May 13th, 2022

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

Commission Clerk:

On behalf of JEA, please accept the 2022 Ten-Year Site Plan – Staff's Data Request #1.

If you have any questions, please contact me by email at landsg@jea.com.

Sincerely,

Stephany Landaeta Gutierrez
Associate Engineer
JEA

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.

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

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.

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).

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.

    Data provided in the Excel file

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.

    JEA utilizes NOAA Weather Station: Jacksonville International Airport (13889/JAX).

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.

No major changes to JEA forecast method from last year TYSP. JEA switched to using University of Florida's BEBR population numbers this year, due to errors JEA discovered in Moody's Analytics data and that Moody's will not able to remediate the errors in time for JEA to meet the TYSP filing deadline.

Customers

The residential energy forecast was developed using multiple regression analysis of weather normalized historical residential energy, median household income, disposable income, total housing starts from Moody's Analytics, total population from BEBR, JEA's total residential accounts and JEA's residential electric rate.

The commercial energy forecast was developed using multiple regression analysis of weather normalized historical commercial energy, total commercial employment, commercial inventory square footage, and gross domestic product from Moody's Analytics.

The industrial energy forecast was developed using multiple regression analysis of weather normalized historical industrial energy, total industrial employment, gross domestic product from Moody's Analytics and JEA's Industrial accounts.

Demand

JEA normalizes historical seasonal peaks using historical maximum and minimum temperatures. JEA uses 25°F as the normal temperature for the winter peak and 97°F for the normal summer peak demands. JEA develops the seasonal peak forecasts using normalized historical and forecasted residential, commercial, and industrial energy for winter/summer peak months, and the average load factor based on historical peaks and net energy for winter/summer peak months.

Energy Sales

The total Energy Sales Forecasts is developed by combining 8 different forecasts which include:

- Residential, Commercial and Industrial Forecast (discussed above)
- PEV Forecast
- Electrification Forecast
- Conservation Forecast
- Lighting Forecast
- Off- System Forecast

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.

   None

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.

      JEA compares forecasted values with actual values in order to determine if reevaluation of our forecast process is necessary. In the recent year, JEA had an independent consulting firm review JEA's forecast methodology, and it was determined JEA to be consistent with industry standards and within acceptable forecast error range.

      JEA compares actual values against forecasted values for years 2002-2021 in a matrix. Then, the percentage variance between the actual and forecasted values is calculated for each year to determine whether the forecast overestimated or underestimated the actual value. Prior to COVID-19 pandemic, JEA's energy forecast had less than 2 percent errors within 3 to 4 years prior and less than 3 percent errors thereafter. COVID-19 pandemic had resulted in forecast error of more than the 2 percent errors for 2021, beyond the acceptable near-term error range for JEA. JEA currently do not have sufficient information to determine the magnitude of COVID-19 pandemic impact on JEA's forecast and whether the customers' consumption trend will return to pre-COVID-19 level.

JEA will continue to observe its forecast errors for the remainder of this year. Should the forecast error remain above the acceptable error range, JEA will reevaluate and revamp its forecast process and methodology or solicit help from an independent consulting firm.

b. If your response is negative, please explain why.

N/A

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.

JEA utilizes the same method as explained in question 9. After a review provided by the independent consulting firm, JEA's forecast method is determined to be within industry standard. JEA's winter peak forecasts remain to have high forecast errors, primary due to the mild winters experienced over the past decade, however, JEA's summer peak forecasts are within an acceptable forecast error range. JEA currently do not have sufficient information to determine if COVID-19 pandemic impacts on JEA's peak forecast.

JEA will continue to observe its forecast errors for the remainder of this year and determine if it needs reevaluate and revamp its forecast process and methodology or solicit help from an independent consulting firm.

b. If your response is negative, please explain why.

N/A

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

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

Overall, Moody's Analytics forecast for all parameters used in JEA's 2022 TYSP forecast are lower as compared to the previous forecasts. As a results, we see a lower forecast for Residential, Commercial and Industrial customers as compared to 2021 Forecast.

However, we see Residential sales as our higher rate as a result of the housing growth in our service territory per Moody's analytics forecast.

JEA currently do not have sufficient information to determine the magnitude of COVID-19 pandemic impact on JEA's forecast and whether the customers' consumption trend will return to pre-COVID-19 level. JEA will continue to observe its forecast errors for the remainder of this year and determine if it needs reevaluate and revamp its forecast process and methodology or solicit help from an independent consulting firm.

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.

JEA funded demand-side management programs continue to be the contributors to the decrease in annual use per residential customer. There are other several factors that contribute to the declining trend in average kWh/customer. Customer behavioral changes over the last 10 years and increased in electric rates contributed to the continuous decline. JEA does not expect this behavior to change. Also, JEA continues to observe more multifamily housing constructions compared to single-family housing, which use less energy per customer. JEA expects this trend toward multifamily housing construction to continue throughout the TYSP forecast period.

In addition US Government's SEER Requirement Changes for 2015, that requires new split system central air conditioners to be a minimum 14 SEER, continues to contribute to the decrease in use, as customers replace their old units with more energy efficient units that comply with or exceed the standard, and as new constructions comply with the standard.

In JEA's 2022 TYSP, we see that the average KWh per customer for Residential is decreasing for the forecasted 10 year period:

- Growth rate for average KWh per Residential customer is -0.3%

Similar to JEA's offerings to residential customers, JEA offers energy audit programs to audit commercial and industrial customers' businesses and provides education and recommendations on low-cost or no-cost energy-saving practices and measures. JEA offers financial incentives to commercial customers on energy efficient lighting, and other energy efficient products.

In JEA's 2022 TYSP, we see the average KWh per customer for Commercial is decreasing for the forecasted 10 year period:

- Growth rate for average KWh per Commercial customer is -1.1%

And we see a small growth in the average KWh for Industrial customers for the forecasted 10-year period:

- Growth rate for average KWh per Industrial customer is 0.1%

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.

JEA offers energy audit programs to audit customers' homes and provide them with education and recommendations on low-cost or no-cost energy-saving practices and measures. Financial incentives are offered to residential customers, builders and developers on energy efficient lightings, solar water heating technologies, solar net metering, energy efficient construction and other energy efficient products in homes. The amount of estimated energy savings annually can be found in JEA's TYSP, Schedules 3.1 - 3.3.

JEA's 2022 forecasted Net Energy for Load (NEL) annual average growth rate (AAGR) is 0.75%.

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

JEA's demand reduction due to conservation and self-service (or self-conservation from energy audit program) is the estimated peak reductions correlated to the energy savings from its conservation programs offered to JEA's residential, commercial and industrial customers.

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.\

JEA currently do not have any demand response for residential customers. Currently the only demand reduction is JEA's interruptible customers, which consist on large commercial and industrial customers

c. Total Demand, and identify the major factors (historically, currently, and in the forecasted period) that contribute to the growth/decline in the trends.

   JEA's peak forecast is developed by using the forecasted energy for residential, commercial and industrial and the average load factor based on historical peaks and net energy for summer/winter peak months. The residential, commercial and industrial energy forecast trends are discussed in question 11 above. JEA's 2022 summer total peak forecast AAGR is 0.74%. The 2022 winter total peak forecast AAGR is 0.66%

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.

   JEA's 2022 forecasted cumulative conservation continues to grow. Consequently, bringing down JEA's Net Firm due to the demand-side management program discussed in question 11.

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:
    a. Summer Peak Demand.

    b. Winter Peak Demand.

    c. Annual Retail Energy Sales

Many factors contributed to the decrease in peak demand and energy sales. Since the recession, there was change in customers behavior to conserve energy. Continuous improvement in efficiency in new appliances and equipment, the phase-out of incandescent bulbs and conversion to LED bulbs, the change in technologies to high energy efficient technologies also contribute to the decrease in energy consumptions. Another big contributor is the new US Government's SEER Requirement Changes for 2015, that requires new split system central air conditioners to be a minimum 14 SEER, to continue also to contribute to the decrease in use, as customers replace their old units with more energy efficient units that comply with or exceed the standard, and as new constructions comply with the standard. COVID- 19 pandemic also contributed to the decline in consumption.

