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Christopher E. Gowder Business Development Manager

May 17, 2018

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 2018 Data Request #1, dated March 6, 2018, 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,

Chris Gowder Business Development Manager

Enc.

cc. File

#### General Items

1. Please provide an electronic copy of the Company's 2018 Ten-Year Site Plan Schedules 1 through 10 (in Excel format).

The requested information was provided in hard copy and electronically on March 27, 2018.

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 Ten-Year Site Plan, 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, 2017, through December 31, 2017, in Microsoft Excel format.

FMPA is not an Investor-owned Utility.

4. Please provide the actual monthly peak demand experienced in the period 2015 through 2017, including the actual peak demand experienced, the amount of demand response activated during peak, and the estimated total peak if demand response had not been activated. Please also provide the date, hour, and system-average temperature at the time of each monthly peak.

		Actual	Demand	Estimated			System-Average
Year	Month	Peak	Response	Peak	Date	Hour	Temperature
		Demand	Activated	Demand			
		(M W)	(M W)	(M W)		-	(Degrees F)
	1	879	0	<i>879</i>	1/9/2017	8	50
	2	847	0	847	2/28/2017	17	74
	3	<i>938</i>	0	<b>93</b> 8	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
117	6	1,203	0	1,203	6/22/2017	16	80
5(	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	<i>917</i>	0	917	12/11/2017	8	50
	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
16	6	1,242	0	1,242	6/14/2016	17	85
20	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
	1	<i>879</i>	0	879	1/8/2015	9	38
	2	1,161	0	1,161	2/20/2015	8	33
	3	878	0	878	3/17/2015	17	87
	4	978	0	978	4/10/2015	17	90
	5	1,133	0	1,133	5/21/2015	17	<i>93</i>
15	6	1,227	0	1,227	6/22/2016	16	96
5(	7	1,176	0	1,176	7/10/2015	16	94
	8	1,203	0	1,203	8/25/2015	17	96
	9	1,167	0	1,167	9/11/2015	17	94
	10	1,055	0	1,055	10/1/2015	16	91
	11	1,028	0	1,028	11/3/2015	15	90
	12	874	0	874	12/30/2015	16	87
Notes							

#### Historic Peak Demand Timing & Temperature

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 utility'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 Cities of Vero Beach and Lake Worth are also ARP Participants, but no longer purchase capacity and energy from the ARP. It is anticipated that effective October 1, 2018, the City of Vero Beach will no longer be an ARP Participant as a result of the sale of the Vero Beach electric system to Florida Power and Light. 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 2018 Ten Year Site Plan was developed. In your response please include the following information: methodology, assumptions, data sources, third-party consultant(s) involved, 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 Requirement 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.
  - 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 IHS Global Insight and Woods & Poole (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 weathernormalized 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

<sup>&</sup>lt;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.

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 2016.
  - 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 2017 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 Vero Beach and for Lake Worth is zero. The CROD for Ft. Meade, effective January 1, 2015, and an estimate of the CROD for Green Cove Springs, effective January 1, 2020, have been reflected in the forecast.
  - 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.
- 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 2018-2027 Ten Year Site Plan (2018 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 2018 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 or five years prior?

#### FMPA is not an Investor-owned Utility.

- 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 TYSPs filed, or to be filed, to the Commission from 2002 to 2018 with supporting workpapers in Excel format.
- c. If the response is negative, please explain why not.

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

FMPA recently conducted an aggregated analysis of ARP Participants' customer growth by retail class over 5 fiscal years, starting in fiscal year 2011 and ending in fiscal year 2015. Over that period, ARP Participants experienced positive growth in both residential and non-residential customer counts (in aggregate).

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

FMPA recently conducted an aggregated analysis of ARP Participants' customers' usage per meter over 5 fiscal years, starting in fiscal year 2011 and ending fiscal year 2015. The analysis computed weather-normalized growth in usage per meter, taking into account specific weather at each of the All Requirements Project Member locations. The results of this analysis indicated that, 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 Ten Year Site Plan.

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 2018 Ten Year Site Plan to be filed by April 1, 2018, please provide load forecast sensitivities (high band, low band) to account for the uncertainty inherent in the base case forecasts in the following Ten Year Site Plan schedules: *FMPA is not an Investor-owned Utility*.
  - 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.

- 13. [Investor-owned utilities only] If not included in the Company's 2018 Ten Year Site Plan to be filed April 1, 2018, please provide the methodology used to prepare load forecast sensitivities (high band, low band) to account for the uncertainty in the base case forecasts in the following Ten Year Site Plan schedules: *FMPA is not an Investor-owned Utility.* 
  - 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.
- 14. Please discuss whether the Company included plug-in electric vehicle loads in its demand and energy forecasts for the 2018 Ten-Year Site Plan.

