



Navid Nowakhtar
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Florida Public Service Commission
Donald Phillips
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Re: FMIPA's 2022 Ten-Year Site Plan Data Request #1

May 6, 2022

Dear Donald:

Pursuant to the Commission's 2022 Data Request #1, dated March 7, 2022, FMIPA is hereby filing one electronic copy of its Response (both narrative and non-narrative).

Under separate cover as directed by the Commission, FMIPA will submit an electronic PDF copy of combined narrative and non-narrative responses to the Office of Commission Clerk.

Please do not hesitate to contact me at (321) 239-1028 if you have any questions.

Sincerely,

Navid Nowakhtar

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readysign

Navid Nowakhtar
Resource and Strategic Planning Manager

Enc.

cc. File

Instructions: Accompanying this data request is a Microsoft Excel (Excel) document titled "Data Request #1.Excel Tables," (Excel Tables File). For each question below that references the Excel Tables File, please complete the table and provide, in Excel Format, all data requested for those sheet(s)/tab(s) identified in parenthesis.

General Items

1. Please provide an electronic copy of the Company's Ten-Year Site Plan (TYSP) for the period 2022-2031 (current planning period) in PDF format.

The TYSP information was provided electronically on March 31, 2022.

2. Please provide an electronic copy of all schedules and tables in the Company's current planning period TYSP in Excel format.

The TYSP information was provided electronically on March 31, 2022.

3. Please refer to the Excel Tables File (Financial Assumptions, Financial Escalation). Complete the tables by providing information on the financial assumptions and financial escalation assumptions used in developing the Company's TYSP. If any of the requested data is already included in the Company's current planning period TYSP, state so on the appropriate form.

The information has been provided as requested.

Load & Demand Forecasting

4. **[Investor-Owned Utilities Only]** Please refer to the Excel Tables File (Hourly System Load). Complete the table by providing, on a system-wide basis, the hourly system load in megawatts (MW) for the period January 1 through December 31 of the year prior to the current planning period. For leap years, please include load values for February 29. Otherwise, leave that row blank.
 - a. Please also describe how loads are calculated for those hours just prior to and following Daylight Savings Time (March 14, 2021, and November 7, 2021).

FMPA is not an Investor-Owned Utility.

5. Please refer to the Excel Tables File (Historic Peak Demand). Complete the table by providing information on the monthly peak demand experienced during the three-year period prior to the current planning period, 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.

The information has been provided as requested.

6. 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.

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 #5, 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

7. Please explain, to the extent not addressed in the Company's current planning period TYSP, how the reported forecasts of the number of customers, demand, and total retail energy sales were developed. In your response, please include the following information:
- Methodology.
 - Assumptions.
 - Data sources.
 - Third-party consultant(s) involved.
 - Anticipated forecast accuracy.
 - Any difference/improvement(s) made compared with those forecasts used in the Company's most recent prior TYSP.
- 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 rolling average of actual weather, which is similar to average weather conditions over the latest 30-year period as reported by the NOAA.¹ 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 September 2021.

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 2022 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) Data regarding the historical impacts of load management resources operated by the Participants and reported to FMPPA are assumed to be accurate (note: Participants' peak load management activities have ceased, effective September 30, 2015).

v) 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

¹ 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.

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.

vi) 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 exceed FMPA's threshold for explicit inclusion in the Load Forecast of 0.5 percent of load over the 20-year planning horizon. Consequently, FMPA has included the estimated effects of net metering in the 2022 load forecast. FMPA intends to continue to monitor the trend in installations of distributed generation across the Participants' systems and adapt future forecasts accordingly.

e) Improvements and Issues Being Monitored:

- (1) FMPA recurrently evaluates severe weather scenarios. These scenarios simulate cold-stressed temperatures at weather stations near the ARP loads to determine the differential that could be experienced with persistent cold as compared to various prior winter peak conditions (e.g., 1989 and 2010 winters, 90% confidence interval for HDD) when controlling for organic load growth that has occurred (absent weather deviations) since that time. Such scenarios, among other scenarios, are considered in operational planning to support reliable dispatch of wholly owned natural gas generation. FMPA has allocated a budget for weatherization of wholly owned natural gas units as deemed necessary. FMPA intends to continue to maintain dual-fuel capabilities on wholly owned units and maintain natural gas reserves into the future to support reliable operations in extreme weather.
- (2) A significant transition in the transportation sector from internal combustion engine gasoline-fueled to electric vehicles (EV) over the next few decades is expected. FMPA continues to monitor these actual and projected trends. However, to date, the adoption of EVs has not been discernable in the historical consumption data. FMPA expects that an explicit projection of the impact of increased EV adoption will be infused into the forecast in future iterations.

8. Please identify all closed and open Florida Public Service Commission (FPSC) dockets and all non-docketed FPSC matters which were/are based on the same load forecast used in the Company’s current planning period 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 2022 TYSP.

9. Please explain if your Company evaluates the accuracy of its forecasts of customer growth and annual retail energy sales presented in its past TYSPs by comparing the actual data for a given year to the data forecasted one, two, three, four, five, or six years prior.
 - a. If your response is affirmative, please explain the method used in your evaluation, and provide the corresponding results, including work papers, in Excel format for the analysis of each forecast presented in the TYSPs filed with the Commission during the 20-year period prior to the current planning period. If your Company limits its analysis to a period shorter than 20 years prior to the current planning period, please provide what analysis you have and a narrative explaining why your Company limits its analysis period.
 - b. If your response is negative, please explain why.

FMPA does not have any retail energy sales. FMPA provides wholesale energy to Member Participants in the All-Requirements Project. FMPA updates our load forecast on an annual basis and does not view variance decomposition for periods longer than 5 years to provide meaningful information for planning purposes due to a wide range of factors, such as (i) dated economic projections, (ii) periods of above or below average economic expansion or contraction (e.g. Great Recession) that greatly skew the underlying variance contribution of the statistical models upon which projections were based, and importantly (iii) the number of Participants in the All Requirements Project, which has not remained constant over a 20 year historical period (and which would influence the load projected at a given point in time that would have assumed a specific set of Participants for whom current load obligations may have ceased or changed). FMPA does work with nFront Consulting LLC to examine weather-adjusted projections for the prompt year as compared to actual energy sales. The table below provides a weather-adjusted variance to actual net energy load over the most recent 5 years of available data.

Year	Variance
2017	1.5%**
2018	2.1%
2019	1.8%
2020	0.5%
2021	1.7%

**Variance significantly impacted by Hurricane Irma.

FMPA also works within the FRCC Resource Subcommittee on FRCC-level variance decomposition summaries on a longer time scale, which are available for review as part of the FRCC’s annual work products. Such reports represent raw variance that does not account for weather normalization or other compound factors noted above that may influence total FRCC load.

10. Please explain if your Company evaluates the accuracy of its forecasts of Summer/Winter Peak Energy Demand presented in its past TYSPs by comparing the actual data for a given year to the data forecasted one, two, three, four, five, or six years prior.
 - a. If your response is affirmative, please explain the method used in your evaluation, and provide the corresponding results, including work papers, in Excel format for the analysis of each forecast presented in the TYSPs filed with the Commission during the 20-year period prior to the current planning period. If your Company limits its analysis to a period shorter than 20 years prior to the current planning period, please provide what analysis you have and a narrative explaining why your Company limits its analysis period.
 - b. If your response is negative, please explain why.

FMPA does not have any retail energy sales. FMPA provides wholesale energy to Member Participants in the All-Requirements Project. FMPA updates our load forecast on an annual basis and does not view variance decomposition for periods longer than 5 years to provide meaningful information for planning purposes due to a wide range of factors, such as (i) dated economic projections, (ii) periods of above or below average economic expansion or contraction (e.g. Great Recession) that greatly skew the underlying variance contribution of the statistical models upon which projections were based, and importantly, (iii) the number of Participants in the All Requirements Project, which has not remained constant over a 20 year historical period (and which would influence the load projected at a given point in time that would have assumed a specific set of Participants for whom current load obligations may have ceased or changed). FMPA does work with nFront Consulting LLC to examine weather-adjusted projections for the prompt year as compared to actual peak demand. The table below provides a weather-adjusted variance to actual for system peak demand over the past 5 years.

Year	Variance
2017	-7.0%**
2018	-1.7%
2019	-2.3%
2020	-1.0%
2021	-0.6%

**Variance significantly impacted by Hurricane Irma.

FMPA also works within the FRCC Resource Subcommittee on FRCC-level variance decomposition summaries on a longer time scale, which are available for review as part of the FRCC’s annual work products. Such reports represent raw variance that does not account for weather normalization or other compound factors noted above that may influence total FRCC load.

