the purchase (such as the name of the unit in a unit purchase).

**Existing Purchased Power Agreements**

Seller	Contract Term		Contract Capacity (MW)		Capacity Factor	Primary Fuel (if any)	Firm Capacity	Description
	Begins	Ends	Summer	Winter	(%)			
<i>Nextera Energy Resources</i>	<i>3/1/2017</i>	<i>9/30/2023</i>	<i>81</i>	<i>87</i>	<i>Variable</i>	<i>NG (Primary)</i>	<i>Yes</i>	<i>Unit contingent purchase from the Stanton Energy Center CC Unit A</i>
<i>Nextera Energy Resources</i>	<i>2/6/2017</i>	<i>12/15/2027</i>	<i>162</i>	<i>180</i>	<i>Variable</i>	<i>NG (Primary)</i>	<i>Yes</i>	<i>Unit contingent purchase from the Oleander Power Plant CT5</i>
<b>Notes</b>								
<i>Formerly Southern Power.</i>								

**Planned Purchased Power Agreements**

Seller	Contract Term		Contract Capacity (MW)		Capacity Factor	Primary Fuel (if any)	Firm Capacity	Description
	Begins	Ends	Summer	Winter	(%)			
<i>Florida Renewable Partners</i>	<i>06/2020</i>	<i>06/2040</i>	<i>40.5</i>	<i>40.5</i>	<i>Approximately 30%</i>	<i>SUN</i>	<i>No</i>	<i>FMPA does not consider solar PV as firm capacity for reliability purposes.</i>
<i>Florida Renewable Partners</i>	<i>06/20</i>	<i>06/2040</i>	<i>17.5</i>	<i>17.5</i>	<i>Approximately 30%</i>	<i>SUN</i>	<i>No</i>	<i>FMPA does not consider solar PV as firm capacity for reliability purposes.</i>
<b>Notes</b>								
<i>(Include Notes Here)</i>								

56. Please identify each of the Company’s existing (as of December 31, 2018) and planned (between 2019–2028) power sales, including firm capacity exports reflected in Schedule 7 of the Company’s 2019 TYSP. Provide the purchaser, the term of the contract, amount of seasonal capacity sold, the primary fuel (if applicable, such as with a unit purchase), whether it is included in the Utility’s firm peak demand, and a description of the sale (such as the name of the unit in a unit purchase).

**Existing Power Sales**

Purchaser	Contract Term		Contract Capacity (MW)		Capacity Factor	Primary Fuel (if any)	Firm Demand	Description
	Begins	Ends	Summer	Winter	%			
<i>City of Bartow</i>	<i>01/01/2018</i>	<i>12/31/2022</i>	<i>2018-2020: 20 MW</i>	<i>2018-2020: 20 MW</i>	<i>Variable</i>	<i>System</i>	<i>Yes</i>	<i>FMPPA is providing partial-requirements for 2018-2020 and full-requirements for 2021-2022. The Contract Capacities shown are subject to change depending on the actual needs of the City of Bartow.</i>
<i>City of Winter Park</i>	<i>01/01/2019</i>	<i>12/31/2027</i>	<i>2019: 10 MW</i>	<i>2019: 10 MW</i>	<i>Variable</i>	<i>System</i>	<i>Yes</i>	<i>FMPPA is providing 10 MW year-round in 2019 and partial requirements for 2020-2027. The Contract Capacities shown for 2020-2027 are subject to change depending on the actual needs of the City of Winter Park.</i>
<b>Notes</b> (Include Notes Here)								

**Planned Power Sales**

Purchaser	Contract Term		Contract Capacity (MW)		Capacity Factor	Primary Fuel (if any)	Firm Demand	Description
	Begins	Ends	Summer	Winter	%			
<b>Notes</b> (Include Notes Here)								

57. Please list and discuss any long-term power sale or purchase agreements within the past year that were cancelled, expired, or modified.

*There have been no long-term power sales or purchase agreements that have expired or have been cancelled or modified within the past year.*

58. Please provide a list of all proposed transmission lines in the planning period that require certification under the Transmission Line Siting Act. Please also include those that have been approved, but are not yet in-service, when completing the table below.