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. 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.

15. Please discuss the methodology and the assumptions (or, if applicable, the source(s) of the data) used to estimate the number of vehicles 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.

16. Please include the following information within the utility's service territory: an estimate of the number of electric vehicles, an estimate of the number of public EV charging stations, and the estimated demand and energy impacts of the electric vehicles by year.

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.

	Number of Electric	Number of Public EV Charging	Cumula	ative Impact of E Vehicles	Electric
Year	Vehicles	Stations	Summer	Winter	Annual
			Demand	Demand	Energy
	(-)	(-)	(MW)	(MW)	(GWh)
2017					
2018					
2019					
2020					
2021					
2022					
2023					
2024					
2025					
2026	1				
2027					
Notes					
The All-R	equirements Proje	ct is a wholesale power s	upply projec	ct and as such, a	does not
have a ser	rvice territory. FN	IPA does not collect this	information	on behalf of the	e ARP
Particina	nts				

**Electric Vehicle Charging Impacts** 

17. Please describe any company programs or tariffs currently offered to customers relating to plug-in electric vehicles, and describe whether any new or additional programs or tariffs relating to plug-in electric vehicles will be offered to customers within the ten-year period.

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

18. Please describe how the Company monitors the installation of public charging stations in its service area? Please provide the number of "quick-charge" electric vehicle charging stations (i.e., charging stations requiring a service drop greater than 240 volts and/or using three-phase power) currently installed in the 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.

19. Please describe any instances since January 1, 2017, in which upgrades to the distribution system were made where electric vehicles were a contributing factor.

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

20. **[FEECA Utilities Only]** For each source of demand response, use the table below to provide the information listed on an annual basis for customer participation. 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 Excel format with your response.

	[Demand Response Source or All Demand Response Sources]															
Year	Beginning Year: Number of	Available Capacity (MW)		New Customers	Added Capacity (MW)		Added Capacity (MW)		Added Capacity (MW)		Added Capacity (MW)		Customers Lost	Lo Capa (MV	Lost Capacity (MW)	
	Customers	Sum	Win	Audeu	Sum	Win		Sum	Win							
2008																
2009																
2010																
2011																
2012																
2013																
2014																
2015																
2016																
2017																

#### FMPA is not a FEECA Utility.

21. **[FEECA Utilities Only]** For each source of demand response, use the table below to provide the information listed on an annual basis in seasonal peak demand and number of affected customers. 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 Excel format with your response. *FMPA is not a FEECA Utility.* 

	[Demand Response Source or All Demand Response Sources]												
			Summer		Winter								
Year	# of Events	A Eve	Average Maximum Event Size Event Size		# of Events	A Ev	verage ent Size	Maximum Event Size					
	(MW)	(MW)	# of Customers	(MW)	# of Customers	(MW)	(MW)	# of Customers	(MW)	# of Customers			
2008													
2009													
2010													
2011													
2012													
2013													
2014													
2015													
2016													
2017													

22. **[FEECA Utilities Only]** For each source of demand response, use the table below to provide the information listed on an annual basis for seasonal peak activations. 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 Excel format with your response.

#### FMPA is not a FEECA Utility.

	[Demand Response Source or All Demand Response Sources]											
			Summer Peak		Winter Peak							
Year	Average Number of Customers	Activated During Peak?	# of Customers Activated	Capacity Activated	Activated During Peak?	# of Customers Activated	Capacity Activated					
		(Y/N)	(MW)	(MW)	(Y/N)	(MW)	(MW)					
2008												
2009												
2010												
2011												
2012												
2013												
2014												
2015												
2016												
2017												

#### **Generation & Transmission**

23. Please identify and describe each existing utility-owned renewable resource as of December 31, 2017, that delivered energy during the year. Please include the facility's name, unit type, fuel type, its installed capacity (AC-rating for PV systems), its net firm capacity or contribution during peak demand (if any), capacity factor for 2016 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 combined entry for the resources that share the same unit & fuel type.

Facility Name	Unit Type	Fuel Type	Installed Capacity (MW)		Net Firm Capacity (MW)		Capacity Factor	In-Service Date
-	-	-	Sum	Win	Sum	Win	(%)	(MM/YYYY)
Orange County Landfill [1]	ST	LFG - Methane gas is used as a supplemental fuel source at the Stanton Energy Center	[1]	[1]	0	0	[1]	<i>04/1998</i>
NOAA Eco- Discovery Center [2]	PV	SUN	0.03	0.03	0	0	18	12/2009
Notes								

Existing Utility-Owned Renewable Resources

[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. (The ARP and ARP Participants are entitled to 23.6% of the energy output of Unit 1 and 19.3% of the energy output of Unit 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.