11. Please explain any historic and forecasted trends in each of the following:

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. These impacts have been offset by strong customer count gains in certain areas of the All-Requirements Project Participant service territories, which has resulted in continued recovery in net energy for load since the Great Recession. FMPA continually updates estimates of our Conservation Program and Net Metering Program impacts to determine if incremental adjustments to the forecast are warranted. Additionally, FMPA is monitoring trends in electrification of transportation. While uptake to date has not had a discernible impact on loads, as noted in our response to Question #7, FMPA expects that an explicit projection of the impact of increased EV adoption will be infused into the forecast in future iterations.

- a. Growth of customers, by customer type (residential, commercial, industrial) as well as Total Customers, and identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline of the trends.
- b. Average KWh consumption per customer, by customer type (residential, commercial, industrial), and identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline of the trends.
- c. Total Sales (GWh) to Ultimate Customers, identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline of the trends. Please include a detailed discussion of how the Company's demand management program(s) and conservation/energy-efficiency program(s) impact the growth/decline of the trends.

12. Please explain any historic and forecasted trends in each of the following components of Summer/Winter Peak Demand:

Please refer to the responses provided in Questions 7 and 11, which reflect the same trends and drivers that impact peak demand.

- a. Demand Reduction due to Conservation and Self Service, by customer type (residential, commercial, industrial) as well as Total Customers, and identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline in the trends.
 - b. Demand Reduction due to Demand Response, by customer type (residential, commercial, industrial), and identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline of the trends.
 - c. Total Demand, and identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline in the trends.
 - d. Net Firm Demand, by the sources of peak demand appearing in Schedule 3.1 and Schedule 3.2 of the current planning period TYSP, and identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline in the trends.
13. Please explain any anomalies caused by non-weather events with regard to annual historical data points for the period 10 years prior to the current planning period that have contributed to the following, respectively:

The primary anomalous impact over the period in question relates to the protracted economic contraction caused by the Great Recession, which impacted the All-Requirements Project through generally the end of 2012. The 2020 COVID-19 pandemic created abnormalities in terms of offsetting shifts in consumption between customer classes, most notably between residential and commercial classes across certain ARP participant systems. FMPA will continue to closely monitor energy sales to evaluate the long-term impacts, if any, from the 2020 pandemic.

- a. Summer Peak Demand.
- b. Winter Peak Demand.
- c. Annual Retail Energy Sales.

14. Please provide responses to the following questions regarding the weather factors considered in the Company's retail energy sales and peak demand forecasts:

Please refer to our response for Question #6 and Question #7, which define the heating and cooling degree day variables utilized in our load forecast. In addition to such variables, the load forecast also utilizes the following variables:

- Peak temperature on the peak day
- Peak temperature on the day preceding the peak day
- Lagged/leading degree day variables, which are used to account for disparities between retail sales driven from bill cycles and actual energy delivered to a Participant (as retail sales reflect aggregation that spans more than one contiguous month).

FMPA works with nFront Consulting LLC to source weather data from the National Oceanic and Atmospheric Association for all weather variables. The historical period of data utilized aligns with the study period for the load forecast, as described in Question #7 above. For future projections, we utilize a rolling 30-year average for monthly degree days, and when necessary, an appropriate averaging period for daily peak temperature data that aligns with our study period (generally 1992 through September 2021).

- a. Please identify, with corresponding explanations, all the weather-related input variables that were used in the respective Retail Energy Sales, Winter Peak Demand, and Summer Peak Demand models.
 - b. Please specify the source(s) of the weather data used in the aforementioned forecasting models.
 - c. Please explain in detail the process/procedure/method, if any, the Company utilized to convert the raw weather data into the values of the model input variables.
 - d. Please specify with corresponding explanations:
 - e. How many years' historical weather data was used in developing each retail energy sales and peak demand model.
 - f. How many years' historical weather data was used in the process of these models' calibration and/or validation.
 - g. Please explain how the projected values of the input weather variables (that were used to forecast the future sales or demand outputs for each planning years 2022 – 2031) were derived/obtained for the respective retail sales and peak demand models.
15. **[Investor-Owned Utilities Only]** If not included in the Company's current planning period TYSP, 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.

16. Please provide responses to the following questions regarding the possible impacts of COVID-19 Pandemic (Pandemic) on the utility load forecast:

As noted in our response to Question #13, the 2020 COVID-19 pandemic created abnormalities in terms of offsetting shifts in consumption between customer classes, most notably between residential and commercial classes across certain ARP participant systems. Based on weather normalized variance decomposition since the onset of the pandemic, there have been no material deviations in accuracy relative to typical ranges of error common in the industry for the All-Requirements Project. FMPA has worked with nFront Consulting LLC to leverage Google-driven mobility data to create a series of assumptions regarding location and patronage of commercial versus residential establishments that (i) has enhanced our ability to capture such deviations from normal conditions during the pandemic in our econometric models, and (ii) enabled the forecast process to make reasonable assumptions regarding a gradual glide path to more normal conditions over the next several years. FMPA will continue to monitor mobility trends to discern which behavioral patterns may be more temporary in nature as opposed to others, on a Participant-by-Participant basis.

- a. Please briefly summarize the impacts due to the Pandemic, if any, to the accuracy of the Company's respective forecast of annual retail energy sales and peak demands for 2020 and 2021.
- b. Have any of your 2022 TYSP retail energy sales and peak demand forecasts incorporated the potential impacts of the Pandemic? Please explain your response.

17. Please address the following questions regarding the impact of all customer-owned/leased renewable generation (solar and otherwise) on the Utility's forecasts.

FMPA collects detailed data on all customer-owned generation as part of the ARP's Net Metering Program. As of the development of the 2022 Load Forecast, the ARP had an estimated 24.1 MW-AC of nameplate distributed solar PV renewable generation (solar DG) connected to the grid. The forecast of ARP energy for long term planning purposes has been reduced by the expected amount of incremental solar DG added over the forecast horizon. Projections of solar DG impacts were based on a combination of approaches to forecast solar DG penetration across the Participants and reasonable assumptions regarding production profiles, system degradation, and the PV production that can be expected during ARP peaks. The estimated impact on energy and peak demand is approximately 2 percent by 2031.

FMPA's projection of customer-owned generation on a unit basis reflects growth from approximately 3,000 units to approximately 13,000 units by 2031, which is commensurate with the estimated 2 percent demand and energy impact by the end of the study period.

- a. Please explain in detail how the Utility's load forecast accounts for the impact of customer owned/leased renewable generation (solar and otherwise).
 - b. Please provide the annual impact, if any, of customer-owned/leased renewable generation (solar and otherwise) on the Utility's retail demand and energy forecasts, by class and in total, for 2022 through 2031.
 - c. If the Utility maintains a forecast for the planning horizon (2022-2031) of the number of customers with customer-owned/leased renewable generation (solar and otherwise), by customer class, please provide.
18. Please discuss whether the Company included plug-in electric vehicle (PEV) loads in its demand and energy forecasts for its current planning period 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 been able to leverage redacted data from the Department of Motor Vehicles to create a county-level heat map of EV penetration. This analysis as well as evaluation of actual load data and profiles 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. However, 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.

19. 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. FMPA does not collect this information on behalf of the ARP Participants.

20. Please refer to the Excel Tables File (Electric Vehicle Charging). Complete the table by providing estimates of the requested information within the Company's service territory for the current planning period. Direct current fast charger (DCFC) PEV charging stations are those that require a service drop greater than 240 volts and/or use three-phase power.

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. We have marked "N/A" in the appropriate Excel Tables file.

21. 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 current planning 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.

22. 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.

23. Please describe any instances since January 1 of the year prior to the current planning period 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 own, maintain, or operate a distribution system. FMPA does not collect this information on behalf of the ARP participants.

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

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.

25. What processes or technologies, if any, are in place that allow the Company to be notified when a customer has installed a PEV charging station in their home?

FMPA does not collect this information on behalf of the ARP Participants.

26. What are the major drivers of the Company's PEV growth?

Please refer to our response to Question #18.

27. Please describe if and how Section 339.287, Florida Statutes, (Electric Vehicle Charging Stations; Infrastructure Plan Development) has impacted the Company's projection of PEV growth and related demand and energy growth.

Please refer to our response to Question #18.

28. What has the Company learned about the impact of PEV ownership on the Company's actual and forecasted peak demand?

Please refer to our response to Question #18.

29. If applicable, please describe any key findings and metrics of the Company's EV pilot program(s) which reveal the PEV impact to the demand and energy requirements of the Company.

The All-Requirements Project is a wholesale power supply project and as such, does not own, maintain, or operate a distribution system. We do not lead distribution system pilot programs. As noted in our response to Question #18, the impact of PEV penetration on load is embedded in the load forecast process.