**Transmission Projects Requiring TLISA Approval**

Transmission Line	Line Length	Nominal Voltage	Date Need Approved	Date TLISA Certified	In-Service Date
	(Miles)	(kV)			
<i>None</i>					
<b>Notes</b>					
(Include Notes Here)					

**Environmental**

59. Provide a narrative explaining the impact of any existing environmental regulations relating to air emissions and water quality or waste issues on the Company’s system during the 2018 period. As part of your narrative, please discuss the potential for existing environmental regulations to impact unit dispatch, curtailments, or retirements during the 2019–2028 period.

*During the 2018 period, FMPA has been able to manage our fleet operations and capital and O&M expenditures in a manner that avoids negative impacts such as curtailments or unplanned retirements. FMPA fully anticipates that existing environmental regulations will not have any negative impacts on unit dispatch, curtailments or retirements during the 2019 through 2028 period.*

60. Please complete the table below, providing actual and projected amounts of regulated air pollutants and carbon dioxide emitted, on an annual and per megawatt-hour basis, by the Company’s generation fleet. Please also provide an electronic copy of the completed table in Microsoft Excel format.

**Emissions of Registered Air Pollutants & CO2**

Year	SOX		NOX		Mercury		Particulates		CO2		
	lb/MWh	Tons	lb/MWh	Tons	lb/MWh	Tons	lb/MWh	Tons	lb/MWh	Tons	
Actual	2009	0.012	18	0.11	161					890	1,348,638
	2010	0.006	9	0.1	160					893	1,423,306
	2011	0.005	9	0.07	142					839	1,662,110
	2012	0.004	10	0.08	179					863	2,023,064
	2013	0.004	11	0.05	136					844	2,100,794
	2014	0.004	12	0.06	163					845	2,302,486
	2015	0.004	12	0.06	175					848	2,296,518
	2016	0.004	12	0.06	156					853	2,341,057
	2017	0.004	12	0.06	175					859	2,314,873
	2018	0.004	11	0.06	147					866	2,108,006
Projected	2019	0.004	11	0.06	145					863	2,071,069
	2020	0.004	11	0.06	151					864	2,110,392
	2021	0.005	11	0.06	159					865	2,138,156
	2022	0.004	12	0.06	164					867	2,221,137
	2023	0.005	12	0.07	172					867	2,230,873
	2024	0.005	12	0.07	178					868	2,369,734
	2025	0.005	12	0.07	180					868	2,371,338
	2026	0.005	12	0.07	177					868	2,333,909
	2027	0.005	12	0.07	182					869	2,387,024
	2028	0.004	11	0.06	154					864	2,161,427
Notes											
(Include Notes Here)											

61. For the U.S. Environmental Protection Agency’s (EPA’s) Mercury and Air Toxics Standards (MATS) Rule:

*FMPA has a minority ownership interest in OUC’s Stanton Units 1 and 2, and OUC is the sole operator for the facilities and has all compliance responsibility on behalf of itself and as agent for FMPA. FMPA has no other coal-fired generating units.*

- a. Will your Company be materially affected by the rule?
- b. What compliance strategy does the Company anticipate employing for the rule?
- c. If the strategy has not been completed, what is the Company’s timeline for completing the compliance strategy?
- d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
- e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding MATS-related costs:

Year	Estimated Cost of Mercury and Air Toxics Standards (MATS) Rule Impacts (2019 \$ millions)			
	Capital Costs	O&M Costs	Fuel Costs	Total Costs
2019				
2020				
2021				
2022				
2023				
2024				
2025				
2026				
2027				
2028				
<b>Notes</b>				
(Include Notes Here)				

If the answer to any of the above questions is not available, please explain why.