24. Please identify and describe each planned utility-owned renewable resource for the period 2018 through 2027. 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 multiple small distributed renewable resources (< 250 kW per installation), such as rooftop solar panels, please include a combined entry for the resources that share the same unit & fuel type.

### *FMPA* currently has no plans for additional utility-owned renewable resources for the period 2018 through 2027.

Facility Name	Unit Type	Fuel Type	Inst Cap (M	alled acity IW)	Net Firm Capacity (MW)		Capacity Factor	In-Service Date			
-	-	-	Sum	Win	Sum	Win	(%)	(MM/YYYY)			
None											
Notes											
FMPA cur 2018 throu	FMPA currently has no plans for additional utility-owned renewable resources for the period 2018 through 2027.										

Planned Utility-Owned Renewable Resources

25. Please refer to the list of planned utility-owned renewable resources for the period 2018 through 2027 above. Discuss the current status of each project.

*FMPA currently has no plans for additional utility-owned renewable resources for the period 2018 through 2027.* 

26. Please list and discuss any planned utility-owned renewable resources within the past year that were cancelled, delayed, or reduced in scope. What was the primary reason for the changes? What, if any, were the secondary reasons?

*FMPA* currently has no plans for additional utility-owned renewable resources for the period 2018 through 2027. There have been no cancellations, delays or reductions in scope during the past year.

27. Please identify and describe each purchased power agreement with a renewable generator that delivered energy during 2017. 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.

Seller Name	Facility Name	Unit Type	Fuel Type	Insta Capa (M	alled acity W)	lled Contracted city Firm W) Capacity (MW)		In- Service Date	Co (M	ontract Ferm M/YY)
	-	-	-	Sum	Win	Sum	Win	(MM/YY)	Start	End
US Sugar	US Sugar	ST	AB	48 [1]	48 [1]	0	0	09/2004	04/1990	On-going with 90 days cancellation notice
Notes										
[1] US MV of ava the tim Ava can	<sup>[1]</sup> 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.									

28. 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 2018 and 2027. 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.

Seller Name	Facility Name	Unit Type	Fuel Type	Installed Capacity (MW)		Contracted Firm Capacity (MW)		In- Service Date	Con Te (MM	tract rm [/YY)		
	-	-	-	Sum	Win	Sum	Win	(MM/YY)	Start	End		
NextEra	unknown	PV	SUN	74.5	74.5	40.5	40.5	06/20	06/20	06/40		
						[1]	[1]					
NextEra	unknown	PV	SUN	74.5	74.5	17.5	17.5	06/20	06/20	06/40		
						[1]	[1]					
Notes												
[1] FMPA w rata amount amount of th	[1] FMPA will purchase a 58 MW share from two larger solar facilities. FMPA 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.											

**Renewable Purchased Power Agreements** 

29. 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 2018 through 2027. 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 NextEra Florida Renewables beginning in summer of 2020.

As of May 16, 2018, FMPA and NextEra Florida Renewables have executed two PPAs whereby FMPA will purchase a percentage share of energy from two 74.5 MW solar installations. We understand that NEFR is in the very early stages of project development as of this filing. Since project development is in such early stages, FMPA will provide status updates on the solar PPAs in future site plans and data requests as appropriate.

30. 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.

31. 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 2018 through 2027.

The resources listed below are those that the ARP uses to serve Project Participants, and does not include net metered, customer-owned resources on individual Project Participants' distribution systems.

				1	Annual Rene	wable Gene	ration (GWh	ı)					
Renewable Source	Actual		Projected										
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027		
Utility - Firm													
Utility - Non-Firm	10.8	8.1	8.2	8.0	8.4	8.3	8.4	9.2	9.6	9.7	8.6		
Utility - Co-Firing													
Purchase – Firm													
Purchase - Non-Firm	22.5	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2		
Purchase – Co-Firing													
Customer-Owned													
Total													
Notes			-						-				

#### Renewable Generation by Source

1] Utility - Non-Firm renewable source is two part: 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.

3] The energy expected to be purchased under the future solar PPA is not reflected in the table, and will be included in future site plans as appropriate.

32. 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				
At this time, FMPA has not considered any of our plant sites as potential candidates for utility scale solar installations.							

33. 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 for wind installations, 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							
At this time, I installations.	At this time, FMPA has not considered any of our plant sites as potential candidates for utility scale wind installations.									

34. Please complete the table below, providing a list of all of the Company's steam units that are potential candidates for repowering to operation with biomass fuel. As part of this response, please provide the unit's current fuel type, summer capacity rating, in-service date, and what potential conversion (either co-firing biomass, biomass as a primary fuel, or other type). Also include a description of any major obstacles that could affect repowering efforts at any of these sites, such as unit age, land availability, or other requirements.