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

       JEA develops the normal weather using 10-year historical average heating/cooling degree days and maximum/minimum temperatures. Normal months, with heating/cooling degree days and maximum/minimum temperatures that are closest to the averages, are then selected. JEA updates its normal weather every 5 years or more frequently, if needed.

    b. Please specify the source(s) of the weather data used in the aforementioned forecasting models.

       NOAA Weather Station - Jacksonville International Airport

    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.

       JEA does not convert raw weather data. JEA pairs the hourly load with the respective hourly temperature, the heating and cooling degree with the respective daily energy.

       Please specify with corresponding explanations:

    d. How many years' historical weather data was used in developing each retail energy sales and peak demand model.

       10 years.

    e. How many years' historical weather data was used in the process of these models' calibration and/or validation.

       10 years.

    f. 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.

       For the Energy sales Forecast:
       NOAA historical actual Heating and Cooling Degree Days are used to developed the normalized Energy sales. Days are divided into three categories: Weekdays, Saturday & Holiday, and Sunday. The LINEST excel function is

used on actual Degree Days and Net Energy for each customer class (Residential, Commercial & Industrial) to produce a normal curve. This normal curve is created under three categories: Weekdays, Saturday & Holiday, and Sunday. Under each category we look at Oct (shoulder month), Winter and Summer segments. Finally, the normal degree days are applied to the normal curve to produce the normal MWH consumption for each customer class.

For the Peak Forecast:

JEA uses SAS to develop its normalize peak forecast. Hourly system load data and max and min temperatures are input into SAS. A non-linear regression analysis is perform on our 10 year historical peaks and temperatures to identify the least squared peaks for each year and use that as our normalized peaks. Some of the assumptions used for this model includes:

- JEA Load = Hourly Load – AUX – Ameristeel & Max and Min temperatures
- The Winter peak is the lowest daily temperature during the months of December, January and February
- The Summer peak is the highest daily temperature during the months of July, August and September
- Two of the parameters used in the non-linear regression analysis are highest and lowest record temperatures in Jacksonville of 103F for summer and 16F for winter

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.

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

    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.
    COVID-19 had impacted JEA demand load. Having businesses transitioning to remote-working, JEA initially observed an increase in Residential sales, and decline in Commercial and Industrial sales for 2020. JEA observed decline in sales across all customer classes for 2021.

    JEA currently do not have sufficient information to determine the magnitude of COVID-19 pandemic impact on JEA's forecast. However, prior to COVID-19 pandemic, JEA's energy forecast and summer peak forecast errors were under 1%. Since COVID-19 pandemic, JEA's energy forecast error is 1.6% for 2020 and 2.1% for 2021, and summer peak forecast error is 1.3% for 2020 and 4.9% for 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.

    JEA did not include any potential impact in regard to COVID other than what Moody's Analytics captures in their Duval county economic forecast.

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

    a. Please explain in detail how the Utility's load forecast accounts for the impact of customer owned/leased renewable generation (solar and otherwise).

    JEA does not have a separate forecast for customer owned/leased renewable generation. JEA perform its forecast using trend that has the reduced consumption from renewable generation customers embedding in the historical load.

    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.

    JEA is not able to determine the impact at this time as JEA doesn't have a separate forecast for customer own renewable.

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.

JEA does not have a forecast of the number of customers with customer-owned/leased renewable generation.

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?

JEA included Plug-in Electric Vehicle (PEV) in the forecast used for this TYSP. JEA's forecasted AAGRs for PEV winter is approximate 24%, summer coincidental peak demand is approximately 28% and total energy are approximately 24% percent during the TYSP period. JEA will continue to monitor PEV technology and its impact on JEA's load forecast.

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 PEVs demand and energy forecasts are developed using the historical number of PEVs in Duval County obtained from Florida Department of Highway Safety and Motor Vehicles (DHSMV) and the historical number of vehicles in Duval County from the U.S. Census Bureau.

JEA forecasted the numbers of vehicles in Duval County using multiple regression analysis of historical and forecasted Duval Population, Median Household Income and Number of Households from Moody's Analytics. The forecasted number of PEVs is modeled using multiple regression analysis of the number of vehicles, disposable income from Moody's Analytics, the average motor gasoline price from the U.S. Energy Information Administration (EIA) Annual Energy Outlook (AEO), and JEA's electric rates.

The usable battery capacity (85% of battery capacity) per vehicle was determined based on the current plug-in vehicle models in Duval County, such as Audi, BMW, General Motors' Chevrolet and Cadillac, Honda, Karma, Ford, Mitsubishi, Nissan, Porsche, Tesla, Toyota, Volkswagen and Volvo. The average usable battery capacity per PEV is calculated using the average usable battery capacity of each vehicle brand and then assumes the annual growth of usable battery capacity per PEV by using historical 5 years average growth of 0.01 kWh. Similarly, the peak capacity is determined based on the average on-board charging rate of each vehicle brand and the forecast peak capacity per PEV grows by 0.01 kW per year.

The PEVs peak demand forecast is developed using the on-board charge rate for each model, the PEVs daily charge pattern and the total number of PEVs each year. The PEV energy forecast is developed simply by summing the hourly peak demand for each year.

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.

    Data provided in the Excel 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?

       In June 2021 JEA is implementing an educational program for residential customers on the merits of converting to electric vehicles. The program will also educate and engage dealerships and help connect potential buyers with electric vehicles that are available.

    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.

       JEA participates in multiple transportation and community organizations that serve as conduits for customer feedback. Additionally, customers utilize JEA's call center, website, and email response groups to learn about various JEA service offerings.

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

    Most public charging stations installed within JEA's service area will be issued a construction permit by the City of Jacksonville before the installation. Part of the permitting process includes assigning a unique prefix to the address that denotes an electric vehicle charging service connection. The design plans will be processed and approved by JEA engineers before any new electric services are added. JEA has access to data from 24 public charging stations that were installed several years ago at local companies that agreed to serve as site hosts. Public charging stations are located after customer meters. Public charging station electric usage is monitored and billed based on the customers' electric usage as monitored by the utility-owned electric meters

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.

    At this time, no upgrades to the JEA's distribution system have been completed due to the PEVs. JEA does not foresee any significant impact on the distribution system based on current PEV projections. JEA's existing facilities are capable of handling the PEV demand within the TYSP period.

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.

    JEA has contracted with a firm that will analyze usage from the utility AMI network of meters to determine where PEVs are being charged and to determine when the PEVs are being charged. The first analysis of JEA's AMI data is expected in August 2021. Using a proprietary method, the contracted firm will identify the load characteristics of known PEV chargers as indicated in meter hourly data.

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?

    With respect to the analysis that will be conducted using JEA's AMI data, which is expected to begin in August 2020, it is expected that nearly all (90%) of the Level 2 charging activity and some of the Level 1 charging activity will be detectable within the AMI dataset. As this analysis is planned to be conducted quarterly, new and existing chargers in use will be known to that extent each quarter.

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

    There is no major driver that JEA can see at this time. JEA sees the adoption in its service territory driven by the desired of TESLA ownership. TESLA ownership represents a 57% of Duval county total PEV registrations in 2021. Chevrolet Bolt and Volt combined are the next highest ownership in Duval county and representing less than 10% of the total PEV registrations.

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.

    JEA does not see correlation between this statute and PEV growth in JEA's service territory. The rate of overall PEV growth in JEA's service territory has historically lagged the rest of the state of Florida based on DMV registration data and the pace of growth remains below the average for the state. JEA saw an increase in the rate of adoption for Q4 2021, but that rate decreased significantly in Q1 2022. In addition, our information shows that JEA's service territory has the same ratio of public PEV charging stations to PEV drivers as markets such as Miami-Dade, Tampa, and Orlando, leading us to the determination that slow adoption in our area has little to do with the density of PEV charging stations.