62. For the U.S. EPA’s Cross-State Air Pollution Rule (CSAPR):

*The EPA’s 2016 CSAPR Update indicated that Florida does not significantly contribute to air quality issues in downwind states. If future CSAPR modeling demonstrates that Florida is impacting downwind states, Florida may be subject to NOx reductions in CSAPR again.*

- a. Will your Company be materially affected by the rule?
- b. What compliance strategy does the Company anticipate employing for the rule?
- c. If the strategy has not been completed, what is the Company’s timeline for completing the compliance strategy?
- d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
- e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CSAPR-related costs:

Year	Estimated Cross-State Air Pollution Rule (CSAPR) Rule Impacts (2019 \$ millions)			
	Capital Costs	O&M Costs	Fuel Costs	Total Costs
2019				
2020				
2021				
2022				
2023				
2024				
2025				
2026				
2027				
2028				
<b>Notes</b>				
(Include Notes Here)				

If the answer to any of the above questions is not available, please explain why.

63. For the U.S. EPA’s Cooling Water Intake Structures (CWIS) Rule:

*FMPA has a minority ownership interest in FPL’s St. Lucie Unit 2, and FPL is the sole operator for the facility, and has all compliance responsibility on behalf of itself and FMPA. FMPA will defer to FPL’s compliance strategy for the CWIS Rule. The CWIS rule does not affect any other FMPA units.*

- a. Will your Company be materially affected by the rule?
- b. What compliance strategy does the Company anticipate employing for the rule?
- c. If the strategy has not been completed, what is the Company’s timeline for completing the compliance strategy?
- d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
- e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CWIS-related costs:

Year	Estimated Cost of Cooling Water Intake Structures Rule (CWIS) Rule Impacts (2019 \$ millions)			
	Capital Costs	O&M Costs	Fuel Costs	Total Costs
2019				
2020				
2021				
2022				
2023				
2024				
2025				
2026				
2027				
2028				
<b>Notes</b>				
(Include Notes Here)				

If the answer to any of the above questions is not available, please explain why.

64. For the U.S. EPA’s Coal Combustion Residuals Rule (CCR), both for classification of coal ash as a “Non-Hazardous Waste” and as a “Special Waste.”

*FMPA has a minority ownership interest in OUC’s Stanton Units 1 and 2, and OUC is the sole operator for the facilities and has all compliance responsibility on behalf of itself and as agent for FMPA. FMPA has no other coal-fired generating units.*

- a. Will your Company be materially affected by the rule?
- b. What compliance strategy does the Company anticipate employing for the rule?
- c. If the strategy has not been completed, what is the Company’s timeline for completing the compliance strategy?
- d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
- e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CCR-related costs:

Year	Estimated Coal Combustion Residuals Rule (CCR) Impacts (2019 \$ millions)			
	Capital Costs	O&M Costs	Fuel Costs	Total Costs
2019				
2020				
2021				
2022				
2023				
2024				
2025				
2026				
2027				
2028				
<b>Notes</b>				
(Include Notes Here)				

If the answer to any of the above questions is not available, please explain why.

65. For the U.S. EPA’s Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units Rule:

*In December 2018, EPA published its proposed rule to revise the Performance Standards for Greenhouse Gas Emissions from New, Modified and Reconstructed Stationary Sources. Since FMPA has no immediate plans to develop, modify or reconstruct any units, this rule is not currently applicable to FMPA.*

- a. Will your Company be materially affected by the rule?
- b. What compliance strategy does the Company anticipate employing for the rule?
- c. If the strategy has not been completed, what is the Company’s timeline for completing the compliance strategy?
- d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
- e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding costs:

Year	Estimated Cost of Standards of Performance for Greenhouse Gas Emissions Rule for New Sources Impacts (2019 \$ millions)			
	Capital Costs	O&M Costs	Fuel Costs	Total Costs
2019				
2020				
2021				
2022				
2023				
2024				
2025				
2026				
2027				
2028				
<b>Notes</b>				
(Include Notes Here)				

If the answer to any of the above questions is not available, please explain why.

66. Please identify, for each unit affected by one or more of EPA’s rules, what the impact is for each rule, including; unit retirement, curtailment, installation of additional emissions controls, fuel switching, or other impacts identified by the Company. As part of this response, please also indicate the unit’s name, type, fuel type, and net summer generating capacity. Please complete the table below and provide an electronic copy in Microsoft Excel format.