#### **Repowering Candidate Units –Biomass**

Plant Name	Fuel Type	Summer Capacity (MW)	In-Service Date	Potential Conversion	Potential Issues					
Notes										
FMPA has no ownership int submitted by	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.									

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. Please discuss whether the Company has been approached by renewable energy generators during 2017 regarding constructing new renewable energy resources. If so, please provide a description of the number and type of renewable generation represented.

During 2017, FMPA had numerous conversations with renewable energy generators through the development of the recently announced Florida Municipal Solar Project. FMPA evaluated a number of firms on their ability to develop solar facilities and negotiated with a power purchase agreement with a short-list of proposers. FMPA is routinely approached by renewable energy generators and we view discussions with these entities as a way to stay on top of market developments. 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. 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.

40. Please identify and describe all energy storage technologies that are part of the Company's system portfolio and to what extent (firm or non-firm, capacity amounts, load factors) they are used.

## FMPA does not currently include energy storage technologies as part of the ARP system portfolio.

- a. Please provide an assessment of the benefits, risks, and operational limitations of using these energy storage technologies to provide for firm capacity and energy.
- b. Please provide a brief assessment of how these benefits, risks, and operational limitations may change over the next ten years.

41. Please identify and describe all energy storage pilot programs currently running or in development with an anticipated launch date within the next ten years. If the Company is not currently participating in or developing energy storage pilot programs, has it considered doing so? If not, please explain.

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.

- a. Please discuss any preliminary results of such pilot programs, addressing all anticipated benefits, risks, and challenges when such technology is applied on a utility scale (> 2 MW).
- b. Please identify and describe any plans to periodically update the Commission on the status of your energy storage pilot programs.
- 42. 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 does not rely on non-firm generation sources for capacity and, due to prohibitive cost and unproven reliability, FMPA has not considered utilizing energy storage technologies to provide firm capacity for these sources. FMPA continues to monitor trends in cost and performance of available storage technologies.

43. 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.

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

a. Please describe any such programs in development with an anticipated launch date within the next ten years.

44. Please identify and discuss the Company's role in the research and development of utility power technologies.

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

- a. 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.
- 45. [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 2008 through 2017. If the Company uses multiple areas for as-available energy rates, please provide a system-average rate as well. Also, provide the forecasted annual average as-available energy rate in the Company's service territory for the period 2018 through 2027.

#### FMPA is not an Investor-owned Utility.

Y	'ear	As-Available Energy (\$/MWh)	On-Peak Average (\$/MWh)	Off-Peak Average (\$/MWh)
	2008			
	2009			
	2010			
_	2011			
ua	2012			
Act	2013			
`	2014			
	2015			
	2016			
	2017			
	2018			
	2019			
	2020			
eq	2021			
ect	2022			
roj	2023			
P	2024			
	2025			
	2026			
	2027			
Note	s			
(Incl	ude Not	es Here)		

#### As-Available Energy Rates

46. 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 inservice 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.

Planned	Unit	Additions
---------	------	-----------

	Summer	Certification Dat	es (if Applicable)	In-Service						
Generating Unit Name	CapacityNeed Approved(MW)(Commission)		PPSA Certified	Date						
None										
Notes										
Notes: FMPA currently ha through 2027.	<i>Notes: FMPA currently has no planned conventional unit additions for the period 2018 through 2027.</i>									

47. For each of the planned generating units contained in the Company's Ten-Year Site Plan, 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 2018 through 2027.

48. Please provide an estimate of the revenue requirements of the Company based upon the Ten-Year Site Plan's planned generating units.

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

49. For each of the planned generating units contained in the Company's Ten-Year Site Plan, 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 Ten-Year Site Plan.

50. For each existing and planned unit on the Company's system, provide the following data based upon historic data from 2017 and forecasted capacity factor values for the period 2018 through 2027. Please complete the tables below and provide an electronic copy (in Excel).