30. **[FEECA Utilities Only]** Please refer to the Excel Tables File (DR Participation). Complete the table by providing for each source of demand response annual customer participation

information for 10 years prior to the current planning period. Please also provide a summary of all sources of demand response using the table.

FMPA is not a FEECA Utility.

31. **[FEECA Utilities Only]** Please refer to the Excel Tables File (DR Annual Use). Complete the table by providing for each source of demand response annual usage information for 10 years prior to the current planning period. Please also provide a summary of all demand response using the table.

FMPA is not a FEECA Utility.

32. **[FEECA Utilities Only]** Please refer to the Excel Tables File (DR Peak Activation). Complete the table by providing for each source of demand response annual seasonal peak activation information for 10 years prior to the current planning period. Please also provide a summary of all demand response using the table.

FMPA is not a FEECA Utility.

33. Please refer to the Excel Tables File (LOLP). Complete the table by providing the loss of load probability, reserve margin, and expected unserved energy for each year of the planning period.

We have provided information, as available.

Generation & Transmission

34. Please refer to the Excel Tables File (Unit Performance). Complete the table by providing information on each utility-owned generating resources' outage factors, availability factors, and average net operating heat rate (if applicable). For historical averages, use the past three years and for projected factors, use an average of the next ten-year period.

This information has been provided as requested.

35. Please refer to the Excel Tables File (Utility Existing Traditional). Complete the table by providing information on each utility-owned traditional generation resource in service as of December 31 of the year prior to the current planning period. For multiple small (<250 kW per installation) distributed resources of the same type and fuel source, please include a single combined entry. For capacity factor, use the net capacity as a basis.

This information has been provided as requested.

36. Please refer to the Excel Tables File (Utility Planned Traditional). Complete the table by providing information on each utility-owned traditional generation resource planned for in-service within the current planning period. For multiple small (<250 kW per installation) distributed resources of the same type and fuel source, please include a single combined entry. For projected capacity factor, use the net capacity as a basis.
- a. For each planned utility-owned traditional generation resource in the table, provide a narrative response discussing the current status of the project.

This information has been provided as requested.

37. Please refer to the Excel Tables File (Utility Existing Renewable). Complete the table by providing information on each utility-owned renewable generation resource in service as of December 31 of the year prior to the current planning period. For multiple small (<250 kW per installation) distributed resources of the same type and fuel source, please include a single combined entry. For capacity factor, use the net capacity as a basis.

This information has been provided as requested.

38. Please refer to the Excel Tables File (Utility Planned Renewable). Complete the table by providing information on each utility-owned renewable generation resource planned for in-service within the current planning period. For multiple small (<250 kW per installation) distributed resources of the same type and fuel source, please include a single combined entry. For projected capacity factor, use the net capacity as a basis.
- a. For each planned utility-owned renewable resource in the table, provide a narrative response discussing the current status of the project.

This information has been provided as requested.

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

The 2022 TYSP discusses assumed additional solar resources associated with the All-Requirements Project (100 MW of additional solar is assumed as Phase III). While FMPA currently has no specific plans for additional utility-owned renewable resources for the period 2022 through 2031, our Phase III investigations do include potential optionality for ownership of facilities, the results of which are as yet undetermined. To date, FMPA's solar development efforts have been through partnerships and power purchase agreements that can bring to bear the lowest cost renewable power for our Participants, and such efforts are summarized in the 2022 TYSP. There have been no cancellations, delays or reductions in scope during the past year.

40. Please refer to the Excel Tables File (Firm Purchases). Complete the table by providing information on the Utility's firm capacity and energy purchases.

This information has been provided as requested.

41. Please refer to the Excel Tables File (PPA Existing Traditional). Complete the table by providing information on each purchased power agreement with a traditional generator still in effect by December 31 of the year prior to the current planning period pursuant to which energy was delivered to the Company during said year.

This information has been provided as requested.

42. Please refer to the Excel Tables File (PPA Planned Traditional). Complete the table by providing information on each purchased power agreement with a traditional generator pursuant to which energy will begin to be delivered to the Company during the current planning period.

- a. For each purchased power agreement in the table, provide a narrative response discussing the current status of the project.

This information has been provided as requested. FMPA does not have any planned traditional power purchase agreement that has been executed for delivery to the Company during the planning period. FMPA has determined a seasonal peaking need within the planning period as described in the 2022 TYSP document but has not made any final determinations as to the nature of the fuel or renewable source of the purchase for the All-Requirements Project at this time.

43. Please refer to the Excel Tables File (PPA Existing Renewable). Complete the table by providing information on each purchased power agreement with a renewable generator still in effect by December 31 of the year prior to the current planning period pursuant to which energy was delivered to the Company during said year.

This information has been provided as requested.

44. Please refer to the Excel Tables File (PPA Planned Renewable). Complete the table by providing information on each purchased power agreement with a renewable generator pursuant to which energy will begin to be delivered to the Company during the current planning period.

- a. For each purchased power agreement in the table, provide a narrative response discussing the current status of the project.

This information has been provided as requested. Narratives associated with the tabular information are as follows:

- FMPA will purchase a 17.5 MW-AC share from a larger facility. FMPA will receive its pro-rata amount of energy based on the actual output of the facilities and has assigned an estimated amount of firm capacity associated with these PPAs as contributing to summer peak for reliability purposes (a percentage of the firm capacity shown in the table).
- FMPA will purchase a 96.25 MW-AC share from two larger solar facilities. FMPA will receive its pro-rata amount of energy based on the actual output of the facilities and has assigned an estimated amount of firm capacity associated with these PPAs as contributing to meeting summer peak for reliability purposes (a percentage of the firm capacity shown in the table).

As noted in our response to Question #39, we have assumed additional solar over the planning horizon that has yet to be procured.

45. Please list and discuss any purchased power agreements with a renewable generator that have, within the past year, been cancelled, delayed, or reduced in scope. What was the primary reason for the change? What, if any, were the secondary reasons?

FMPA has not had any such agreements cancelled, delayed, or reduced in scope within the past year.

46. Please refer to the Excel Tables File (PSA Existing). Complete the table by providing information on each power sale agreement still in effect by December 31 of the year prior to the current planning period pursuant to which energy was delivered from the Company to a third-party during said year.

This information has been provided as requested.

47. Please refer to the Excel Tables File (PSA Planned). Complete the table by providing information on each power sale agreement pursuant to which energy will begin to be delivered from the Company to a third-party during the current planning period.
- a. For each power sale agreement in the table, provide a narrative response discussing the current status of the agreement.

FMPA does not have any additional planned power sales agreements reflective of firm capacity and energy over the planning period.

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

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

49. Please refer to the Excel Tables File (Annual Renewable Generation). Complete the table by providing the actual and projected annual energy output of all renewable resources on the Company's system, by source, for the 11-year period beginning one year prior to the current planning period.

The information has been provided as requested.

50. **[Investor-Owned Utilities Only]** Please refer to the Excel Tables File (Potential Solar Sites). Complete the table by providing information on all of the Company's plant sites that are potential candidates for utility-scale (>2 MW) solar installations.

FMPA is not an Investor-Owned Utility.

51. 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. However, FMPA fully supports and facilitates renewable energy projects and initiatives within our member/owner territories. FMPA, on behalf of the ARP and as separate FMPA power supply projects not associated with the ARP, has entered into PPAs totaling 373.3 MW of solar energy expected to be online by 2023. The All-Requirements Project will receive 154.25 MW of this solar energy. In addition, the 2022 TYSP assumes an additional 100 MW of solar resource, the procurement of which is still pending, within the ten-year planning horizon.

52. **[Investor-Owned Utilities Only]** Please discuss whether the Company has been approached by renewable energy generators during the year prior to the current planning period 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.

53. 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.

FMPA has performed historical evaluations of hourly load shapes for the All-Requirements Project as compared to typical metrological year based solar outputs. PV performance has been simulated using both industry tools (e.g., PV Watts) as well as shapes provided to FMPA by our power purchase agreement developers. Based on this statistical analysis, we have assigned 40% of the nominal AC rating of a solar facility as being available during the summer seasonal peak period. FMPA does not assign any PV contribution for reliability for the winter seasonal peak period.

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

FMPA is in the process of discovery on updated storage pricing as part of our Phase III solar investigations. While FMPA is aware of cost declines in storage technologies, our recent analysis of the benefits of utility-scale energy storage suggests 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. FMPA is also exploring additional storage opportunities related to mitigation of transmission capacity constraints to enhance reliability for the ARP.

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

In past years, FMPA 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. FMPA continually monitors storage technology trends, looking for cost effective deployment opportunities.

56. 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).

In general, consistent with our updated discovery process for additional solar facilities, FMPA anticipates storage to either be co-located with a solar facility to maximize energy value, or for storage to alleviate some alternative constraint on the system (e.g., transmission capacity constraint).