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

    There are currently over 3,000 PEV within JEA's service territory. Hence, JEA did not see a particular impact from PEV on its Summer and Winter peaks. PEV is projected to represent less than 0.1% of JEA's Winter firm peaks and nearly 1% of JEA's Summer firm peaks by 2031.

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.

    JEA does not have EV pilot program.

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.

    JEA has not had a Demand Response program

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.

    JEA has not had a Demand Response program

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.

    JEA has not had a Demand Response program

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.

    See attached Excel file.

<u>Generation & Transmission</u>

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

See attached Excel file.

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?

    JEA has no planned utility-owned renewable resources.

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

JEA has no new renewable generators expected to deliver energy this planning period. JEA is currently party to fifteen (15) renewable purchased power agreements: thirteen (13) with solar PV generators, of which eight (8) are online and operating, and five (5) are currently delayed with undetermined completion dates; and two (2) landfill gas generators.

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?

    Schedules for the 50 MW solar PV facilities (Cecil Commerce Solar Center, Forest Trail Solar Center, Deep Creek Solar Center, Westlake Solar Center, and Beaver Street Solar Center) continue to shift due to various reasons. Impacts from the COVID-19 pandemic paired with macroeconomic conditions, such as raw material price increases, greater demand for components, and inflation have caused the construction schedule to be delayed. At this time, the completion dates of the projects are undetermined.

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.

    See attached Excel file.

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.

    N/A

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

    N/A

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.

    See attached Excel file.

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.

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

    JEA's Distributed Generation (DG) Policy and Battery Incentive Program (BIP) allow customers to contribute to the production and consumption of renewable energy. The DG Policy allows customers with onsite renewable generation to produce energy to meet their needs. In the event of a surplus of production, JEA credits this excess energy at the fuel rate. The BIP, meant to act in concert with the DG Policy, offers a financial incentive towards the purchase of a qualified residential battery energy storage system. Customers can then use the onsite renewable generation to charge their battery systems for later use, i.e. at times of peak or during an outage.

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.

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.

    JEA does not consider solar PV to contribute to either seasonal peak.

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

    JEA continues to monitor the energy storage market and related price projections. As seen in previous years, lithium ion technologies are leading the market with installed costs still being around the $300-$400/kWh range, depending on system size and application. While continuous price declines were normally the forecasted trend, researchers at IHS Markit now predict a decline is not likely to happen until 2024 due to supply constraints, inflation, and the fact that the market is still primarily being driven by the electric vehicle sector, as more auto manufacturers expand their product line to include EVs.

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

    Hydrogen energy storage continues to show increasing popularity, although full commercialization is still on the horizon. The efficiency of these types of systems still make it less attractive than some of the more popular technologies, like lithium ion.

    Flow batteries also continue to show their value with their more feasible scalability, as well as their more readily available raw materials (e.g. metals like Iron and Zinc). More companies like Lockheed Martin and Honeywell are coming forward with flow systems that utilize easily sourced raw materials and show promising performance.

Longer duration storage still remains one of the near term commercialization goals for the industry. While lithium ion proves to be economically infeasible at longer durations, technologies such as gravity storage and compressed air storage have the ability to meet longer duration requirements (beyond 8 hours). However, geographic limitations, lower efficiencies, and costs still thwart these technologies' full commercialization.

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).

    JEA is still exploring optimum locations for storage on the system. Substation placement, areas of considerable load, and co-location with renewables were considered. JEA is now working through an electric Integrated Resource Plan (IRP), which will outline the trajectory of the electric system for the long term. Renewables, including energy storage, are being considered as a supply side option in IRP studies. The results of these studies will aid JEA in determining optimal positioning of storage on our system.

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

    JEA formulated the JEA Battery Incentive Program to encourage renewable energy adoption and act in concert with our Distributed Generation Policy. A rebate is provided for the purchase of a qualified battery energy storage system to those customers with approved renewable generation systems. Excess renewable generation produced by the customer can be used to charge the battery, allowing them to use the power later. This stored energy can then be used to offset consumption. Any energy sent to JEA, beyond what is stored in the battery, is credited at fuel rate. To date, over 500 systems have been installed by customers (April 2022).

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

JEA currently has no energy storage pilot programs running or in development.

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.

JEA does not utilize energy storage technology as a means to provide firm capacity for non-firm generation. JEA has considered using energy storage as a means to provide firm capacity and is still undergoing internal discussions regarding what, if any, capacity value should be assigned to energy storage. JEA still holds the position that solar PV and storage systems solely charged by non-firm generation sources, such as solar PV, have no capacity value, as they are not guaranteed to be available due to the intermittent nature of the technology.

The sole utility scale battery energy storage system currently on the JEA grid is a DC-coupled lithium ion battery system co-located with an existing solar PV facility; it is charged solely by the PV system and discharged to smooth the solar generation. Given the intermittency of solar PV, the power produced by the plant is not considered firm capacity.

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.

JEA SolarSmart -Since 2017 JEA offers residential and small/mid-sized commercial customers the opportunity contribute towards funding solar adoption by purchasing renewable energy through its JEA SolarSmart program. Participants pay a premium on the electric bill for solar energy. Customers can select any percent (1% to 100%) of their energy to come from solar. The renewable energy is produced by six solar facilities inside JEA services territory that were installed between 2017 and 2019.

JEA SolarMax – A rate offering for JEA's largest commercial and industrial customers with a minimum consumption of 7 million kWh. The rate was designed around JEA solar farms which are not yet operational. The rate allows large business customers can choose to have up to 100 percent of their energy needs met by solar power. Companies select either a five- or 10-year contract term. The JEA SolarMax rate replaces the fuel charge with a solar price.

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.

    JEA has no utility power technology research underway at this time.

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.

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.

    N/A

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.

    N/A

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.

    See attached Excel file.

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.

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.

    See attached Excel file.

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.

    See attached Excel file.

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.

    See attached Excel file.

Environmental

72. Please explain if the Company assumes carbon dioxide (CO_2) 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:
    a. Please identify the year during the current planning period in which CO_2 compliance costs are first assumed to have a non-zero value.

       JEA has not modeled any costs for CO2 compliance at this time due to uncertainties of what the future requirements would be.

    b. **[Investor-Owned Utilities Only]** Please explain if the exclusion of CO_2 compliance costs would result in a different resource plan than that presented in the Company's current planning period TYSP.

    c. **[Investor-Owned Utilities Only]** Please provide a revised resource plan assuming no CO_2 compliance costs.

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.

    On March 2, 2021, the House Energy and Commerce Committee of the Biden Administration proposed an updated version of the Climate Leadership and Environmental Action for our Nation's (CLEAN) Future Act. It is an ambitious comprehensive legislation with over 200 separate provisions with a price tag of over $500 billion over ten years.

    It sets two strong national greenhouse gas (GHG) pollution targets: 1) At least 50 percent reduction in GHG emissions from 2005 levels by 2030, and 2) a 100 percent clean economy with net zero greenhouse gas pollution by 2050. For the power sector, it requires electricity suppliers to provide an increasing supply of clean energy to consumers starting in 2023, rising to 80 percent clean energy by 2030 and 100 percent by 2035.

    Since it is now clear that the Act cannot pass in the Senate with 60 votes (assuming 60 are needed), parts of the bill are being carved off and incorporated into other bills such as the infrastructure package. It is also possible that EPA and other agencies could attempt to promulgate and implement various pieces of it.

    The current and planned electricity generation mix for JEA will be a key factor in complying with the Act's goals and upcoming standards. In addition to the atmospheric sinks of CO_2 emissions, other avenues of offsetting the carbon footprint are carbon capture from industrial processes or direct capture from ambient air, storage and transport of the captured carbon, and certain biologic processes. These options will require substantial technological advances to produce meaningful (and eventually cost-effective) results, and their viability in Florida is still uncertain at this time.