**Estimated Impacts of EPA’s Rules on Generating Units**

Unit [1]	Unit Type	Fuel Type	Net Sum Capacity (MW)	Type of New and Proposed EPA Rule Impacts					Anticipated Impacts
				MATS	CSAPR/CAIR	CWIS	CCR		
							Non-Hazardous Waste	Special Waste	
Cane Island 1	GT	NG			X				[2]
Cane Island 2	CC	NG			X				[2]
Cane Island 3	CC	NG			X				[2]
Cane Island 4	CC	NG			X				[2]
Stock Island CT1	GT	DFO							
Stock Island CT2	GT	DFO							
Stock Island CT3	GT	DFO							
Stock Island CT4	GT	DFO			X				[2]
Stock Island MS1	IC	DFO							
Stock Island MS2	IC	DFO			X				[2]
TCEC	CC	NG			X				[2]
Indian River CTA (Minority)	GT	NG			X				[2]
Indian River CTB (Minority)	GT	NG			X				[2]
Indian River CTC (Minority)	GT	NG			X				[2]
Indian River CTD (Minority)	GT	NG			X				[2]
Stanton 1 (Minority)	ST	BIT		X	X		X		[2] [3]
Stanton 2 (Minority)	ST	BIT		X	X		X		[2] [3]
Stanton A (Minority)	CC	NG			X				[2]
St. Lucie 2 (Minority)	NP	UR				X			[4]
<b>Notes</b>									
[1] The units listed in the table for Question #66 include only the generation units that FMPA, as agent for the FMPA's All-Requirements Power Supply Project ("ARP") directly owns, in whole or in part through ownership shares and entitlements, as well as those generation units for which FMPA does not own but has been assigned operational (including environmental) responsibility from individual Participants. FMPA's answers to all of the questions in this Environmental Issues Section (Questions 59 through 71) of the 2019 Ten Year Site Plan Supplemental Data Request are based on this list of units. However, FMPA's responses to other sections of this Supplemental Data Request may be based on the larger set of resources used by FMPA to serve the ARP, which includes purchased power resources, and resources owned and operated by individual ARP Participants that have been contractually dedicated to serve the combined ARP load.									
[2] As discussed in FMPA's response to Question #62, the state of Florida is excluded from the CSAPR Update. If future CSAPR modeling demonstrates that Florida is impacting downwind states, these units will continue to operate within prescribed limits of permits and CSAPR allowances, as assigned and purchased.									
[3] As discussed in FMPA's responses to Questions #61 and #64, FMPA has a minority ownership in Stanton Units 1 and 2, which are affected by the MATS and CCR Rules. Other FMPA units are not impacted by these rules. FMPA will defer to OUC's compliance strategy for these units, and FMPA will be responsible for a percentage share of the costs for compliance.									
[4] As discussed in FMPA's response to Question #63, FMPA has a minority ownership in St. Lucie 2, which will be affected by the CWIS rule. Other FMPA units are not impacted by the CWIS rule. FPL has all compliance responsibility and FMPA will be responsible for a percentage share of all capital additions and O&M costs.									

67. Please identify, for each unit impacted by one or more of the EPA’s rules, what the estimated cost is for implementing each rule over the course of the planning period. As part of this response, please indicate the unit’s name, type, fuel type, and net summer generating capacity. Please complete the table below and provide an electronic copy in Microsoft Excel format.



68. Please identify, for each unit impacted by one or more of EPA’s rules, when and for what duration units would be required to be offline due to retirements, curtailments, installation of additional controls, or additional maintenance related to emission controls. Include important dates relating to each rule. Please complete the table below and provide an electronic copy in Microsoft Excel format.

*FMPA does not anticipate that, under current planning assumptions, ARP’s wholly owned units and ARP Participants’ wholly owned units for which FMPA has been assigned operational responsibility will be required to be offline due to retirements, curtailments, installation of additional emissions controls, or additional maintenance related to emissions control.*

*For the impacted units in which FMPA has a minority ownership interest, including the Stanton, Indian River and St. Lucie units, FMPA defers to the responses submitted by OUC and FPL as the Majority Owners and Operators of these facilities.*

**Estimated Timing of Unit Impacts of EPA’s Rules**

Unit	Unit Type	Fuel Type	Net Sum Capacity (MW)	Estimated Timing of EPA Rule Impacts (Month/Year - Duration)				
				MATS	CSAPR/CAIR	CWIS	CCR	
							Non-Hazardous Waste	Special Waste
<b>Notes</b>								
<i>See the above explanation in response to Question 68.</i>								

69. Explain any expected reliability impacts resulting from each of the EPA rules listed below. As part of your explanation, please discuss the impacts of transmission constraints and units not modified by the rule, that may be required to maintain reliability if unit retirements, curtailments, additional emissions control upgrades, or longer outage times due to each of these EPA rules.