57. Please explain 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.

58. Please refer to the Excel Tables File (Existing Energy Storage). Complete the table by providing information on 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.

This information has been provided as requested.

59. Please refer to the Excel Tables File (Planned Energy Storage). Complete the table by providing information on all energy storage technologies planned for in-service during the current planning period either as part of the Company's system portfolio or as part of a pilot program sponsored by the Company.

This information has been provided as requested.

60. 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 current planning period. If the Company is not currently participating in or developing energy storage pilot programs, has it considered doing so? If not, please explain.

- a. 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.
- b. Please provide a brief assessment of how these benefits, risks, and operational limitations may change over the current planning period.
- c. 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.

61. 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 from such generation sources. If not, please explain.
- a. Based on the Company's operational experience, please discuss to what extent energy storage technologies can be used to provide firm capacity from non-firm generation sources. As part of your response, please discuss any operational challenges faced and potential solutions to these challenges.

At this time, FMPA does not rely on non-firm generation sources for capacity. As FMPA's solar projects become energized, FMPA will enhance our operational experience with intermittent generation, and we have assigned summer season capacity value to PV output. We continue to work with our developers to frame the value proposition for energy storage, which could provide benefits in the areas of (i) energy arbitrage, (ii) instantaneous ramp-up, (iii) instantaneous ramp-down, and (iv) various other ancillary services. Longer duration storage could also provide a mirror to peaking capacity for a constrained number of hours. Additionally, storage could be used to mitigate transmission capacity constraints during high consumption periods. All such value areas, and others, are continually monitored by FMPA staff to determine the appropriate timing for potential implementation from a cost-benefit perspective.

62. Please identify and describe any programs the Company offers that allows its customers to contribute towards the funding of specific renewable projects, such as community solar programs.
- a. Please describe any such programs in development with an anticipated launch date within the current planning period.

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 or are developing individual solar subscription programs, and FMPA is actively engaged in supporting our Members with development of new such programs.

63. 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.

64. **[Investor-Owned Utilities Only]** Please refer to the Excel Tables File (As-Available Energy Rate). Complete the table by providing, on a system-wide basis, the historical annual average as-available energy rate in the Company's service territory for the 10-year period prior to the current planning period. Also, provide the projected annual average as-available energy rate in the Company's service territory for the current planning period. If the Company uses multiple areas for as-available energy rates, please provide a system-average rate as well.

FMPA is not an Investor-Owned Utility.

65. Please refer to the Excel Tables File (Planned PPSA Units). Complete the table by providing information on all planned traditional units with an in-service date within the current planning period. For each planned unit, provide the date of the Commission's Determination of Need and Power Plant Siting Act certification, if applicable.

FMPA currently has no planned unit additions for the period 2022 through 2031.

66. For each of the planned generating units, both traditional and renewable, contained in the Company's current planning period TYSP, please discuss the "drop dead" date for a decision on whether or not to construct each unit. Provide a timeline for the construction of each unit, including regulatory approval, and final decision point.

FMPA currently has no planned unit additions for the period 2022 through 2031.

67. Please refer to the Excel Tables File (Capacity Factors). Complete the table by providing the actual and projected capacity factors for each existing and planned unit on the Company's system for the 11-year period beginning one year prior to the current planning period.

This information has been provided as requested.

68. **[Investor-Owned Utilities Only]** 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.

This information has been provided as requested.

69. Please refer to the Excel Tables File (Steam Unit CC Conversion). Complete the table by providing information on all of the Company's steam units that are potential candidates for repowering to operation as Combined Cycle units.

This information has been provided as requested.

70. Please refer to the Excel Tables File (Steam Unit Fuel Switching). Complete the table by providing information on all of the Company's steam units that are potential candidates for fuel-switching.

This information has been provided as requested.

71. Please refer to the Excel Tables File (Transmission Lines). Complete the table by providing a list of all proposed transmission lines for the current planning period that require certification under the Transmission Line Siting Act. Please also include in the table transmission lines that have already been approved, but are not yet in-service.

This information has been provided as requested.

Environmental

72. Please explain if the Company assumes carbon dioxide (CO₂) compliance costs in the resource planning process used to generate the resource plan presented in the Company's current planning period TYSP. If the response is affirmative, answer the following questions:
- Please identify the year during the current planning period in which CO₂ compliance costs are first assumed to have a non-zero value.
 - [Investor-Owned Utilities Only]** Please explain if the exclusion of CO₂ compliance costs would result in a different resource plan than that presented in the Company's current planning period TYSP.
 - [Investor-Owned Utilities Only]** Please provide a revised resource plan assuming no CO₂ compliance costs.

FMPA did not assume carbon dioxide costs in the process used to generate the resource plan presented in the current TYSP. However, FMPA has done extensive analysis of potential alternative outcomes and plans that may be required under an array of proposed carbon legislation, such as the Clean Futures Act and similar configurations, in order to proactively evaluate and prepare for a range of potential future outcomes.

73. 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 previous year. As part of your narrative, please discuss the potential for existing environmental regulations to impact unit dispatch, curtailments, or retirements during the current planning period.

During the 2021 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 2022 through 2031 period.

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

FMPA has no immediate plans to develop, modify or reconstruct any units; therefore this rule is not currently applicable to FMPA. To the extent FMPA adjusts future plans that impact applicability, FMPA will comply with all applicable EPA standards.

- 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? Refer to the Excel Tables File (Emissions Cost). Complete the table by providing information on the costs for the current planning period.
- f. If the answer to any of the above questions is not available, please explain why.

75. 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 changes to units not modified by the rule that may be required to maintain reliability.

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. 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.

- 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.

- f. Affordable Clean Energy Rule or its replacement.
- g. Effluent Limitations Guidelines and Standards (ELGS) from the Steam Electric Power Generating Point Source Category.

76. Please refer to the Excel Tables File (EPA Operational Effects). Complete the table by identifying, 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.

This information has been provided as requested.

77. Please refer to the Excel Tables File (EPA Cost Effects). Complete the table by identifying, 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.

This information has been provided as requested.

78. Please refer to the Excel Tables File (EPA Unit Availability). Complete the table by identifying, 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.

This information has been provided as requested.

79. 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 additions and O&M costs.

Fuel Supply & Transportation

80. Please refer to the Excel Tables File (Fuel Usage & Price). Complete the table by providing, 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 10-year period prior to the current planning period. 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 current planning period.

This information has been provided as requested.

81. 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.

82. Please identify and discuss expected industry trends and factors for each fuel type listed below that may affect the Company during the current planning period.

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 #85 and #86.

c. Nuclear: FMPA has 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 circumstances 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)

83. Please provide a comparison of the Utility's 2021 fuel price forecast and the actual 2021 delivered fuel prices.

FMPA utilizes coal, nuclear fuel, natural gas, and as noted above, fuel oil (in limited instances). In general, while nuclear and fuel oil markets and associated utilization were relatively stable and well aligned with expectations, natural gas and coal pricing exhibited more volatility and deviation from expectations, driven from a wide range of factors. The increased exportation of liquefied natural gas, reduced well counts in 2021 as compared to market signals for oil prices, coal delivery constraints driven from supply chain challenges, and increased international demand for fuels all placed upward pressure on fuel prices.

84. Please explain any notable changes in the Utility's forecast of fuel prices used to prepare the Utility's 2022 TYSP compared to the fuel process used to prepare the Utility's 2021 TYSP.

FMPA followed the same procedures as were deployed in the 2021 TYSP planning cycle to develop projected fuel prices for the 2022 TYSP.

85. Please identify and discuss steps that the Company has taken to ensure natural gas supply availability and transportation over the current 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 gas transportation contract capacity sufficient to meet its projected needs.

86. 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 during the current planning period.

Sabal Train 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 continues to evaluate and consider a connection to Sabal Train due to its proximity to Cane Island Power Park facility. A potential connection to the new pipeline will further support our efforts to increase reliability and reduce costs.

87. 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, during the current planning period.

Recent geopolitical events have resulted in significant fuel price increases. A major factor in said increases is the exportation of LNG to Europe amid high demand and potential for significant supplier margins. FMPA is closely monitoring natural gas prices and working with the All-Requirements Project Participants to manage cost increases.

88. Please identify and discuss the Company's plans for the use of firm natural gas storage during the current planning period.

FMPA has 125,000 MMBtu of storage capacity with a firm withdrawal delivery capacity of 10,000 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.

89. 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 current planning period. 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.

90. Please identify and discuss any expected changes in coal handling, blending, unloading, and storage at coal generating units during the current planning period. Please discuss any planned construction projects that may be related to these changes.

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.

91. Please identify and discuss the Company's plans for the storage and disposal of spent nuclear fuel during the current planning period. 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.

FMPA has 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.

