

May 1st, 2023

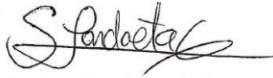
Commission Clerk  
Public Service Commission  
2540 Shumard Oak Blvd.  
Tallahassee, FL 32399-0850

Commission Clerk:

On behalf of JEA, please accept the 2023 Ten-Year Site Plan – Data Request #1.

If you have any questions, please contact me by email at [landsg@jea.com](mailto: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 current planning period (2023-2032) 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**

#### **Historic Load & Demand**

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 13, 2022, and November 6, 2022).
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. **(Please see excel file)**

### Forecasted Load & Demand

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.

### Customers

The residential energy forecast was developed using multiple regression analysis of weather normalized historical residential energy, total population, number of households, median household income, total housing starts from Moody's Analytics, 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.

### Customer-Sited Renewables

A customer-sited renewables forecast was included in JEA's 2023 TYSP. This forecast included an analysis on rooftop solar PV and battery storage. The study was conducted by Black & Veatch Consulting group. The solar PV analysis accounted for available roof space (including pitched vs. flat roofs, other roof equipment, etc.), PV power density, hourly generation shapes, and AC/DC ratios, among other factors. These technical potential calculations were supplemented by forecasting market adoption of solar PV systems over a 30-year forecast horizon. A rigorous hourly economic analysis calculated the point at which it is cost-effective for customers to install a system as a function of \$/kW, discount rates, and other costs using the extensive sensitivity analysis capabilities of the modeling software.

The battery storage analysis focused primarily on technical potential for paired solar + energy storage systems. The modeling software accounted for the complex economics of a storage technology, which can shift load to reduce energy charges (e.g., through on/off peak period arbitration) or reduce peak demand charges, by utilizing an hourly battery storage dispatch optimization module. This analysis simulates the hourly dispatch of stand-alone or solar-paired storage systems, accounting for electric rate structure, system characteristics, customer load profile, and solar PV generation profile.

### **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
- Customer-Sited Renewables
- 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.

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

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 2002-2022 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. For 2022 we see a 0.7% forecast error for the Net Energy when comparing to actual value. 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.

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

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 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.

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 percentage growth for all parameters used in JEA's 2023 TYSP are very similar as compared to the 2022 forecasts. As a results, we see a similar small

growth of less than 1% for Residential, Commercial, and Industrial customers.

We see Residential sales as our higher rate because of the housing growth in our service territory per Moody's analytics 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. 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 2023 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 (0.4%)

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 2023 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 (0.9%)

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 0.4%

- 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.

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 2023 forecasted Net Energy for Load (NEL) annual average growth rate (AAGR) is 0.66%.

- d. By customer type (residential, commercial, industrial) provide a detailed discussion of how the Company's demand-side management program(s) and conservation/energy-efficiency program(s) impact the observed trends in gigawatt hour sales (Schedule 3.3).

JEA continues to implement DSM programs that are economically beneficial and meet JEA's Florida Energy Efficiency and Conservation Act (FEECA) goals. JEA's programs focus on improving the efficiency of customer end use equipment, as well as, improving the system load factor through behavioral education and technology incentives. JEA funded demand-side management programs continue to be the contributors to the decrease in annual use per residential customer.

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

- a. Demand Reduction due to the Company's demand-side management program(s) 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 2023 summer total peak forecast AAGR is 0.70%. The 2023 winter total peak forecast AAGR is 0.64%

- 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 2023 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. **[FEECA Utilities Only]** In the 2019 goal-setting proceeding, the Commission chose to continue the goals established by its 2014 goal-setting decision for the period 2020-2024. Beyond 2024 through the end of the forecasted period, how did the Company project what demand savings amounts are reflected on the DSM and Conservation-related portions of Schedules 3.1, 3.2, and 3.3? Please explain what assumptions are incorporated in those amounts, and why.

The DSM and Conservation-related portions of Schedules 3.1, 3.2 and 3.3 reflect projections of demand and energy reductions, set by JEA, that our customers may achieve through DSM, Energy Efficiency, and Conservation. The projections are not directly related to the goals established in the 2019 goal setting proceeding for the period 2020-2024. JEA will revisit these projections as part of its future TYSP filings.

14. On August 16, 2022, the Inflation Reduction Act of 2022 ("IRA") became law. Regarding the provisions of the IRA and related funding, please explain the following

- a. Whether the conservation related provisions are reflected on the DSM and Conservation-related portions of Schedules 3.1, 3.2, and 3.3 through the forecast (planning) period, and if so, how. If the provisions of the Act are not reflected in such forecasts, please explain why.

JEA has not explicitly accounted for the provisions of the Inflation Reduction Act (IRA) of 2022 in its estimates of DSM and Conservation-related initiatives. As more information about the relevant provisions of the IRA and potential impact on energy requirements associated with DSM and Conservation becomes available, JEA will incorporate such information into its DSM and Conservation future estimates.



- b. Whether the electrification related provisions are reflected on the demand and energy load-related portions of Schedules 3.1, 3.2, and 3.3 through the forecast (planning) period, and if so, how. If the provisions of the IRA are not reflected in such forecasts, please explain why.