Direct	Unit	Unit	Fuel	Actual		•	•		Proje	ected				
Plant	#	Туре	Туре	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Cane Island	1	GT	NG	1.0	4.7	4.2	3.3	4.8	4.2	4.9	5.6	6.0	7.8	12.6
Cane Island	2	CC	NG	28.7	19.0	19.1	19.9	27.3	28.4	28.8	42.1	41.8	46.4	51.3
Cane Island	3	CC	NG	61.9	57.9	50.4	59.3	59.4	61.9	63.4	67.4	68.6	71.9	71.8
Cane Island	4	CC	NG	75.2	67.7	67.5	68.3	68.4	69.2	69.1	70.8	71.3	71.2	70.9
Stock Island	CT 1	GT	DFO	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2
Stock Island	CT 2	GT	DFO	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Stock Island	CT 3	GT	DFO	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Stock Island	GT 4	GT	DFO	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Stock Island	MSD1	IC	DFO	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Stock Island	MSD2	IC	DFO	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Stock Island	EP2	IC	DFO	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Treasure Coast	1	CC	NG	69.6	69.6	68. <i>3</i>	68.9	69.1	70.0	69.7	70.3	70.5	70.8	72.2
St. Lucie	2	NP	UR	[1]	91.1	97.0	89.9	90.2	97.0	90.0	90.2	97.0	90.0	90.2
Indian River	CT A	GT	NG	[2]	0.3	0.1	0.0	0.3	0.1	0.1	0.0	0.8	0.2	0.6
Indian River	CT B	GT	NG	[2]	0.3	0.1	0.0	0.3	0.1	0.1	0.0	0.8	0.2	1.2
Indian River	CT C	GT	NG	[2]	0.8	0.5	0.4	1.2	0.7	0.9	0.8	1.7	2.0	3.3
Indian River	CT D	GT	NG	[2]	0.7	0.5	0.3	1.1	0.6	0.9	0.6	1.1	1.5	3.6
Stanton Energy Center	1	ST	BIT	[2]	22.7	18.6	17.7	20.0	20.2	19.9	25.6	26.2	27.1	23.2
Stanton Energy Center	2	ST	BIT	[2]	37.2	34.4	32.9	32.6	32.0	32.8	31.1	33.3	33.0	35.1
Stanton Energy Center	Α	CC	NG	[3]	70.6	70.6	71.0	71.2	72.1	74.2	73.5	74.1	74.5	75.2
Oleander	OG5	GT	NG	[4]	0.5	0.3	0.1	0.7	0.3	0.4	0.4	0.5	0.7	1.4
Notes														

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

[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 Southern Company.

[4] FMPA has a PPA with Southern Company for Oleander Unit 5. Historical operating data for the unit is available from Southern Company.

[5] Projected capacity factors are based on production modeling using assumptions suitable for long-term planning purposes.

51. For each existing unit on the Company's system, please provide the planned retirement date. If the Company has 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	<i>CT 1</i>	GT	DFO	11/78	[1]	[1]
Stock Island	<i>CT 2</i>	GT	DFO	06/99	[1]	[1]
Stock Island	<i>CT 3</i>	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	Α	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 Southern Company for a response.

52. 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 major obstacles that could affect repowering efforts at any of these sites, such as unit age, land availability, or other requirements.

#### **Repowering Candidate Units - Steam**



53. Please identify each of the Company's existing (as of December 31, 2017) and planned (between 2018 through 2027) power purchase contracts, including firm capacity imports reflected in Schedule 7 of the Company's Ten-Year Site Plan. 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 I (	in chiaseu i	ower ngree	mento					
Seller	Contra	act Term	Contract Capacity (MW)		Capacity Factor	Primary Fuel	Firm Capacity	Description
	Begins	Ends	Summer	Winter	(%)	(if any)		
Southern Company Florida, LLC	3/1/2017	9/30/2023	81	87	33.31%	NG (Primary)	Yes	Unit contingent purchase from the Stanton Energy Center CC Unit A
Oleander Power Project, LP	2/6/2017	12/15/2027	162	180	1.80%	NG (Primary)	Yes	Unit contingent purchase from the Oleander Power Plant CT5
Notes								
(Include No	otes Here)							

#### **Existing Purchased Power Agreements**

#### **Planned Purchased Power Agreements**

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

54. Please identify each of the Company's existing (as of December 31, 2017) and planned (between 2018 through 2027) power sales, including firm capacity exports reflected in Schedule 7 of the Company's Ten-Year Site Plan. 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	Contra	ct Term	Con Capacit	tract ty (MW)	Primary Fuel	Firm	Description
	Begins	Ends	Summer	Winter	(if any)	Demanu	
City of	01/01/2018	12/31/2022	2018-2020:	2018-2020:	System	Yes	FMPA is providing
Bartow			20 MW	20 MW			partial-requirements
							for 2018-2020 and
			2021-2022:	2021-2022:			full-requirements for
			65 MW	65 MW			2021-2022. The
							Contract Capacities
							shown are subject to
							change depending on
							the actual needs of
							the City of Bartow.
							- "

**Planned Power Sales** 

Purchaser	Contract Term		Contract Capacity (MW)		Primary Fuel	Firm	Description	
	Begins	Ends	Summer	Winter	(if any)	Demand		

55. 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.