92. Please identify and discuss expected uranium production industry trends and factors that will affect the Company during the current planning period.

FMPA has 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.

Extreme Weather

93. Please identify and discuss steps, if any, that the Company has taken to ensure continued energy generation in case of a severe cold weather event.

FMPA recurrently evaluates alternative measures of resource adequacy and energy sufficiency that take into account severe weather, economic uncertainty, and generator availability, among other factors. We recently initiated an effort to simulate cold-stressed temperatures at weather stations in close proximity to the ARP load to determine the differential that could be experienced with persistent cold as compared to the most recent prior winter peak year (2010) when controlling for organic load growth that has occurred (absent weather deviations) since that time. In 2021, FMPA also evaluated a similar sensitivity case for conditions experienced during the winter of 1989, again controlling for organic load growth that has occurred since that time. The results of these analyses have been combined with evaluation of generator availability to examine an appropriate amount of dual-fuel capability that can maintain system resiliency in cases where gas throughput may be curtailed upstream of FL due to extreme cold temperatures. FMPA continues to maintain several generators that have dual fuel capabilities throughout the system. Natural gas is the primary fuel source, and DLO is a secondary source with a sufficient capacity to run these units for several days on secondary fuel, allowing time for natural gas pipeline restrictions to subside. FMPA also maintains a quantity of natural gas storage capacity managed by FGU to ensure uninterrupted flow.

94. Please identify any future winterization plans, if any, the Company intends to implement over the current planning period.

FMPA has allocated a budget for expenditures needed to complete weatherization on our natural gas units as deemed necessary. This includes items such as heat tracing, insulating critical fuel and water piping, and protections for certain measurement equipment. FMPA intends to continue to maintain dual fuel capabilities and natural gas reserves into the future to support reliable operations. As noted in our response to Question #93, FMPA has conducted sensitivity cases designed to stress the generation stack with a number of different scenarios, so that we can study fleet response. This process provides insight into what different supply side and demand side factors could limit our production, so that proactive preparations can be made ahead of any extreme event.

95. Please explain the Company's planning process for flood mitigation for current and proposed power plant sites and transmission/distribution substations.

With respect to flood mitigation for the existing All-Requirements Project generation fleet, only the facilities at Stock Island are within the 100-year flood map. All generating assets at Stock Island are elevated above sea level on concrete padded mounts and securely bolted to the pad. Generation elevations at Stock Island are equal to or greater than the 100-year flood plan risk of 9 feet. One asset, Combustion Turbine #4, has an elevation equal to the 500-year flood plan risk of 11 feet. The Stock Island CTs have additional strapping to mitigate windstorm or flood related floating risk and have been sealed to prevent water intrusion. The

Cane Island Power Park and Treasure Coast Energy Center plant sites are outside the 500-year flood zone, and FMPA has not taken any additional flood mitigation steps at these sites.

FMPA does not have any new proposed power plant sites in our current TYSP. FMPA does not operate or manage the transmission and distribution assets of the All-Requirements Project participants nor are we proposing any new transmission substations in our current TYSP.

TYSP Year 2022
Staff's Data Request # 1
Question No. 3

Financial Assumptions
Base Case

AFUDC RATE	<u>NA</u>	%
CAPITALIZATION RATIOS:		
	DEBT <u>100</u>	%
	PREFERRED <u>NA</u>	%
	EQUITY <u>NA</u>	%
RATE OF RETURN		
	DEBT <u>NA</u>	%
	PREFERRED <u>NA</u>	%
	EQUITY <u>NA</u>	%
INCOME TAX RATE:		
	STATE <u>NA</u>	%
	FEDERAL <u>NA</u>	%
	EFFECTIVE <u>NA</u>	%
OTHER TAX RATE:	<u>NA</u>	%
DISCOUNT RATE:	<u>NA</u>	%
TAX		
DEPRECIATION RATE:	<u>NA</u>	%

TYSP Year 2022
Staff's Data Request # 1
Question No. 3

Financial Escalation Assumptions

Year	General Inflation %	Plant Construction Cost %	Fixed O&M Cost %	Variable O&M Cost %
2022	2.5	2.5	2.5	2.5
2023	2.5	2.5	2.5	2.5
2024	2.5	2.5	2.5	2.5
2025	2.5	2.5	2.5	2.5
2026	2.5	2.5	2.5	2.5
2027	2.5	2.5	2.5	2.5
2028	2.5	2.5	2.5	2.5
2029	2.5	2.5	2.5	2.5
2030	2.5	2.5	2.5	2.5
2031	2.5	2.5	2.5	2.5

TYSP Year 2022
Staff's Data Request # 1
Question No. 5

Year	Month	Actual	Demand	Estimated	Day	Hour	System-Average
		Peak Demand	Response Activated	Peak Demand			Temperature
		(MW)	(MW)	(MW)			(Degrees F)
2021	1	1,020	0	1,020	19	8	55
	2	1,351	0	1,351	4	8	51
	3	1,144	0	1,144	31	17	78
	4	1,199	0	1,199	29	18	79
	5	1,375	0	1,375	5	16	83
	6	1,386	0	1,386	11	17	85
	7	1,428	0	1,428	22	16	88
	8	1,467	0	1,467	18	17	87
	9	1,312	0	1,312	8	16	84
	10	1,314	0	1,314	7	16	84
	11	941	0	941	2	17	75
	12	937	0	937	31	16	73
2020	1	1,165	0	1,165	22	8	46
	2	957	0	957	13	17	77
	3	1,112	0	1,112	30	17	80
	4	1,106	0	1,106	13	16	87
	5	1,244	0	1,244	22	17	81
	6	1,399	0	1,399	29	16	87
	7	1,380	0	1,380	16	17	84
	8	1,406	0	1,406	4	16	84
	9	1,463	0	1,463	4	16	87
	10	1,232	0	1,232	8	16	83
	11	966	0	966	1	14	78
	12	1,129	0	1,129	26	9	44
2019	1	950	0	950	1/29/2019	8	61
	2	922	0	922	2/22/2019	16	70
	3	935	0	935	3/11/2019	17	68
	4	1,049	0	1,049	4/30/2019	17	74
	5	1,262	0	1,262	5/30/2019	17	80
	6	1,349	0	1,349	6/25/2019	17	83
	7	1,315	0	1,315	7/2/2019	16	84
	8	1,264	0	1,264	8/26/2019	16	83
	9	1,301	0	1,301	9/9/2019	17	82
	10	1,144	0	1,144	10/30/2019	17	81
	11	1,015	0	1,015	11/7/2019	15	69
	12	809	0	809	12/17/2019	19	68

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.

TYSP Year 2022
Staff's Data Request # 1
Question No. 19

Year	Number of PEVs	Number of Public PEV Charging Stations	Number of Public DCFC PEV Charging Stations.	Cumulative Impact of PEVs		
				Summer Demand	Winter Demand	Annual Energy
				(MW)	(MW)	(GWh)
2022						
2023						
2024						
2025						
2026						
2027						
2028						
2029						
2030						
2031						
Notes						
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.						

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 30

[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
2012									
2013									
2014									
2015									
2016									
2017									
2018									
2019									
2020									
2021									
Notes									
FMPA is not a FEECA Utility.									

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 31

[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
2012										
2013										
2014										
2015										
2016										
2017										
2018										
2019										
2020										
2021										
Notes										
FMPA is not a FEECA Utility.										

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 32

[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)
2012							
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							
2021							
Notes							
FMPA is not a FEECA Utility.							

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 33

**Loss of Load Probability, Reserve Margin, and Expected Unserved Energy
 Base Case Load Forecast**

Year	Annual Isolated			Annual Assisted		
	Loss of Load Probability (Days/Yr)	Reserve Margin (%) (Including Firm Purchases)	Expected Unserved Energy (MWh) [1]	Loss of Load Probability (Days/Yr)	Reserve Margin (%) (Including Firm Purchases)	Expected Unserved Energy (MWh)
2022			61.65			0
2023						
2024						
2025						
2026						
2027						
2028						
2029						
2030						
2031						

[1] Estimate represents simulated expected unserved energy across the FMPP without consideration of interties and other reserve sharing arrangements. Any unserved energy situation forecasted to occur during the summer period within our simulations could be eliminated by importing power from outside the FMPP.

Note: Reserve margin projections can be obtained from Schedules 7.1 and 7.2 of FMPA's 2022 Ten-Year Site Plan.