- a. Mercury and Air Toxics Standards (MATS) Rule.
- b. Cross-State Air Pollution Rule (CSAPR).
- c. Cooling Water Intake Structures (CWIS) Rule.
- d. Coal Combustion Residuals (CCR) Rule.
- e. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units.

*FMPA actively participates on the FRCC Planning Committee and other committees and sub-committees, and contributes to statewide reliability planning activities. The full impact of the EPA’s rules on the long-range reliability of FMPA and the FRCC Region is still unknown. With the transition of the FRCC Regional Entity to SERC effective July 1, 2019, further evaluations on*

*a broader basis may be conducted in the future. FMPA does not anticipate that, under current planning assumptions, ARP's wholly owned units and ARP Participants' wholly owned units for which FMPA has been assigned operational responsibility will be required to be offline due to retirements, curtailments, installation of additional emissions controls, or additional maintenance related to emissions control. Therefore, FMPA operations should not contribute to any potential transmission constraints resulting from the EPA's rules.*

70. If applicable, identify any currently approved costs for environmental compliance investments made by your Company, including but not limited to renewable energy or energy efficiency measures, which would mitigate the need for future investments to comply with recently finalized or proposed EPA regulations. Briefly describe the nature of these investments and identify which rule(s) they are intended to address.

*There are no currently approved capital investments being made by FMPA at its wholly owned units or units for which FMPA has operational responsibility for environmental compliance associated with recently finalized or proposed EPA regulations.*

*For the units in which FMPA has a minority ownership interest, including the Stanton, Indian River and St. Lucie units, FMPA defers to the responses submitted by OUC and FPL as the Majority Owners and Operators of these facilities. FMPA will be responsible for a percentage share of all capital addition and O&M costs.*

71. What steps has your Company taken, is currently taking, or is planning to take to address curbing carbon dioxide emissions for existing sources? How has your Company addressed the ruling by the U.S. Supreme Court that carbon dioxide is a pollutant under the Clean Air Act? How does your Company plan on addressing carbon dioxide emissions from existing sources during the 10-year site planning period?

*On August 21, 2018, EPA proposed the Affordable Clean Energy (ACE) rule to regulate GHGs from existing electric generating units, and to replace the 2015 Clean Power Plan (CPP). The proposal addresses existing coal-fired utility boilers greater than 25 MW and currently excludes IGCC, NGCC, and simple-cycle CT units. As directed by the Clean Air Act, EPA is promulgating Emission Guidelines for these coal-fired units and directing states to establish standards for individual units, based on the guidelines. State plans will be due within three years after the final rule is published. Industry has provided comments on this proposed rule, and EPA has indicated it expects to finalize the ACE rule during the spring of 2019. Since the proposed rule currently excludes NGCC and simple-cycle CT units, FMPA's exposure to the rule is through a minority ownership interest in OUC's Stanton Units 1 and 2. OUC is the sole operator for the facilities and has all compliance responsibility on behalf of itself and as agent for FMPA. If the final ACE rule or future GHG rules include NGCC and simple-cycle CTs, FMPA will continue to engage in rulemaking activity, as necessary,*

*and FMPA will continue to operate within prescribed limits of all state and federal requirements.*

**Fuel Supply & Transportation**

72. Please provide, on a system-wide basis, the actual annual fuel usage (in GWh) and average fuel price (in nominal \$/MMBTU) for each fuel type utilized by the Company in the period 2009–2018. Also, provide the forecasted annual fuel usage (in GWh) and forecasted annual average fuel price (in nominal \$/MMBTU) for each fuel type forecasted to be used by the Company in the period 2019–2028. As part of this response, please complete the table below and provide the completed table in Microsoft Excel format.