    <u>Update on Previous CO_2 Rules:</u> CO_2 Emission Guidelines and State Standards for Existing Sources: On October 23, 2015, EPA published final Emission Guidelines for existing utility units [Clean Power Plan (CPP)], setting individual statewide emission rate goals, and directing states to submit initial plans to achieve the goal by September 6, 2016. On October 16, 2017, EPA published a proposal to repeal the CPP. On August 31, 2018, EPA published a proposal to replace the CPP, called the Affordable Clean Energy (ACE) Rule. The Final ACE rule was published on July 8, 2019, and the CPP was repealed at the same time.

    The ACE rule regulates CO_2 emissions from electric generating units (EGUs) with a focus on coal-fired units. The Best System of Emission Reduction (BSER) for these units will be in terms of heat rate improvement (HRI). Florida's electric utilities have been substantially reducing CO_2 emissions, in terms of both tons per year and lb/MWh, over the past several years, while at the same time substantially increasing generation. The ACE rule provides a specific mandate that will reinforce these reductions, and ensure that additional measures are employed where appropriate. EPA will allow states with considerable flexibility to design their State Plan and set unit-specific standards.

After oral arguments on October 8, 2020, the DC Circuit Court vacated the ACE rule on January 9, 2021, and remanded it back to EPA. The rule will no longer be in effect once the Mandate is issued (i.e., the court's directive to enforce its decision). The court also stated that the repeal of the CPP was "imbedded" in the ACE rule, but did not say that its vacatur of ACE resurrects the CPP. The court issued partial mandate of ACE on March 5, 2021, meaning CPP remains repealed at this time. On April 29 and 30, 2021, respectively, a group of 19 states (West Virginia, Alabama, Alaska, Arkansas, Georgia, Indiana, Kansas, Louisiana, Missouri, Montana, Nebraska, Ohio, Oklahoma, South Carolina, South Dakota, Texas, Utah, and Wyoming; and Mississippi Governor) and the North American Coal Corporation ("NACCO") asked the U.S. Supreme Court to review the D.C. Circuit Court's decision to vacate and remand the ACE rule.

On October 29, 2021, the Supreme Court accepted to review the appeal of ACE vacatur. Oral arguments were held on February 28, 2022, and a decision is expected by summer recess. The decision would be crucial in that it could limit EPA's authority to regulate CO_2 as a pollutant. EPA's ACE replacement proposal is expected around July 2022.

<u>New Source Review (NSR) Revisions</u>: EPA is proposing to revise the NSR program on a separate track (rather than within the ACE rule). To that end, EPA has issued a series of guidance memorandums and also proposed an error correction rule In November 2019. These reforms are not expected to impact JEA's existing EGUs at this time.

<u>New Source Performance Standards (NSPS) Revisions</u>: EPA is also revising the NSPS for new EGUs, i.e., 111(b) rules. This proposal revises Best System of Emission Reduction (BSER) for affected units as follows:

- For large units, the proposed emission rate would be 1,900 pounds of CO2 per megawatt-hour on a gross output basis (lb CO2/MWh-gross). For small units, the proposed emission rate would be 2,000 lb CO2/MWh-gross.
- For large modifications of steam generating units, the standards are to be consistent with the standards for large and small newly constructed units. For the standards of performance for reconstructed fossil fuel-fired steam units, which are also based on the best available efficiency technology, the standards are to be consistent with the emission rates for newly constructed units.
- EPA is taking comments whether and how to address concerns raised by stakeholders regarding the increased use of simple cycle aero-derivative turbines, including as back-up generation for wind and solar resources, whose operation may exceed the non-base load threshold. EPA is also asking for the public's views on the proper interpretation of the phrase "causes, or contributes significantly to air pollution", the agency's historic

approach to this requirement, and whether this requirement should apply differently in the context of greenhouse gases than for traditional pollutants.

These revisions are not expect to impact JEA's existing EGUs, unless they are significantly "modified or reconstructed" or when JEA decides to add new EGUs.

National Emission Standard for Hazardous Air Pollutants (NESHAP): 40 CFR 63 Subpart YYYY (for Combustion Turbines) has also been revised. As a result of the Residual Risk and Technical Review (RTR) in 2020, EPA will not be imposing additional controls. The agency is however proposing revisions to Start-up, Shut-down and Malfunction (SSM) provisions, adding requirements for E-reporting, and lifting of the stay for new gas-fired CTs. These revisions are not expect to impact JEA's existing EGUs, unless they are significantly "modified or reconstructed" or if JEA constructs a new combustion turbine.

Although the rule was stayed in 2004 after EPA received a petition to delist the gas turbines from source categories that would be subject to NESHAP. After the 2020 RTR, EPA decided to keep the stay because an updated petition was received to delist the source category. Then, after Sierra Club petition and EPA's own risk analysis, the stay was lifted on February 28, 2022. However, JEA's "existing" CTs at Northside Generating Station and Brandy Branch Generating Stations are not subject to the rule due to their commencement dates. Furthermore, JEA's "new" CTs at Kennedy Generation Station and Greenland Energy Center are not subject to the rule because neither facility is a major source of HAPs.(i.e., they do not have a potential to emit more than 10 tpy of any individual HAP or more than 25 tpy of total HAPs.)

40 CFR 63 Subpart UUUUU (a.k.a. Mercury Air Toxics Standard or MATS): On December 27, 2018, EPA signed a proposal regarding the MATS Supplemental Cost Finding and Residual Risk and Technology Review (RTR). It concluded as follows:

- Regulation of HAPs is not "appropriate or necessary," after reconsidering the cost analysis, because the costs "grossly outweigh the quantified HAP benefits."
- Coal- and oil-fired EGUs would not be delisted from 112 regulation, and the 2012 MATS rule would remain in place.
- Regarding the RTR, no revisions to MATS are warranted.
- EPA is considering creating a subcategory for acid gas HAP emissions from EGUs burning eastern bituminous coal refuse, which would affect 10 units in PA and WV.
- Startup, Shutdown and Malfunction (SSM) SIP Call: On May 2015, EPA issued a SSM SIP call, which is a notice of rulemaking that would require 36 states (including Florida) to revise provisions in their State Implementation Plans ("SIPs") related to air emissions from sources during times of startup, shutdown, and equipment malfunction ("SSM"). Numerous parties have challenged the SSM Action in these consolidated cases. On October 31, 2016, the parties completed merits briefing. Oral argument is scheduled for May 8, 2017 has been cancelled. On April 18, 2017, the DOJ filed a motion for the DC Circuit Court continue the oral argument currently as scheduled to allow the new Administration adequate time to review the SSM Action to determine whether it will be reconsidered. With this continuance, EPA officials in the new Administration are expected to scrutinize the SSM Action to determine whether it should be maintained, modified, or otherwise reconsidered. EPA reversed its decision

in 2020 stating that the cost of compliance outweighs the emissions benefits from the regulation. In January 2021, it was again reviewed by the Biden Administration and concluded that it was indeed appropriate and necessary.

EPA is not proposing any changes to the existing emissions standards to MATS and existing EGUs (e.g., JEA's CFBs) should not have any impacts from this action.

National Ambient Air Quality Standards (NAAQS): On June 2, 2010, EPA revised the primary NAAQS for sulfur dioxide (SO2) by implementing a new 1-hour standard of 75 parts per billion (ppb) (calculated as the three-year average of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations). JEA's NGS Unit 3 is permitted to burn No. 6 fuel oil with sulfur content of greater than 1% by weight and could potentially cause or contribute to exceedance of this 1-hour SO2 standard. Based on comprehensive dispersion modeling analyses, it was determined that probability of compliance with the 1-hour SO2 standard is greater than 99.5 percent as long as the unit does not burn No. 6 fuel oil for more than 14 days in a calendar year. Greater number of days of oil operation is also possible with less confidence levels. This determination is conservative since it also assumed all other NGS steam generating units are operating at full load. Furthermore, in order to satisfy the Regional Haze Phase II requirements, JEA applied for additional permit conditions to restrict the sulfur content of No. 6 fuel oil at Unit 3 and no additional controls are expected to be necessary.