TYSP Year 2022
Staff's Data Request # 1
Question No. 34

Existing Generating Unit Operating Performance

Plant Name	Unit No.	Planned Outage Factor (POF)		Forced Outage Factor (FOF)		Equivalent Availability Factor (EAF)		Average Net Operating Heat Rate (ANOHR)	
		Historical	Projected	Historical	Projected	Historical	Projected	Historical	Projected [4]
Cane Island	1	7.5%	1.1%	0.4%	3.3%	92.1%	95.6%	11.33	11.51
Cane Island	2	2.2%	8.1%	0.0%	1.8%	97.8%	90.1%	7.93	8.60
Cane Island	3	9.1%	6.9%	1.0%	2.0%	89.9%	91.1%	7.02	7.28
Cane Island	4	5.9%	6.1%	0.3%	2.0%	93.8%	91.9%	7.11	6.98
Stock Island	CT1	4.7%	3.4%	2.2%	3.9%	93.1%	92.7%	17.63	19.33
Stock Island	CT2	11.2%	3.4%	11.2%	3.9%	77.6%	92.7%	10.38	19.66
Stock Island	CT3	11.9%	3.4%	2.0%	3.9%	86.1%	92.7%	12.16	19.95
Stock Island	GT4	2.8%	0.9%	0.9%	3.3%	96.3%	95.9%	11.88	12.33
Stock Island	MSD1	1.3%	3.4%	10.0%	3.9%	88.7%	92.7%	12.64	22.11
Stock Island	MSD2	9.2%	3.4%	1.2%	3.9%	89.6%	92.7%	12.64	22.33
Stock Island	EP2	0.0%	7.3%	1.2%	0.0%	[5]	92.7%	[5]	18.99
Treasure Coast	1	5.1%	6.5%	1.6%	2.0%	93.3%	91.5%	7.21	6.97
FPL/St. Lucie [1]	2								
OUC/Indian River [2]	CT A								
OUC/Indian River [2]	CT B								
OUC/Indian River [2]	CT C								
OUC/Indian River [2]	CT D								
OUC/Stanton [2]	1								
OUC/Stanton [2]	2								
Nextera/Stanton [3]	A								
Nextera/Oleander [3]	5								
ARP Solar [6]									

NOTE: Historical - average of past three years
Projected - average of next ten years

Notes:

- [1] Historical and projected operating data for this unit is available from Florida Power & Light.
- [2] Historical and projected operating data for this unit is available from Orlando Utilities Commission.
- [3] Historical and projected operating data for this unit is available from Nextera Energy Resources.
- [4] Projections are based on production modeling using assumptions suitable for long-term planning purposes and are shown in MMBtu/MWh.
- [5] EP2 is an emergency unit. Data is not available.
- [6] Historical and projected operating data for this unit is available from Florida Renewable Partners.

TYSP Year 2022
Staff's Data Request # 1
Question No. 35

Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Commercial In-Service		Gross Capacity (MW)		Net Capacity (MW)		Firm Capacity (MW)		Capacity Factor
					Mo	Yr	Sum	Win	Sum	Win	Sum	Win	(%)
Cane Island	1	Osceola	GT	NG	1	1995	40	40	35	38	35	38	[5]
Cane Island	2	Osceola	CC	NG	6	1995	122	122	109	113	109	113	[5]
Cane Island	3	Osceola	CC	NG	1	2002	280	280	240	250	240	250	[5]
Cane Island	4	Osceola	CC	NG	8	2011	350	350	300	310	300	310	[5]
Stock Island	CT 1	Monroe	GT	DFO	11	1978	20	20	19	19	19	19	[5]
Stock Island	CT 2	Monroe	GT	DFO	6	1999	21	21	16	16	16	16	[5]
Stock Island	CT 3	Monroe	GT	DFO	6	1999	21	21	14	14	14	14	[5]
Stock Island	GT 4	Monroe	GT	DFO	6	2006	61	61	46	46	46	46	[5]
Stock Island	MSD1	Monroe	IC	DFO	6	1991	9	9	8	8	8	8	[5]
Stock Island	MSD2	Monroe	IC	DFO	6	1991	9	9	8	8	8	8	[5]
Stock Island	EP2	Monroe	IC	DFO	7	2012	2	2	2	2	2	2	[5]
Treasure Coast	1	St. Lucie	CC	NG	5	2008	350	350	300	310	300	310	[5]
St. Lucie	2	St. Lucie	NP	UR	[1]								
Indian River	CT A	Brevard	GT	NG	[2]								
Indian River	CT B	Brevard	GT	NG	[2]								
Indian River	CT C	Brevard	GT	NG	[2]								
Indian River	CT D	Brevard	GT	NG	[2]								
Stanton Energy Center	1	Orange	ST	BIT	[2]								
Stanton Energy Center	2	Orange	ST	BIT	[2]								
Stanton Energy Center	A	Orange	CC	NG	[3]								
Oleander	OG5	Orange	GT	NG	[4]								

Notes

[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] See sheet "59. Capacity Factors".

TYSP Year 2022
Staff's Data Request # 1
Question No. 36

Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Commercial In-Service		Gross Capacity (MW)		Net Capacity (MW)		Firm Capacity (MW)		Projected Capacity Factor
					Mo	Yr	Sum	Win	Sum	Win	Sum	Win	(%)
Notes													
FMPA does not have any utility-owned traditional generation resource planned for in-service within the current planning period.													

TYSP Year 2022
Staff's Data Request # 1
Question No. 37

Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Commercial In-Service		Gross Capacity (MW)		Net Capacity (MW)		Firm Capacity (MW)		Capacity Factor
					Mo	Yr	Sum	Win	Sum	Win	Sum	Win	(%)
Orange County Landfill [1]		Orange	ST	LFG - Methane gas is used as a supplemental fuel source at the Stanton Energy Center	April	1998	[1]	[1]	0	0	0	0	[1]
NOAA Eco-Discovery Center [2]		Monroe	PV	SUN	December	2009	0.03	0.03	0	0	0	0	18
Notes													
[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 landfill gas as 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.													

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 38

Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Commercial In-Service		Gross Capacity (MW)		Net Capacity (MW)		Firm Capacity (MW)		Projected Capacity Factor
					Mo	Yr	Sum	Win	Sum	Win	Sum	Win	(%)
None.													
Notes													
FMPA has no plans for additional utility-owned renewable resources for the period 2022 through 2031.													

TYSP Year 2022
Staff's Data Request # 1
Question No. 40

Nominal, Firm Purchases

Year	Firm Purchases	
	\$/MWh	Escalation %
HISTORY:		
2019	N/A	N/A
2020	N/A	N/A
2021	N/A	N/A
FORECAST:		
2022	N/A	N/A
2023	N/A	N/A
2024	N/A	N/A
2025	N/A	N/A
2026	N/A	N/A
2027	N/A	N/A
2028	N/A	N/A
2029	N/A	N/A
2030	N/A	N/A
2031	N/A	N/A

Note: There were no long-term firm capacity and energy purchases in the historical period. The forecast period power purchase agreements are captured elsewhere as directed.

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 41

Seller Name	Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Gross Capacity (MW)		Net Capacity (MW)		Contracted Firm Capacity (MW)		Contract Term Dates (MM/YY)	
						Sum	Win	Sum	Win	Sum	Win	Start	End
<i>NextEra Energy Resources</i>	<i>Stanton A</i>	<i>CC Unit A</i>	<i>Orange</i>	<i>CC</i>	<i>Gas</i>	<i>81</i>	<i>87</i>	<i>81</i>	<i>87</i>	<i>81</i>	<i>87</i>	<i>3/1/2017</i>	<i>9/30/2023</i>
<i>NextEra Energy Resources</i>	<i>Oleander</i>	<i>CT5</i>	<i>Brevard</i>	<i>CT</i>	<i>Gas</i>	<i>162</i>	<i>180</i>	<i>162</i>	<i>180</i>	<i>162</i>	<i>180</i>	<i>2/6/2017</i>	<i>12/15/2027</i>
Notes													
(Include Notes Here)													

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 42

Seller Name	Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Gross Capacity (MW)		Net Capacity (MW)		Contracted Firm Capacity (MW)		Contract Term Dates (MM/YY)	
						Sum	Win	Sum	Win	Sum	Win	Start	End
Notes													
FMPA does not have any planned traditional power purchase agreement that has been executed for delivery to the Company during the planning period. FMPA has determined a seasonal peaking need within the planning period as described in the 2022 TYSP document, but has not made any determinations as to the nature of the fuel or renewable source of the purchase for the All Requirements Project at this time.													