56. 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 TLSA Approval

Transmission Line	Line Length (Miles)	Nominal Voltage (kV)	Date Need Approved	Date TLSA Certified	In-Service Date
None					
Notes					
(Include Notes Here)					

### Environmental

57. 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 2017 period. As part of your narrative, please discuss the potential for existing environmental regulations to impact unit dispatch, curtailments or retirements during the 2018 through 2027 period.

During the 2017 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 2018 through 2027 period.

58. Please provide the amount of regulated air pollutants and carbon dioxide emitted, on an annual and per megawatt-hour basis, by the Company's generation fleet during the period 2008 through 2027. Please complete the table below and provide an electronic copy (in Excel).

\$7		SO	X	NO	)X	Mer	cury	Partic	ulates	(	CO2
Year	lb/M Wh	Tons	lb/M Wh	Tons	lb/M Wh	Tons	lb/M Wh	Tons	lb/M Wh	Tons	
	2008	0.008	9	0.22	235					992	1,061,258
	2009	0.012	18	0.11	161					890	1,348,638
	2010	0.006	9	0.1	160					89 <i>3</i>	1,423,306
	2011	0.005	9	0.07	142					839	1,662,110
ual	2012	0.004	10	0.08	179					863	2,023,064
Act	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	0.005	12	0.07	180					872	2,232,851
	2019	0.005	11	0.07	170					871	2,143,297
	2020	0.005	12	0.07	178					871	2,251,692
_	2021	0.005	12	0.07	196					875	2,296,171
ected	2022	0.005	12	0.07	196					875	2,343,453
Proj	2023	0.005	12	0.07	198					876	2,356,596
I	2024	0.005	13	0.08	227					881	2,541,661
	2025	0.005	13	0.08	230					881	2,553,246
	2026	0.005	14	0.08	242					884	2,617,441
	2027	0.005	14	0.09	265					888	2,709,594
Notes											

#### Emissions of Registered Air Pollutants & CO2

1) Emissions are from units that the ARP either wholly owns or has operational responsibility for. This excludes Stanton 1, Stanton 2, Stanton A, Oleander 5 and Indian River Units A-D (Units owned (thru majority positions) and operated by other utilities).

2) SO2 and NOx Emissions Data Sources for Actual emissions are 40 CFR 75 EDR emissions data as submitted to EPA for all units reporting under this program, and Annual Operating Report emissions data submitted to FDEP for all other units.

CO2 Emissions Data Sources for Actual emissions are 40 CFR 75 EDR emissions data as submitted to EPA for all units reporting under this program and GHG emissions calculated using 40 CFR 98 methods for all other units. As necessary, emissions have been converted from CO2e to CO2 using 40 CFR 98 calculations.

Emissions are reported in US Short Tons.

3) MWhs used to develop reported emissions rates are net of plant auxiliary loads as measured at the high side of the unit Generator Step-Up transformer (GSU).

4) Projected emissions (2018 and beyond) are based on production modeling using assumptions suitable for long-term planning.

# 59. 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 (2018 \$ millions)								
	Capital Costs	O&M Costs	Fuel Costs	Total Costs					
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									
2026									
2027									
Notes									
(Include Notes	Here)								

#### 60. For the U.S. EPA's Cross-State Air Pollution Rule (CSAPR) Rule:

In September 2016, EPA finalized the Interstate Transport Rule for the 2008 ozone NAAQS ("CSAPR Update"). The CSAPR Update, based on the 2008 ozone NAAQS standard of 75 ppb, excludes the state of Florida, effective in 2017, due to the modeled results which show we have no impact on ozone noncompliance 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 (2018 \$ millions)								
	Capital Costs	O&M Costs	Fuel Costs	Total Costs					
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									
2026									
2027									
Notes									
(Include Notes	Here)								

#### 61. For the U.S. EPA's Cooling Water Intake Structures Rule (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 (2018 \$ millions)								
	Capital Costs	O&M Costs	Fuel Costs	Total Costs					
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									
2026									
2027									
Notes									
(Include Notes	Here)								

62. 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 (2018 \$ millions)								
	Capital Costs	O&M Costs	Fuel Costs	Total Costs					
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									
2026									
2027									
Notes									
(Include Notes	Here)								

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

Pursuant to President Trump's Executive Order on March 28, 2017, titled <u>Promoting Energy</u> <u>Independence and Economic Growth</u>, EPA will be reviewing the Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources. Further, 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 (2018 \$ millions)								
	Capital Costs	O&M Costs	Fuel Costs	Total Costs					
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									
2026									
2027									
Notes									
(Include Notes	Here)								