EPA finalized the NAAQS Fine Particulate Matter ("$PM_{2.5}$") standards in September 2006. Since then, the EPA established a more stringent 24-hour average $PM_{2.5}$ standard and kept the annual average $PM_{2.5}$ standard and the 24-hour coarse particulate matter standard unchanged. The EPA issued a final $PM_{2.5}$ rule on December 14, 2012, that reduced the annual $PM_{2.5}$ standard from 15 $\mu g/m^3$ to 12 $\mu g/m^3$. The rule left the 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$ unchanged. The change in the $PM_{2.5}$ has not resulted in non-attainment designation for Duval County and has not had a material adverse effect on the operations of JEA's generating facilities. The Biden administration is currently reviewing the PM NAAQS as contained in 85 Fed. Reg. 82854 dated December 18, 2020. A decision is expected in August 2022.

On October 1, 2015, the EPA revised its NAAQS for ground-level ozone to 70 parts per billion ("ppb"), which is more stringent than the 75-ppb standard set in 2008. The Clean Air Act mandates that EPA publish initial area designations within two years of the promulgation of a new standard (*i.e.*, by October 2017), but allows for a one-year extension if the Administrator determines he "has insufficient information to promulgate the designations." On November 16, 2017, EPA published a final rule establishing initial area designations for the 2015 NAAQS for ozone EPA, designating 2,646 counties (including all counties in Florida) as "attainment/unclassifiable." EPA is designating areas as "attainment/unclassifiable" where one or more monitors in the county are attaining the 2015 ozone NAAQS, or where EPA does not have reason to believe the county is violating the 2015 ozone NAAQS or contributing to a violation of the 2015 ozone NAAQS in another county. States with nonattainment areas will have up to three years following designation to submit a revised state implementation plan ("SIP") outlining strategy and emission control measures to achieve compliance. In November 2017, Duval County was deemed unclassifiable pending acceptable monitoring results expected at the end of 2018. Duval County is projected to be in attainment of the revised standard. On August 14, 2019, EPA published the proposal to redesignate Duval County from unclassifiable to attainment/unclassifiable for the 2015 Ozone NAAQS. In the event that Duval County was to become a non-attainment area, JEA's power plants (e.g., Northside and Brandy Branch) could be required to comply with additional emission control requirements (e.g., increased usage of ammonia in their Selective catalytic reduction/Selective non-catalytic reduction ("SCR/SNCR")) for nitrogen oxides and volatile organic compounds which are precursors to ozone formation. The nature and consequences of a non-attainment designation cannot be predicted at this time. On January 20, 2021, the Biden-Harris administration stated that it will be reviewing the Ozone NAAQS as contained in 85 Fed. Reg. 87256 dated December 31, 2020 (to be completed by December 2023).

On March 14, 2021, EPA withdrew a denial of petition to create a NAAQS for CO_2. At this time, there is a consideration by EPA to create a secondary NAAQS for CO_2.

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

a. Will your Company be materially affected by the rule?

This rule will only affect only new, modified or reconstructed EGUs.

b. What compliance strategy does the Company anticipate employing for the rule?

A regulatory and applicability analysis will be done for any proposed new or modified EGUs.

c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?

Unknown at this time

d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?

Permits will likely be required. Typical permit processing times should be developed and incorporated in the project 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.

No

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

N/A

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.
    a. Mercury and Air Toxics Standards (MATS) Rule.
       N/A
    b. Cross-State Air Pollution Rule (CSAPR).
       N/A
    c. Cooling Water Intake Structures (CWIS) Rule.
       N/A

    d. Coal Combustion Residuals (CCR) Rule.
       None anticipated

    e. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units.
       N/A
    f. Affordable Clean Energy Rule or its replacement.
       N/A
    g. Affordable Clean Energy (ACE) Rule replacement could impose additional costs of renewable energy sources, and/or CO_2 credits. They cannot be quantified at this time.
       N/A

76. Effluent Limitations Guidelines and Standards (ELGS) from the Steam Electric Power Generating Point Source CategorPlease 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.

    Data Provided in Excel file.

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.

    Air Rules: Close monitoring and reduction of No. 6 fuel oil usage at NGS Unit 3 is required in order to assure continuous compliance with the 1-hour SO2 NAAQS as well as the Regional Haze Round II requirements. No retirements, curtailments, or installation of additional emission controls are expected to be required as a result of currently proposed or finalized rules. Affordable Clean Energy (ACE) Rule replacement could impose additional costs of renewable energy sources, and/or CO_2 credits.

    Water Rules: CWIS has the potential to require upgrades to intake structures on NGS units. The final rule of Section 316(b) of the Federal Clean Water Act was published in the Federal Register on August 15, 2014. JEA does not believe that new standards in the final rule will affect any of its facilities other than NGS. It is possible that new standards may prospectively require upgrades to the system, varying from establishment of existing facilities as the Best Technology Available (BTA), to improvements to the existing screening facilities, to the installation of other cooling technologies. Biological studies were recently concluded for the NGS plant, and a full peer reviewed submittal to the regulatory agency is not expected to be completed until 2023. JEA's current estimate of compliance cost shows a one-time cost anywhere between $10 to 50 million.

Solid Waste Rules: Once the SJRPP Area B Phase I cell closure design is finalized and any necessary corrective actions are developed for groundwater; the costs associated with closure, remediation, and the post-closure care period will be estimated. None of this information is currently available.

Note: The SJRPP Area B Phase I cell closure is underway at a construction bid cost of $5.9MM. Once construction is complete and any necessary corrective actions are developed for groundwater, the costs associated with remediation and post-closure care period will be estimated.

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.

    Cannot determine timing at this time.

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.

    Renewable and/or zero energy options are being explored.

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.

    Data provided in Excel file.

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

    JEA compares its forecast to other independently produced forecasts at the commodity level excluding transportation, some commodity prices are compared with monthly granularity, while others are compared on an annual basis. Transportation forecasts tend to be too generic for JEA's specific circumstances, but JEA does consider rail, tanker, and dry bulk cargo freight rates and forecasts from various sources to judge general trends within the respective industries.

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

    Coal prices in nominal dollars are expected to increase during the forecast period. Delivered Colombian coal is forecasted to be priced lower than delivered domestic coal during the study period. Over the long term, coal consumption in the electric power sector is forecasted to continue to decline as a result of increased competition with natural gas and renewable generation.

    b. Natural Gas

    The price of natural gas is projected in nominal dollars to increase throughout the forecast period. The Energy Information Agency (EIA) projects that consumption of natural gas will keep growing, driven by expectations that natural gas prices will remain low compared with historical levels. However, the EIA also expects natural gas-fired generation to lose some market share as regulatory and market factors drive generation mixes into more renewable generation. Natural gas is used as a primary fuel at four of JEA's existing electric generation facilities. Over the forecast period, the EIA assumes that there will be sufficient availability of natural gas for JEA from continued growth in new oil wells that produce associated natural gas and new unconventional gas wells.

    c. Nuclear

    N/A

d. Fuel Oil

JEA maintains diesel inventory at Brandy Branch, Kennedy and Greenland, and residual oil and diesel inventory Northside. Additional residual fuel oil and diesel supply are purchased from time to time in the open market as needed. The price of both residual fuel oil and diesel fuel oil are projected in nominal dollars to increase throughout the forecast period and remain higher than the price of natural gas.

e. Other (please specify each, if any)

JEA uses circulating fluidized bed technology in Northside Generating Station Units 1 and 2. This technology allows JEA to use a blend of petroleum coke and bituminous coal in these units. During the planning period, JEA expects the petroleum coke market to typically trade at a discount to coal.