**Average Fuel Price Comparison**

Year	Uranium		Coal		Natural Gas		Residual Oil		Distillate Oil		
	GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU	
<b>Actual</b>	2009	644	[2]	1,499	[3]	2,964	\$3.98			8	\$20.88
	2010	538	[2]	1,181	[3]	3,648	\$4.42			10	\$15.57
	2011	538	[2]	1,181	[3]	3,648	\$4.05			10	\$25.77
	2012	505	[2]	638	[3]	5,136	\$2.93			1	\$31.37
	2013	618	[2]	734	[3]	4,527	\$3.78			2	\$20.32
	2014	286	[2]	837	[3]	4,554	\$4.35			3	\$21.95
	2015	273	[2]	710	[3]	5,007	\$2.87			5	\$17.43
	2016	281	[2]	790	[3]	4,925	\$2.48	N/A	N/A	1	\$10.22
	2017	294	[2]	915	[3]	4,741	\$2.94	N/A	N/A	1	\$10.22
	2018	279	[2]	968	[3]	4,851	\$3.13	N/A	N/A	2	\$16.56
<b>Projected</b>	2019	399	\$0.79	568	\$3.46	5,335	\$3.57	N/A	N/A	0	\$14.57
	2020	391	\$0.81	627	\$3.55	5,562	\$3.18	N/A	N/A	0	\$16.17
	2021	376	\$0.83	604	\$3.61	5,746	\$3.46	N/A	N/A	1	\$17.63
	2022	390	\$0.86	610	\$3.69	5,801	\$3.73	N/A	N/A	0	\$18.53
	2023	390	\$0.88	592	\$3.76	5,506	\$3.96	N/A	N/A	2	\$19.23
	2024	377	\$0.90	648	\$3.84	5,539	\$4.16	N/A	N/A	0	\$19.90
	2025	390	\$0.92	677	\$3.92	5,566	\$4.31	N/A	N/A	0	\$20.85
	2026	390	\$0.94	665	\$4.00	5,647	\$4.41	N/A	N/A	1	\$21.80
	2027	376	\$0.96	675	\$4.12	5,718	\$4.53	N/A	N/A	0	\$22.60
	2028	391	\$0.98	529	\$4.21	5,635	\$4.64	N/A	N/A	0	\$23.22
<b>Notes</b>											
[1] Historical natural gas values are the annual average of daily spot market prices for Gas Daily FGT Zone 3. Transportation and other charges would be in addition to these spot prices. [2] Historical Uranium pricing is available from FPL and Duke Energy Florida. [3] Historical coal pricing is available from OUC. [4] Historical Distillate Oil values (\$/MMBtu) reflect the value of inventory as it was taken from the fuel oil tanks. [5] Projected fuel values (\$/MMBtu) represent FMPA's projection of delivered fuel prices.											

73. Please discuss how the Company compares its fuel price forecasts to recognized, authoritative independent forecasts.

*FMPA’s fuel price forecast data is obtained from authoritative, independent consultants. These forecasts are then compared to information received from other utilities, suppliers, market exchanges, and trade literature. FMPA staff evaluates the reasonableness of the data contained in any fuel price forecast and works with its independent consultants as is deemed appropriate.*

74. Please identify and discuss expected industry trends and factors for each fuel type (coal, natural gas, nuclear fuel, oil, etc.) that may affect the Company during the period 2019–2028.
- a. Coal *FMPA has a minority ownership interest in OUC's Stanton Units 1 and 2, and OUC is the sole operator for the facility. FMPA will defer to OUC's responses for this issue.*
  - b. Natural Gas *Please see the responses in the following questions 75 and 76.*
  - c. Nuclear (if applicable) *FMPA has a minority ownership interest in FPL's St. Lucie Unit 2, and FPL is the sole operator for the facility. FMPA will defer to FPL's responses for this issue.*
  - d. Fuel Oil *The dual fuel capable resources of the ARP are designed predominantly to use distillate fuel oil. Except for ARP generation resources in Key West, this service capability is for back-up purposes only for those instances when natural gas supply is restricted or unavailable. Consumed volumes of fuel oil are replaced at market pricing to maintain defined inventory levels based upon risk mitigation criteria. Given the limited circumstance when FMPA operates certain ARP resources on fuel oil, changing market trends have little impact upon the ARP and its operations.*
  - e. Other (please specify each, if any)

75. Please identify and discuss steps that the Company has taken to ensure natural gas supply availability and transportation over the 2019–2028 planning period.