TYSP Year 2022
Staff's Data Request # 1
Question No. 43

Seller Name	Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Gross Capacity (MW)		Net Capacity (MW)		Contracted Firm Capacity (MW)		Contract Term Dates (MM/YY)	
						Sum	Win	Sum	Win	Sum	Win	Start	End
US Sugar	US Sugar		Hendry	ST	AB	48[1]	48[1]			0	0	04/1990	On-going with 90 days cancellation notice
Florida Renewable Partners	Harmony		Osceola		SUN	74.5[2]	74.5[2]			40.5	0	06/2020	06/2040
Notes													
<p>[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.</p> <p>[2] FMPA purchases a 40.5 MW-AC share from one larger solar facility. FMPA receives its pro-rata amount of energy based on the actual output of the facility, and has assigned an estimated amount of firm capacity associated with this PPA as contributing to meeting summer peak for reliability purposes (a percentage of the firm capacity shown in the table).</p>													

TYSP Year 2022
Staff's Data Request # 1
Question No. 44

Seller Name	Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Gross Capacity (MW)		Net Capacity (MW)		Contracted Firm Capacity (MW)		Contract Term Dates (MM/YY)	
						Sum	Win	Sum	Win	Sum	Win	Start	End
Florida Renewable Partners	Poinsett		Osceola		SUN	74.5	74.5			17.5 [1]	0 [1]	06/2023	06/2043
Origis Energy	Rice Creek				SUN	74.9	74.9			48.12 [2]	0 [2]	12/2023	12/2043
Origis Energy	Whistling Duck				SUN	74.9	74.9			48.12 [2]	0 [2]	11/2024	11/2044
TBD [3]	TBD				SUN	100	100			100	100	TBD	TBD
Notes													
<p>[1] FMPA will purchase a 17.5 MW-AC share from one larger solar facility. FMPA will receive its pro-rata amount of energy based on the actual output of the facility, and has assigned an estimated amount of firm capacity associated with this PPA as contributing to meeting summer peak for reliability purposes (a percentage of the firm capacity shown in the table).</p> <p>[2] FMPA will purchase a 96.25 MW-AC share from two larger solar facilities. FMPA will receive its pro-rata amount of energy based on the actual output of the facilities, and has assigned an estimated amount of firm capacity associated with these PPAs as contributing to meeting summer peak for reliability purposes (a percentage of the firm capacity shown in the table).</p> <p>[3] FMPA has assumed an additional purchase of 100 MW-AC from one or more solar facilities in the current Ten-Year Site Plan. FMPA's target date for energy delivery is 2026.</p>													

TYSP Year 2022
Staff's Data Request # 1
Question No. 46

Buyer Name	Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Gross Capacity (MW)		Net Capacity (MW)		Contracted Firm Capacity (MW)		Contract Term Dates (MM/YY)	
						Sum	Win	Sum	Win	Sum	Win	Start	End
City of Homestead	System	System	System	System	System					15	15	01/20	12/26
Tampa Electric Company	System	System	System	System	System					2020-2021: 150 MW	2020-2021: 150 MW	12/19	02/21
City of Bartow ^[1]	System	System	System	System	System					2021-2023: 65 MW	2021-2023: 65 MW	01/18	12/23
City of Winter Park ^[2]	System	System	System	System	System					2020-2027: 64 MW	2020-2027: 64 MW	01/19	12/27
Williston ^[3]	System	System	System	System	System					2021-2027: 8 MW	2021-2027: 8 MW	01/21	12/27
Alachua ^[4]	System	System	System	System	System					2022-2027: 14 MW	2022-2027: 12 MW	04/22	12/27
Notes													
<p>[1] FMPA is providing full requirements for 2021-2023. The Contract Capacities shown are subject to change depending on the actual needs of the City of Bartow.</p> <p>[2] FMPA is providing 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.</p> <p>[3] The Contract Capacities shown for 2021-2027 are subject to change depending on the actual needs of the City of Williston.</p> <p>[4] FMPA is providing partial-requirements for 2022-2027. The Contract Capacities shown for 2022-2027 are subject to change depending on the actual needs of the City of Alachua.</p>													

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 47

Buyer Name	Facility Name	Unit No.	County Location	Unit Type	Primary Fuel	Gross Capacity (MW)		Net Capacity (MW)		Contracted Firm Capacity (MW)		Contract Term Dates (MM/YY)	
						Sum	Win	Sum	Win	Sum	Win	Start	End
Notes													
FMPA does not have any additional planned power sales agreements reflective of firm capacity and energy over the planning period.													

TYSP Year 2022
Staff's Data Request # 1
Question No. 49

Renewable Source	Annual Renewable Generation (GWh)										
	Actual	Projected									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Utility - Firm											
Utility - Non-Firm	13	18	17	12	7	5	4	3	4	4	4
Utility - Co-Firing											
Purchase - Firm											
Purchase - Non-Firm	141	145	145	338	475	764	762	761	760	755	753
Purchase - Co-Firing											
Customer - Owned											
Total											
Notes											
<p>[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.</p> <p>[2] Purchase - Non-Firm source is generation from bagasse combusted by US Sugar and sold to FMPA plus the projected energy purchased under the future solar PPAs entered into by the All Requirements Project.</p>											

TYSP Year 2022
Staff's Data Request # 1
Question No. 50

FMPA is not an investor-owned utility.

Plant Name	Land Available (Acres)	Potential Installed Net Capacity (MW)	Potential Obstacles to Installation

TYSP Year 2022
Staff's Data Request # 1
Question No. 58

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

TYSP Year 2022
Staff's Data Request # 1
Question No. 59

Project Name	Pilot Program (Y/N)	In-Service/ Pilot Start Date (MM/YY)	Projected Max Capacity Output (MW)	Projected Max Energy Stored (MHh)	Projected Conversion Efficiency (%)
Notes					
FMPA does not have any energy storage technologies planned for in-service during the current planning period.					

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 64

Year		As-Available Energy (\$/MWh)	On-Peak Average (\$/MWh)	Off-Peak Average (\$/MWh)
Actual	2012			
	2013			
	2014			
	2015			
	2016			
	2017			
	2018			
	2019			
	2020			
	2021			
Projected	2022			
	2023			
	2024			
	2025			
	2026			
	2027			
	2028			
	2029			
	2030			
	2031			
Notes				

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 65

Generating Unit Name	Summer Capacity (MW)	Certification Dates (if Applicable)		In-Service Date (MM/YY)
		Need Approved (Commission)	PPSA Certified	
Nuclear Unit Additions				
Combustion Turbine Unit Additions				
Combined Cycle Unit Additions				
Steam Turbine Unit Additions				
Notes				
<p>FMPA does not have any planned traditional units with an in-service date within the current planning period.</p>				

TYSP Year 2022
Staff's Data Request # 1
Question No. 67

Plant	Unit No.	Unit Type	Fuel Type	Capacity Factor (%)										
				Actual	Projected									
				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Cane Island	1	GT	NG	1.70	7.32	5.92	4.08	10.59	11.57	14.16	13.42	13.28	14.07	15.72
Cane Island	2	CC	NG	39.20	16.46	14.05	7.76	28.02	31.83	43.39	41.70	44.32	45.87	46.64
Cane Island	3	CC	NG	63.47	31.15	40.83	43.22	54.12	62.08	66.18	65.21	67.74	67.25	68.06
Cane Island	4	CC	NG	72.27	59.65	63.30	65.76	69.20	66.33	68.18	67.67	67.91	68.49	68.50
Stock Island	CT 1	GT	DFO	0.25	0.18	0.25	0.13	0.18	0.23	0.26	0.25	0.31	0.36	0.44
Stock Island	CT 2	GT	DFO	0.31	0.05	0.12	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
Stock Island	CT 3	GT	DFO	0.18	0.04	0.10	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
Stock Island	GT 4	GT	DFO	0.50	0.06	0.16	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00
Stock Island	MSD1	IC	DFO	0.24	0.07	0.16	0.02	0.00	0.01	0.00	0.04	0.00	0.00	0.00
Stock Island	MSD2	IC	DFO	0.24	0.09	0.17	0.02	0.00	0.01	0.00	0.06	0.01	0.01	0.00
Stock Island	EP2	IC	DFO	#NA	0.03	0.13	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
Treasure Coast	1	CC	NG	72.27	65.07	65.25	67.38	70.35	67.81	69.48	68.84	69.35	69.92	70.12
St. Lucie	2	NP	UR	[1]	97.01	90.02	90.24	96.85	89.97	90.22	97.03	89.90	90.25	96.98
Indian River	CT A	GT	NG	[2]	0.47	1.15	0.05	0.14	0.63	0.90	0.71	1.13	0.76	0.73
Indian River	CT B	GT	NG	[2]	0.55	1.07	0.02	0.14	0.79	0.46	0.52	0.78	0.69	0.69
Indian River	CT C	GT	NG	[2]	1.78	2.13	1.08	3.28	3.78	5.17	3.70	3.44	4.69	4.61
Indian River	CT D	GT	NG	[2]	1.60	1.93	0.76	3.20	3.97	4.79	4.20	3.39	3.93	4.27
Stanton Energy Center	1	ST	BIT	[2]	65.96	61.24	36.86	13.43	#NA	#NA	#NA	#NA	#NA	#NA
Stanton Energy Center	2	ST	BIT	[2]	66.66	61.90	46.70	45.67	38.99	28.84	25.98	28.10	29.17	28.30
Stanton Energy Center	A	CC	NG	[3]	67.68	69.49	70.78	72.49	71.00	72.99	72.62	73.24	73.93	74.06
Oleander	OG5	GT	NG	[4]	1.91	1.41	0.58	1.67	2.22	2.51	#NA	#NA	#NA	#NA
ARP Solar	N/A	N/A	SUN	[6]	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00

Notes

[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. Stanton Unit 2 is slated for conversion to natural gas by 2027.
 [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. PPA expires in 2027.
 [5] Projected capacity factors are based on production modeling using assumptions suitable for long-term planning purposes.
 [6] Historical operating data for current ARP solar resources is available from Florida Renewable Partners. ARP Solar represents estimated solar performance for all solar resources within the All Requirements Project portfolio over the study period.