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

Actual 2021 delivered fuel prices came in significantly higher for all the fuel types that JEA consumes compared to the 2021 fuel price forecast. On a percentage basis, prices for natural gas and coal increased by the largest margin.

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.

JEA's process for preparing the Utility's 2022 TYSP was relatively similar to that used for the 2021 TYSP. The only notable distinction is that EIA's publication of the 2022 Annual Energy Outlook was not released in time for use in the 2022 TYSP. NYMEX exchange futures prices were updated to capture the latest price movements.

85. Please identify and discuss steps that the Company has taken to ensure natural gas supply availability and transportation over the current planning period.

JEA utilizes firm transportation on Florida Gas Transmission, Southern Natural Gas, and SNG Elba Express/Cypress pipeline. In addition, JEA has a firm long term agreement for gas supply delivered to Jacksonville using Florida Gas Transmission and Southern Natural Gas pipelines. To deliver natural gas to JEA's Greenland Energy Center, JEA has a long-term contract with SeaCoast Gas Transmission, LLC. The various transportation contracts allow JEA the ability to access natural gas from diverse supply regions.

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.

    At this time, JEA does not foresee any existing or planned natural gas pipeline expansion projects having a direct substantial effect on the natural gas volumes that JEA is able to receive. With several natural gas pipeline projects planned in the United States in the next ten years, JEA may experience more favorable natural gas pricing as a result of some of those pipelines providing additional takeaway capacity from the supply regions. Natural gas transportation capacity into the Florida market was increased with the completion of Sabal Trail.

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.

    According to the Annual Energy Outlook 2022, the EIA expects United States LNG exports to increase to 16.1 Bcf/day by 2033. This projected increase in LNG exports is supported by differences between international and domestic natural gas prices. Further increases in U.S. LNG export volumes could potentially reduce the quantity of natural gas available and as a result cause an increase in domestic natural gas prices. Despite projected increases in natural gas export volumes, JEA expects sufficient gas supply will be available to meet JEA's needs. JEA has a long-term natural gas supply contract that allows the natural gas to be sourced from the LNG facilities of SNG at Elba Island in Savannah, GA. Given reduced LNG imports and physical changes at that facility, domestic supply will be utilized in support of the agreement.

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

    At this time, JEA does not plan to utilize firm natural gas storage.

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.

    JEA's fuel procurement process ensures that potential fuel suppliers compete with one another for the opportunity to deliver coal to JEA facilities. The competitive process results in low delivered costs for JEA.

    JEA's Northside Generating Station has water access to accommodate coal deliveries. Domestic coal suppliers using rail to barge logistics and international coal suppliers using ocean vessels compete to provide JEA with coal deliveries to NSGS. JEA currently has limited rail access at NSGS.

    JEA has and will continue to solicit coal bids in a competitive process and will make fuel selections based on prudent utility evaluations.

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.

    At this time, JEA does not expect to make any changes in coal handling, blending, unloading, and storage for the coal generating 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.

    N/A

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

    N/A

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.

    From a Generation facilities perspective, we have in-place a documented and controlled Freeze Protection/Winterization plan and check list processes at both our solid fuel (NGS) and CT/Combined Cycle plants. The plans and check lists are activated and completed on an annual basis prior to the start of the winter season, normally in the October to November time frame. We also have a Preventive Maintenance Work Request (PWO) that automatically activates on an annual basis, prior to the activation and completion of the plans and check lists, to review and modify the winterization requirements as needed.

    Procedures include:

    - Northside Generating Station - Operations N00 FP – Freeze Projection Procedure Ver. 3

    - CT's/Combine Cycle Facilities:
        - Brandy Branch Generating Station - BBGS Freeze Protection Procedure Rev. 5
        - Greenland Energy Complex – GEC Freeze Protection Procedure Rev. 2.1
        - Kennedy Generating Station – KGS Freeze Protection Procedure Rev. 1

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

Generation has secured an external SME contractor to begin conducting a full operational evaluation and critical operating system mitigation matrix for all of our generating stations to identify and prioritize areas in need of upgrading. Our current plan is to have the mitigation matrix completed for BBGS before October 1, 2022 and begin hardening work once in hand prior to the 2022 winter season.

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

For the existing JEA power plants, flood mitigation planning and response is included in the Electric Production Storm Response Procedure of each facility. The specific actions required are dependent on the location of the plant, equipment at risk and the probability of flooding during different storm intensities.

In general, flood mitigation for power plants consist of:

1) Installing flood curtains at doors and access points
2) Sandbagging
3) Removing and relocating equipment out of potential flood areas
4) Installation and operations of temporary portable submersible pumps
5) Control room relocation / renovation above potential storm surge – (project ongoing at KGS)

Flood mitigation for substation consists of:

1) Sandbagging
2) Installation and operations of temporary portable submersible pumps

New Plants will be designed using readily available storm and flood data with respect to the proposed site and equipment elevations are designed to meet all our requirements for storm level and severity events.

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Financial Assumptions
Base Case

AFUDC RATE	4.0-4.4	%
CAPITALIZATION RATIOS:		
DEBT		%
PREFERRED		%
EQUITY		%
RATE OF RETURN		
DEBT		%
PREFERRED		%
EQUITY		%
INCOME TAX RATE:		
STATE		%
FEDERAL		%
EFFECTIVE		%
OTHER TAX RATE:		%
DISCOUNT RATE:		%
TAX		
DEPRECIATION RATE:		%

Date	Hourly System Load (MW)

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

Year	Month	Actual Peak Demand (MW)	Demand Response Activated (MW)	Estimated Peak Demand (MW)	Day	Hour	System-Average Temperature (Degrees F)
2021	1	2362	0	2362	19	8	47
	2	2532	0	2532	4	8	46
	3	2003	0	2003	26	18	76
	4	2052	0	2052	29	18	74
	5	2372	0	2372	4	18	81
	6	2432	0	2432	15	16	83
	7	2511	0	2511	22	17	84
	8	2498	0	2498	31	17	83
	9	2305	0	2305	2	15	82
	10	2136	0	2136	1	17	77
	11	1859	0	1859	30	8	51
	12	1803	0	1803	23	9	51
2020	1	2438	0	2438	22	8	33
	2	2027	0	2027	28	8	40
	3	2076	0	2076	28	18	84
	4	2108	0	2108	9	18	87
	5	2286	0	2286	22	16	89
	6	2585	0	2585	29	18	93
	7	2527	0	2527	13	18	92
	8	2578	0	2578	4	17	90
	9	2487	0	2487	4	16	90
	10	2160	0	2160	29	17	78
	11	1817	0	1817	10	15	81
	12	2344	0	2344	27	8	32
2019	1	2475	0	2475	31	8:00	43
	2	1936	0	1936	14	8:00	53
	3	2120	0	2120	6	8:00	46
	4	1969	0	1969	30	18:00	74
	5	2584	0	2584	28	15:00	85
	6	2643	0	2643	24	17:00	86
	7	2643	0	2643	2	16:00	88
	8	2644	0	2644	14	16:00	87
	9	2556	0	2556	9	17:00	86
	10	2256	0	2256	4	17:00	77
	11	1834	0	1834	7	15:00	78
	12	2098	0	2098	19	8:00	47

Notes

(Include Notes Here)

Financial Escalation Assumptions

Year	General Inflation %	Plant Construction Cost %	Fixed O&M Cost %	Variable O&M Cost %
2022	2.1	2.1	2.1	2.1
2023	2.1	2.1	2.1	2.1
2024	2.1	2.1	2.1	2.1
2025	2.1	2.1	2.1	2.1
2026	2.1	2.1	2.1	2.1
2027	2.1	2.1	2.1	2.1
2028	2.1	2.1	2.1	2.1
2029	2.1	2.1	2.1	2.1
2030	2.1	2.1	2.1	2.1
2031	2.1	2.1	2.1	2.1