*FMPA continually explores opportunities to diversify its natural gas supply portfolio and reviews industry trends as production sources change over time. FMPA also continues to evaluate its gas transportation capacity requirements to ensure an optimal amount of firm transportation capacity is reserved to ensure reliable delivery of natural gas to its generating units as they are optimally dispatched. At this time over the planning period, FMPA has firm contract capacity above its projected need and does not expect supply constraints to exceed daily contracted natural gas storage capacity withdrawal rights.*

76. Please identify and discuss any existing or planned natural gas pipeline expansion project(s), including new pipelines and those occurring or planned to occur outside of Florida that would affect the Company for the period 2019–2028.

*Sabal Trail Transmission, LLC has commenced operation of an interstate natural gas pipeline in the state of Florida. Our additional electric demand through the planning period does not justify contracting for additional firm natural gas pipeline capacity; however, FMPA will consider a connection to the Sabal Trail pipeline due to its proximity to the Cane Island Power Park facility. A potential connection to the new pipeline will further support our efforts to increase reliability and reduce costs for our customers.*

77. Please identify and discuss expected liquefied natural gas (LNG) industry factors and trends that will impact the Company, including the potential impact on the price and availability of natural gas, for the period 2019–2028.

*Prior to the extremely successful and prolific development of unconventional production (shale), LNG was viewed as a necessity in meeting the supply requirements for natural gas in the US. This view is no longer the case. Currently, all LNG facility development in the US is focused upon exporting natural gas to countries around the globe. FMPA believes this additional export demand has played a role in mitigating market price declines. The actual number of facilities to go online will potentially create a higher floor price for the commodity. FMPA does not expect to be significantly impacted by the increase of LNG exports. The central and southern areas of the State of Florida are now served by three pipelines and we do not expect the reliability of natural gas as a fuel source to be negatively impacted by LNG export facilities.*

*As to availability and pricing of natural gas impacts due to US LNG exports, such impacts are very difficult to predict. There are many factors that can impact these considerations. Currently, due to the success of unconventional production development, the country is experiencing a supply surplus that has significantly reduced price and price volatility. Due to the current low price of natural gas, as well as other factors, the use of natural gas has*

*increased substantially for power generation. This fuel switching to natural gas for power generation is expected to continue.*

78. Please identify and discuss the Company's plans for the use of firm natural gas storage for the period 2019–2028.

*FMPA has 500,000 MMBtu of storage capacity with a firm withdrawal delivery capacity of 50,000 MMBtu/day. FMPA's primary use of its firm natural gas storage capacity is to provide daily operational pipeline balancing flexibility and increased supply reliability to mitigate potential gas production interruptions, such as hurricane impacts to offshore production.*

79. Please identify and discuss expected coal transportation industry trends and factors, for transportation by both rail and water that will impact the Company during the period 2019–2028. Please include a discussion of actions taken by the Company to promote competition among coal transportation modes, as well as expected changes to terminals and port facilities that could affect coal transportation.

*FMPA is a joint owner in the coal-fired steam units Stanton Units 1 and 2, which are operated by OUC. OUC is the majority owner of these facilities and is responsible for all coal supply and transportation related arrangements for these units.*

80. Please identify and discuss any expected changes in coal handling, blending, unloading, and storage for any planned changes and construction projects at coal generating units for the period 2019–2028.

*OUC is the majority owner of these facilities and is responsible for all coal supply and transportation related arrangements for these units.*

81. **[DEF & FPL Only]** Please identify and discuss the Company's plans for the storage and disposal of spent nuclear fuel for the period 2019–2028. As part of this discussion, please include the Company's expectation regarding short-term and long-term storage, dry cask storage, litigation involving spent nuclear fuel, and any relevant legislation.

82. **[FPL Only]** Please identify and discuss expected uranium production industry trends and factors that will affect the Company during the period 2019–2028.