	Unit	Fuel	Net Sum		Туј	e of New an	d Proposed EPA Rule Im	pacts	Anticipated
	Туре	Туре	Capacity		CSAPR/		C	CR	Impacts
Unit			( <b>MW</b> )	MATS	CAIR	CWIS	Non-Hazardous	Special	
							Waste	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)	СС	NG			X				[2]
St. Lucie 2 (Minority	NP	UR				X			[4]
Notes									
<ol> <li>The units listed in directly owns, in whole operational (including 69) of the 2018 Ten Ye may be based on the la participants that have</li> </ol>	the tble for Qu e or in part thr g environments ar Site Plan S urger set of reso been contracta	vestion #64 i. ough owners al) responsib upplemental ources used by ally dedicate	nclude only the ship shares and sility from indu- Data Request y FMPA to serve the serve the	he generation d entitlement ividual Parti t are based on rve the ARP, combined A	n units that Fl ts, as well as th icipants. FMI n this list of u. which includ RP load.	MPA, as agen hose generativ PA's answers t nits. Howeve es purchased	it for the FMPA's All-Req on units for which FMPA to all of the questions in t. r, FMPA's responses to oth power resources, and resou	uirements Power Supply Pr 1 does not own but has been his Environmental Issues S her sections of this Supplem urces owned and operated b	roject (''ARP'') 1 assigned l'ection (Questions 57- tental Data Request y individual ARP
[2] As discussed in FM impacting downwind a	MPA's response states, these un	e to Question	#60, the state	of Florida i: e within pres	s excluded from cribed limits of	m the CSAPK of permits and	R Update. If future CSAP I CSAPR allowances, as a	'R modeling demonstrates th ssigned and purchased.	at Florida is
[3] As discussed in FN Other FMPA units are costs for compliance.	MPA's response e not impacted	2s to Question by these rule	ns #59 and #62 s. FMPA will	2, FMPA ha l defer to OU	s a minority o IC's complian	wnership in S ce strategy for	Stanton Units 1 and 2, wh r these units, and FMPA w	vich are affected by the MAX vill be responsible for a perc	TS and CCR Rules. centage share of the

#### Estimated Impacts of EPA's Rules on Generating Units

[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 fo all capital additions and O&M costs.

65. 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 Excel).

	Unit Type	Fuel Type	Net Sum Capacity	Estimated Cost of New or Proposed EPA Rules Impacts (2017 \$ millions)						
Unit			( <b>MW</b> )	MATS	CSAPR/CAIR [1]	CWIS	<u>CCR</u> Non-Hazardous Waste	<u>CCR</u> S pecial Waste	Total Cost	
Cane Island 1	GT	NG								
Cane Island 2	CC	NG								
Cane Island 3	CC	NG								
Cane Island 4	CC	NG								
Stock Island CT1	GT	DFO								
Stock Island CT2	GT	DFO								
Stock Island CT3	GT	DFO								
Stock Island CT4	GT	DFO								
Stock Island MS1	IC	DFO								
Stock Island MS2	IC	DFO								
TCEC	CC	NG								
Indian River CTA (Minority)	GT	NG								
Indian River CTB (Minority)	GT	NG								
Indian River CTC (Minority)	FT	NG								
Indian River CTD (Minority)	GT	NG								
Stanton 1 (Minority)	ST	BIT		[2]	[2]		[2]			
Stanton 2 (Minority)	ST	BIT		[2]	[2]		[2]			
Stanton A (Minority)	СС	NG								
St. Lucie 2 (Minority)	NP	UR				[3]				
Notes										
[1] As discussed in FMPA states, these units will con	A's response to Quitinue to operate	Question # 60 e within presc	, the state of Florida ribed imits of permit	is excluded from t ts and CSAPR allo	the CSAPR Update. If wances, as assigned ar	f future CSAPR mod nd purchased; if all	leling demonstrates the owances continue to	at Florida is impac be readily available,	ting downwind , FMPA does not	

#### **Estimated Unit Cost of EPA's Rules**

nticipate any substantial incrase in costs due to CSAPR for our wholly owned and/or assigned generating units.

[2] As discussed in FMPA's response to Questions #59 and #62, FMPA has a minority ownership in Stanton Units 1 and 2, which will be affected by the CSAPR, MATS and the CCR Rules. FMPA will be responsible for a percentage share of all required capital additions and additonal O&M costs.

[3] As discussed in FMPA's response to Question #63, FMPA has a inority ownership in St. Lucie 2, which will be affected bythe CWIS rule. Other FMPA units are not impacted by the CWIS ule. FPL has all compliance responsibility and FMPA will be responsible for a percentage share of all required capital additions and additional O&M costs.

66. 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 Excel).

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.