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 69

Plant Name	Fuel Type	Summer Capacity (MW)	In-Service Date (MM/YYYY)	Potential Conversion	Potential Issues
Notes					
<p>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.</p>					

TYSP Year 2022
Staff's Data Request # 1
Question No. 70

Plant Name	Fuel Type	Summer Capacity (MW)	In-Service Date (MM/YYYY)	Potential Conversion	Potential Issues
Notes					
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.					

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 71

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

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 74

Year	Estimated Cost of Standards of Performance for Greenhouse Gas Emissions Rule for New Sources Impacts (Present-Year \$ millions)			
	Capital Costs	O&M Costs	Fuel Costs	Total Costs
2021				
2022				
2023				
2024				
2025				
2026				
2027				
2028				
2029				
2030				
Notes				
<p>FMPA has no plans to develop, modify or reconstruct any units; therefore this rule is not currently applicable to FMPA. To the extent FMPA adjusts future plans that impact applicability, FMPA will comply with all applicable EPA standards.</p>				

TYSP Year 2022
Staff's Data Request # 1
Question No. 76

Unit	Unit Type	Fuel Type	Net Summer Capacity (MW)	Estimated EPA Rule Impacts: Operational Effects							
				ELGS	ACE or replacement	MATS	CSAPR/CAIR	CWIS	CCR		
									Non-Hazardous Waste	Special Waste	
Cane Island 1	GT	NG	35				X				[2]
Cane Island 2	CC	NG	109				X				[2]
Cane Island 3	CC	NG	240				X				[2]
Cane Island 4	CC	NG	300				X				[2]
Stock Island CT1	GT	DFO	19								
Stock Island CT2	GT	DFO	16								
Stock Island CT3	GT	DFO	14								
Stock Island CT4	GT	DFO	46				X				[2]
Stock Island MS1	IC	DFO	8								
Stock Island MS2	IC	DFO	8				X				[2]
TCEC	CC	NG	300				X				[2]
Indian River CTA (Minority)	GT	NG	16				X				[2]
Indian River CTB (Minority)	GT	NG	16				X				[2]
Indian River CTC (Minority)	GT	NG	22				X				[2]
Indian River CTD (Minority)	GT	NG	22				X				[2]
Stanton 1 (Minority)	ST	BIT	116		X	X	X		X		[2] [3]
Stanton 2 (Minority)	ST	BIT	106		X	X	X		X		[2] [3]
Stanton A (Minority)	CC	NG	44				X				[2]
St. Lucie 2 (Minority)	NP	UR	48	X				X			[4]
Notes											
<p>[1] The units listed in this table include only the generation units that FMPA, as agent for 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 of this Ten Year Site Plan Supplemental Data Request #1 are based on this list of units. However, FMPA's responses to other sections of this Supplemental Data Request may be based upon 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.</p>											
<p>[2] 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.</p>											
<p>[3] FMPA has a minority ownership in Stanton Units 1 and 2, which are affected by the MATS and CCR Rules. The ACE Rule has been vacated by the D.C. Circuit Court. 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.</p>											
<p>[4] FMPA has a minority ownership in St. Lucie 2, which will be affected by the ELGS and CWIS rules. Other FMPA units are not impacted by these rules. FPL has all compliance responsibility and FMPA will be responsible for a percentage share of all capital additions and O&M costs.</p>											

TYSP Year 2022
Staff's Data Request # 1
Question No. 77

Unit	Unit Type	Fuel Type	Net Summer Capacity (MW)	Estimated EPA Rule Impacts: Cost Effects (CPVRR \$ millions)						
				ELGS	ACE or replacement	MATS	CSAPR/CAIR [1]	CWIS	CCR	
									Non-Hazardous Waste	Special Waste
Cane Island 1	GT	NG	35							
Cane Island 2	CC	NG	109							
Cane Island 3	CC	NG	240							
Cane Island 4	CC	NG	300							
Stock Island CT1	GT	DFO	19							
Stock Island CT2	GT	DFO	16							
Stock Island CT3	GT	DFO	14							
Stock Island CT4	GT	DFO	46							
Stock Island MS1	IC	DFO	8							
Stock Island MS2	IC	DFO	8							
TCEC	CC	NG	300							
Indian River CTA (Minority)	GT	NG	16							
Indian River CTB (Minority)	GT	NG	16							
Indian River CTC (Minority)	FT	NG	22							
Indian River CTD (Minority)	GT	NG	22							
Stanton 1 (Minority)	ST	BIT	116		[2]	[2]				[2]
Stanton 2 (Minority)	ST	BIT	106		[2]	[2]				[2]
Stanton A (Minority)	CC	NG	44							
St. Lucie 2 (Minority)	NP	UR	48	[3]				[3]		
Notes										
[1] 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; if allowances continue to be readily available, FMPA does not anticipate any substantial increase in costs due to CSAPR for our wholly owned and/or assigned generating units.										
[2] FMPA has a minority ownership in Stanton Units 1 and 2, which will be affected by the MATS and the CCR Rules. The ACE Rule has been vacated by the D.C. Circuit Court. FMPA will be responsible for a percentage share of all required capital additions and additional O&M costs.										
[3] FMPA has a minority ownership in St. Lucie 2, which will be affected by the ELGS and CWIS rules. Other FMPA units are not impacted by these rules. FPL has all compliance responsibility and FMPA will be responsible for a percentage share of all capital additions and O&M costs.										

TYSP Year 2022
 Staff's Data Request # 1
 Question No. 78

Unit	Unit Type	Fuel Type	Net Summer Capacity (MW)	Estimated EPA Rule Impacts: Unit Availability (Month/Year - Duration)						
				ELGS	ACE or replacement	MATS	CSAPR/CAIR	CWIS	CCR	
									Non-Hazardous Waste	Special Waste
Notes										
FMPA does not anticipate any units being offline due to retirements, curtailments, installation of additional controls, or additional maintenance related to emission controls. FMPA defers to the responses of OUC for the Stanton 1 and 2 units and FPL for the St. Lucie 2 unit.										

TYSP Year 2022
Staff's Data Request # 1
Question No. 80

Year		Uranium		Coal		Natural Gas		Residual Oil		Distillate Oil	
		GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU	GWh	\$/MMBTU
Actual	2012	505	[2]	638	[3]	5,136	2.93	N/A	N/A	1	31.37
	2013	618	[2]	734	[3]	4,527	3.78	N/A	N/A	2	20.32
	2014	286	[2]	837	[3]	4,554	4.35	N/A	N/A	3	21.95
	2015	273	[2]	710	[3]	5,007	2.87	N/A	N/A	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
	2019	368	[2]	1,121	[3]	4,757	2.51	N/A	N/A	3	18.20
	2020	413	[2]	924	[3]	5,189	2.02	N/A	N/A	3	15.82
	2021	383	[2]	1,126	[3]	5,271	3.88	N/A	N/A	3	15.90
Projected	2022	402	0.70	1,199	3.81	5,407	4.87	N/A	N/A	1	18.37
	2023	405	0.70	1,113	3.07	5,527	4.11	N/A	N/A	2	18.76
	2024	392	0.73	753	2.98	5,370	3.73	N/A	N/A	0	19.35
	2025	404	0.70	446	2.94	5,677	3.43	N/A	N/A	0	19.93
	2026	405	0.96	336	2.97	5,569	3.45	N/A	N/A	1	20.48
	2027	390	1.00	0	2.95	5,900	3.50	N/A	N/A	0	21.16
	2028	404	0.96	0	3.04	5,563	3.62	N/A	N/A	0	21.80
	2029	399	0.96	0	3.16	5,596	3.76	N/A	N/A	1	22.47
	2030	376	0.96	0	3.25	5,635	3.92	N/A	N/A	1	23.15
	2031	390	0.96	0	3.35	5,675	4.03	N/A	N/A	1	23.86

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.