TYSP Year 2022
Staff's Data Request # 1
Question No. 20

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	4,220	110		2.67	0.24	17
2023	5,477	124		3.73	0.34	24
2024	6,939	139		4.97	0.45	32
2025	8,589	155		6.37	0.57	41
2026	10,419	172		7.93	0.71	51
2027	12,441	190		9.65	0.87	62
2028	14,689	209		11.57	1.04	75
2029	17,187	229		18.33	1.23	88
2030	19,951	251		21.48	1.45	104
2031	22,993	274		24.96	1.68	120

Notes

(Include Notes Here)

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										
JEA has not had a Demand Response program										

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										
JEA has not had a Demand Response program										

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? (Y/N)	Number of Customers Activated	Capacity Activated (MW)	Activated During Peak? (Y/N)	Number of Customers Activated	Capacity Activated (MW)
2012							
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							
2021							
Notes							
JEA has not had a Demand Response program							

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

Year	Loss of Load Probability (Days/Yr)	Annual Isolated Reserve Margin (%) (Including Firm Purchases)	Expected Unserved Energy (MWh)	Loss of Load Probability (Days/Yr)	Annual Assisted Reserve Margin (%) (Including Firm Purchases)	Expected Unserved Energy (MWh)
2022	0.09	16%	2,400	N/A	N/A	N/A
2023	0.05	15%	1,900	N/A	N/A	N/A
2024	0.04	18%	1,800	N/A	N/A	N/A
2025	0.06	21%	3,600	N/A	N/A	N/A
2026	0.04	20%	700	N/A	N/A	N/A
2027	0.05	19%	1,100	N/A	N/A	N/A
2028	0.08	19%	5,100	N/A	N/A	N/A
2029	0.05	19%	2,000	N/A	N/A	N/A
2030	0.05	18%	800	N/A	N/A	N/A
2031	0.07	18%	2,600	N/A	N/A	N/A

Existing Generating Unit Operating Performance

Plant Name	Unit No.	Planned Outage Factor (POF) Historical	Planned Outage Factor (POF) Projected	Forced Outage Factor (FOF) Historical	Forced Outage Factor (FOF) Projected	Equivalent Availability Factor (EAF) Historical	Equivalent Availability Factor (EAF) Projected	Average Net Operating Heat Rate (ANOHR) Historical	Average Net Operating Heat Rate (ANOHR) Projected
Kennedy GT	7	1.71%	2.30%	4.79%	2.90%	92.62%	94.80%	11,509	10,212
Kennedy GT	8	0.44%	4.03%	8.60%	3.18%	90.70%	92.80%	11,289	6,465
Northside	1	3.52%	2.87%	1.95%	2.92%	91.93%	94.21%	10,900	10,422
Northside	2	5.35%	1.89%	3.68%	2.85%	82.20%	95.26%	10,936	10,429
Northside	3	9.15%	2.33%	2.46%	2.84%	83.36%	94.83%	10,953	10,444
Northside GT	33	0.87%	3.12%	0.38%	2.90%	97.54%	93.98%	19,522	10,426
Northside GT	34	0.00%	6.08%	3.23%	4.33%	96.13%	89.59%	21,577	9,619
Northside GT	35	0.75%	8.41%	0.81%	5.30%	98.01%	86.29%	23,015	9,284
Northside GT	36	7.05%	5.78%	0.76%	4.85%	91.86%	89.38%	20,950	10,397
Brandy Branch GT	1	3.59%	2.44%	0.95%	4.82%	95.26%	92.75%	10,886	13,283
(Brandy Branch CC)	(2,3,4)	9.50%	2.44%	0.34%	4.92%	89.32%	92.65%	6,782	13,277
GEC GT	1	2.49%	2.36%	0.05%	4.97%	97.41%	92.67%	11,126	13,234
GEC GT	2	3.62%	2.36%	0.24%	5.04%	95.87%	92.61%	10,864	13,352

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	(%)
Brandy Branch	GT1	Duval	GT	NG	5	2001	150.5	192.7	149.9	191.2			8.3
Brandy Branch	CT2	Duval	CT	NG	5	2001	190.5	212.2	189.7	211.7			86.1
Brandy Branch	CT3	Duval	CT	NG	10	2001	190.5	212.2	189.7	211.7			85.0
Brandy Branch	STM4	Duval	CA	WH	1	2001	225	225	216.3	216.1			87.3
Greenland Energy Center	GT1	Duval	GT	NG	6	2011	150.5	192.7	149.9	191.2			25.4
Greenland Energy Center	GT2	Duval	GT	NG	6	2011	150.5	192.7	149.9	191.2			18.1
J. D. Kennedy	GT7	Duval	GT	NG	6	2000	150.5	192.7	149.9	191.2			4.0
J. D. Kennedy	GT8	Duval	GT	NG	6	2009	150.5	192.7	149.9	191.2			13.3
Northside	1	Duval	ST	PC	5	2003	310	310	293	293			11.9
Northside	2	Duval	ST	PC	4	2003	310	310	293	293			55.6
Northside	3	Duval	ST	NG	6	1977	540	540	524	524			35.1
Northside	GT3	Duval	GT	DFO	1	1975	50.4	62	50	61.6			0.18
Northside	GT4	Duval	GT	DFO	1	1975	50.4	62	50	61.6			0.15
Northside	GT5	Duval	GT	DFO	12	1974	50.4	62	50	61.6			0.1
Northside	GT6	Duval	GT	DFO	12	1974	50.4	62	50	61.6			0.12
Scherer	4	Monroe, GA	ST	BIT	2	1989	210	210	198	198			47.7
Notes													
Scherer 4 retires as of January 1st 2022													

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	(%)
NONE													
Notes													
(Include Notes Here)													

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	(%)
NONE													
Notes													
(Include Notes Here)													

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													
(Include Notes Here)													

Nominal, Firm Purchases

Year		Firm Purchases $/MWh	Escalation %
HISTORY:			
	2019	30.719	-32.19%
	2020	88.00	186.46%
	2021	89.97	2.24%
FORECAST:			
	2022	20.22	-77.53%
	2023	37.82	87.04%
	2024	54.66	44.54%
	2025	63.82	16.76%
	2026	63.32	-0.78%
	2027	61.56	-2.78%
	2028	65.67	6.68%
	2029	63.67	-3.06%
	2030	63.61	-0.09%
	2031	69.25	8.86%

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
Florida Power & light				CC	NG	200	200	200	200	200	200	1/1/2022	12/31/2042
Notes													
Seller may furnish Power and Energy from any available electric resources it chooses for sale to the Buyer													

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
NONE													
Notes													
(Include Notes Here)													

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
LES	Trail Ridge I	N/A	Duval	IC	Methane	9.1	9.1	9.1	9.1	9.1	9.1	12/08	12/26
LES	Trail Ridge II	N/A	Sarasota	IC	Methane	6	6	6	6	6	6	02/14	12/26
PSEG	Jacksonville Solar	N/A	Duval	Solar PV	SUN	12	12	12	12	0	0	09/10	09/40
Northwest Jacksonville Solar Partners, LLC	NW JAX Solar	N/A	Duval	Solar PV	SUN	7	7	7	7	0	0	05/17	05/42
Old Plank Road Solar Farm LLC	Old Plank Road Solar	N/A	Duval	Solar PV	SUN	3	3	3	3	0	0	10/17	10/37
C2 Starratt Solar LLC	Starratt Solar	N/A	Duval	Solar PV	SUN	5	5	5	5	0	0	12/17	12/37
Inman Solar Incorporated	Simmons Road Solar	N/A	Duval	Solar PV	SUN	2	2	2	2	0	0	01/18	01/38
Hecate Energy Blair Road, LLC	Blair Site Solar	N/A	Duval	Solar PV	SUN	4	4	4	4	0	0	01/18	01/38
JAX Solar Developers, LLC	Old Kings Road Solar	N/A	Duval	Solar PV	SUN	1	1	1	1	0	0	10/18	10/38
Imeson Solar, LLC	SunPort Solar	N/A	Duval	Solar PV	SUN	5	5	5	5	0	0	12/19	12/39

Notes

(1) Solar capacity based on AC rating.