	T	Enal	Net Sum		EPA Rule Impacts - Duration)	A Rule Impacts aration)			
Unit	T	Tuel	Capacity		CSADD/			CCR	
	гуре	гуре	(MW)	MATS	CSAPR/ CAIR	CWIS	Non-Hazardous Waste	Special Waste	
Notes									
See the	above exp	planation	in response to	o Question	66.				

#### **Estimated Timing of Unit Impacts of EPA's Rules**

- 67. 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 Rule (CWIS).
  - d. Coal Combustion Residuals Rule (CCR).
  - 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 on the long range reliability to FMPA and within the FRCC Region is still unknown. 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. 68. 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.

69. 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 ten-year site planning period?

The Clean Power Plan is currently under review by the EPA. While the outcome of the rule is uncertain, FMPA's compliance strategy will be to operate within prescribed limits, potentially shifting generation from coal to natural gas and/or zero-emitting generators (such as renewables and nuclear) and/or purchasing Emission Reduction Credits or Allowances on the market, as necessary.

#### **Fuel Supply & Transportation**

70. 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 2008 through 2017. 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 2018 through 2027. As part of this response, please complete the table below.

Year		Uranium		Coal		Natural Gas		Residual Oil		Distillate Oil	
		GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU
	2008	694	[2]	1,444	[3]	2,199	\$9.13			8	\$17.58
	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
ual	2012	505	[2]	638	[3]	5,136	\$2.93			1	\$31.37
Act	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	<i>N/A</i>	<i>N/A</i>	1	\$10.22
	2017	294	[2]	915	[3]	4,741	\$2.94	<i>N/A</i>	<i>N/A</i>	1	\$10.22
	2018	312	\$0.77	441	\$3.32	5,370	\$3.23	<i>N/A</i>	<i>N/A</i>	1	\$12.86
	2019	402	\$0.79	447	\$3.43	5,345	\$3.24	N/A	<i>N/A</i>	0	\$14.57
	2020	391	\$0.81	440	\$3.53	5,423	\$3.48	<i>N/A</i>	<i>N/A</i>	0	\$16.17
_	2021	376	\$0.83	459	\$3.62	5,758	\$4.10	<i>N/A</i>	<i>N/A</i>	1	\$17.63
ected	2022	390	\$0.86	455	\$3.69	5,820	\$4.58	<i>N/A</i>	<i>N/A</i>	0	\$18.53
Proj	2023	390	\$0.88	459	\$3.76	5,569	\$4.67	<i>N/A</i>	<i>N/A</i>	0	\$19.23
I	2024	377	\$0.90	501	\$3.84	5,610	\$4.82	N/A	<i>N/A</i>	0	\$19.90
	2025	390	\$0.92	523	\$3.92	5,635	\$4.98	<i>N/A</i>	<i>N/A</i>	1	\$20.85
	2026	390	\$0.94	529	\$4.00	5,692	\$5.14	<i>N/A</i>	<i>N/A</i>	1	\$21.80
	2027	376	\$0.96	472	\$4.12	5,828	\$5.30	<i>N/A</i>	<i>N/A</i>	1	\$22.60
Notes											

Notes

[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.

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71. 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.

- 72. Please identify and discuss expected industry trends and factors for each fuel type (coal, natural gas, nuclear fuel, oil, etc.) that will affect the Company during the period 2018 through 2027.
  - 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 73 and 74.*
  - 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)

73. Please identify and discuss steps that the Company has taken to ensure natural gas supply availability and transportation over the 2018 through 2027 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.

74. Please identify and discuss any existing or planned natural gas pipeline expansion project, including new pipelines and those outside of the State of Florida, that would affect the Company for the period 2018 through 2027.

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.

75. 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 2018 through 2027.

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. Current LNG exports account for 6 Bcf/d and additional facilities have been proposed and approved. 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.

76. Please identify and discuss the Company's plans for the use of firm natural gas storage for the period 2018 through 2027.

Currently, FMPA has 1 Bcf of capacity with a firm withdrawal delivery capacity of 100,000 MMBtu/day. This storage capacity and delivery capacity is due to decline by 50% in August of 2018 concurrent with a contract term expiration. FMPA believes this reduction will not have any adverse impacts to its reliability of fuel supply over the study period, given the shift in production to on-shore sources.

77. 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 2018 through 2027. 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.

78. 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 2018 through 2027.

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

- 79. [DEF & FPL Only] Please identify and discuss the Company's plans for the storage and disposal of spent nuclear fuel for the period 2018 through 2027. 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.
- 80. **[DEF & FPL Only]** Please identify and discuss expected uranium production industry trends and factors that will affect the Company during the period 2018 through 2027.