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
NONE													
Notes													
(Include Notes Here)													

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
NONE													
Notes													
(Include Notes Here)													

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
NONE													

Notes

(Include Notes Here)

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	0	0	0	0	0	0	0	0	0	0	0
Utility - Non-Firm	0	0	0	0	0	0	0	0	0	0	0
Utility - Co-Firing	0	0	0	0	0	0	0	0	0	0	0
Purchase - Firm	85	129	129	129	129	129	0	0	0	0	0
Purchase - Non-Firm	81	86	85	85	84	84	83	83	83	82	82
Purchase - Co-Firing	0	0	0	0	0	0	0	0	0	0	0
Customer - Owned	0	0	0	0	0	0	0	0	0	0	0
Total	166	215	214	214	213	213	83	83	83	82	82
Notes											
(1) Firm purchases from landfill gas; non-firm from solar PV.											

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

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

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 (MHh)**	**Conversion Efficiency (%)**
SunPort Solar	N	12/4/2019	2	4	90

Notes

(Include Notes Here)

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 (%)
NONE					

Notes

(Include Notes Here)

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				
N/A				

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				
N/A				

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
Brandy Branch	GT1	GT	NG	8.3	11.7	17.4	15.7	14.2	12.0	15.0	14.7	10.5	10.6	10.9
Brandy Branch	CT2, CT3, STM4	CC	NG	86.2	85.2	86.9	90.0	88.5	88.1	77.4	87.4	89.9	87.9	83.1
GEC	GT1	GT	NG	25.4	18.9	17.9	20.2	18.4	20.7	18.8	13.1	15.0	17.1	19.4
GEC	GT2	GT	NG	18.1	19.6	18.9	20.1	19.2	20.1	16.5	15.7	15.6	16.5	19.0
Kennedy	GT7	GT	NG	4.0	5.6	4.0	3.6	2.7	4.8	4.6	3.7	3.8	4.8	5.4
Kennedy	GT8	GT	NG	13.3	5.0	3.2	3.1	1.9	4.3	3.7	4.1	2.2	3.1	5.3
Northside	1	ST	PC	11.9	70.0	35.5	29.8	19.4	25.2	37.9	31.5	35.3	41.7	47.6
Northside	2	ST	PC	55.6	68.8	42.3	35.0	32.4	39.4	49.8	45.2	50.6	53.6	63.3
Northside	3	ST	NG	35.1	45.1	58.7	49.9	50.0	45.1	51.2	47.7	44.8	42.9	37.2
Northside	GT3	GT	DFO	0.18	1.7	0.9	0.8	0.7	1.0	0.8	1.0	0.6	1.0	1.4
Northside	GT4	GT	DFO	0.15	1.7	0.9	0.9	0.7	1.2	1.0	1.2	0.8	1.0	1.3
Northside	GT5	GT	DFO	0.10	1.3	0.8	0.8	0.8	1.2	1.0	1.3	0.9	0.8	1.4
Northside	GT6	GT	DFO	0.12	1.5	0.9	0.9	0.2	1.2	1.0	1.3	0.8	0.8	1.1
Scherer	4	ST	BIT	47.7										
Notes														
Scherer 4 retires as of January 1st 2022														

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

Plant Name	Fuel Type	Summer Capacity (MW)	In-Service Date (MM/YYY)	Potential Conversion	Potential Issues
Northside 3	NG/FO6	524	Jul-77	Combined Cycle	Resulting unit size too large
Kennedy CT 7	NG/FO2	150	Jun-00	Combined Cycle	
Kennedy CT 8	NG/FO2	150	Jun-09	Combined Cycle	
Brandy Branch CT 1	NG/FO2	150	May-01	Combined Cycle	
GEC CT 1	NG	142	Jun-11	Combined Cycle	
GEC CT 2	NG	142	Jun-11	Combined Cycle	
Notes					
(Include Notes Here)					

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

Plant Name	Fuel Type	Summer Capacity (MW)	In-Service Date (MM/YYY)	Potential Conversion	Potential Issues
Northside 1	PC	293	May-03	NG	
Northside 2	PC	293	Apr-03	NG	
Northside	GT3	50	Jan-75	NG	
Northside	GT4	50	Jan-75	NG	
Northside	GT5	50	Dec-74	NG	
Northside	GT6	50	Dec-74	NG	
Notes					
(Include Notes Here)					

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

Transmission Line	**Line Length** (Miles)	**Nominal Voltage** (kV)	**Date Need Approved**	**Date TLSA Certified**	**In-Service Date**
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

Currently, there is too much variance caused by regulations uncertainty. The costs cannot be estimated at this time.

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
NGS1	ST	PC	293 MW	To be determined	To be determined	Periodic	N/A	Possible additional equipment	N/A	N/A
NGS2	ST	PC	293 MW	To be determined	To be determined	N/A	Possible additional equipment	Possible additional equipment	N/A	N/A
BBGS	CC	NG	501 MW	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Notes										
(Include Notes Here)										

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	CWIS	CCR	
									Non-Hazardous Waste	Special Waste
NGS1	ST	PC	293 MW	N/A	To be determined	Only for periodic testing	N/A	To be determined	N/A	N/A
NGS2	ST	PC	293 MW	N/A	To be determined	Only for periodic testing	N/A	To be determined	N/A	N/A
BBGS	CC	NG	501 MW	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes

(Include Notes Here)

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
NGS1	ST	PC	293 MW	No impact expected	No impact expected	No impact expected	N/A	To be determined	N/A	N/A
NGS2	ST	PC	293 MW	No impact expected	No impact expected	No impact expected	N/A	To be determined	N/A	N/A
BBGS	CC	NG	501 MW	No impact expected	No impact expected	No impact expected	N/A	N/A	N/A	N/A
Notes										
(Include Notes Here)										

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	N/A	N/A	4980	3.39	5890.00	3.26	9.00	15.85	1.00	21.61
	2013	N/A	N/A	7428	3.14	3921.00	3.99	0.00	15.39	4.00	20.86
	2014	N/A	N/A	8039	2.91	4041.00	4.68	8.00	13.86	3.00	20.73
	2015	N/A	N/A	6512	2.32	5312.00	2.96	6.00	6.71	2.00	12.57
	2016	N/A	N/A	6733	2.42	4724.00	2.98	16.00	5.39	3.00	11.00
	2017	N/A	N/A	5360	3.05	5751.00	3.28	0.00	7.69	3.00	13.39
	2018	N/A	N/A	3557	3.01	6574.00	3.66	24.00	10.01	18.00	15.98
	2019	N/A	N/A	3287	2.37	6306.00	2.78	1.00	9.66	4.00	14.85
	2020	N/A	N/A	3019	2.18	8215.00	2.19	1.00	6.53	5.00	11.46
	2021	N/A	N/A	2743	4.12	7656.00	4.14	11.00	10.57	7.00	15.35
Projected	2022	N/A	N/A		5.74		5.50		N/A		19.25
	2023	N/A	N/A		4.99		4.24		N/A		18.54
	2024	N/A	N/A		4.82		3.83		N/A		18.33
	2025	N/A	N/A		4.92		4.07		N/A		18.74
	2026	N/A	N/A		5.07		4.33		N/A		18.89
	2027	N/A	N/A		5.20		4.54		N/A		19.80
	2028	N/A	N/A		5.34		4.87		N/A		20.86
	2029	N/A	N/A		5.49		5.18		N/A		21.71
	2030	N/A	N/A		5.62		5.41		N/A		22.80
	2031	N/A	N/A		5.77		5.60		N/A		23.61

Notes

(Include Notes Here)