JEA has not explicitly accounted for the provisions of the IRA in its estimates of electrification initiatives. As more information about the electrification related provisions of the IRA and potential impact on energy requirements associated with electrification becomes available, JEA will incorporate such information into its future electrification estimates.

15. 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.

16. 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.

- d. Please specify with corresponding explanations:
- i. How many years' historical weather data was used in developing each retail energy sales and peak demand model.  
10 years
  - ii. How many years' historical weather data was used in the process of these models' calibration and/or validation.  
10 years
- e. 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 2023 – 2032) 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 develop 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 the normalize peak forecast. Hourly system load data and max and min temperatures are input into SAS. A non-linear regression analysis is performed 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

17. **[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.
18. 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 2021 and 2022.

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 a small increase in sales across all customer classes for 2022.

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 2.1% for 2021 and 0.7% for 2022, and summer peak forecast error is 4.9% for 2021 and 4.1% for 2022.

- b. Have any of your 2023 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 regarding COVID other than what Moody's Analytics captures in their Duval County economic forecast.

19. Please address the following questions regarding the impact of all customer-owned/leased renewable generation (solar and otherwise) and/or energy storage devices on the Utility's forecasts.
- a. Please explain in detail how the Utility's load forecast accounts for the impact of customer's renewables and/or storage.

A customer-sited renewable forecast was created by Black and Veatch Consulting Group and included in JEA’s 2023 TYSP forecast. JEA removes from the total load forecast all seasonal, coincidental non-firm sources and adds the different sources of additional demand, mentioned in question 7, to derive a firm load forecast. The customer-site renewable forecast contributed to the decrease in the Firm Load Forecast.

- b. Please provide the annual impact, if any, of customer’s renewables and/or storage on the Utility’s retail demand and energy forecasts, by class and in total, for 2023 through 2032.

For 2023, the Customer-Site renewable load represents 0.2% of the forecasted total peak demand in the winter and 0.1% of the forecasted total peak demand in the summer. The AAGR of Customer-Sited Renewable load during the TYSP period is 28%.

- c. If the Utility maintains a forecast for the planning horizon (2023-2032) of the number of customers with renewables and/or storage, by customer class, please provide.

	<b>Residential</b>	<b>Non-Residential</b>
<b>2023</b>	1,188	52
<b>2024</b>	1,240	54
<b>2025</b>	1,340	58
<b>2026</b>	1,607	74
<b>2027</b>	2,019	103
<b>2028</b>	2,570	141
<b>2029</b>	3,266	189
<b>2030</b>	4,122	246
<b>2031</b>	5,156	313
<b>2032</b>	6,385	391

Plug-in Electric Vehicles (PEVs)

- 20. 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?
  - a. Has the Company also included the impact of demand response and time of use rates for the PEV loads? If so, please provide the impact of these measures. If not, please explain why not.

JEA included Plug-in Electric Vehicle (PEV) in the forecast used for this TYSP. JEA’s forecasted AAGRs for PEV winter is approximate 24.5%, summer coincidental peak demand is approximately 29.8% and total energy are approximately 24.5% percent during the TYSP period. JEA will continue to monitor PEV technology and its impact on JEA’s load forecast.

- 21. Please discuss with detail any changes or modifications from the Company’s previous TYSP report regarding the following PEV related topics:

JEA did not make any changes or modifications from the previous reporting period. JEA will continue to monitor PEV technology and its impact on JEA's load forecast.

- a. 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 64% of Duval County total PEV registrations in 2022. Chevrolet Bolt and Volt combined are the next highest ownership in Duval County and representing less than 6% of the total PEV registrations.

- b. 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 the Florida Department of Highway Safety and Motor Vehicles and the historical number of vehicles in Duval County from the U.S. Census Bureau. JEA forecasted the number 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 electric vehicle models in Duval County. 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 the historical 10-year AAGR of 0.02 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 charging rate for each model, the PEVs daily charge pattern and the total number of PEVs each year. The PEVs energy forecast is developed simply by summing the hourly peak demand for each year.

- c. The Company's process for monitoring 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

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

JEA does not have any technology in place to be notified when a customer has installed a PEV charging station in their home.

- e. 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.

22. 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.  
(Please see excel file)

- a. Please describe all significant technological, market, regulatory, or other events or announcements since the filing of the Company's 2022 TYSP which have impacted the metrics reported

JEA has not identified significant changes to its service territory.

- b. Please explain if and how the tax incentives and grants for transportation electrification associated with the IRA, adopted in August 2022, has impacted the Company's PEV and PEV charging station adoption/installation, as well as the PEV energy/demand forecast(s). If the provisions of the IRA are not reflected in such forecasts, please explain why.

JEA has not explicitly accounted for the provisions of the IRA in its estimates of electrification as more information about the relevant provisions of the IRA and potential impact on energy requirements associated with electrification becomes available, JEA will incorporate such information into its electrification estimates.

23. 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.

JEA's Drive Electric Program promotes PEV adoption through education, awareness and off-peak charging activities. Education and awareness provided to potential PEV owners includes one-on-one consultation with an EV expert, web-based tools to locate specific PEV at area dealerships, and regular ride & drive events. Residential customers that require electrical upgrades to install Level 2 PEV charging may take advantage of a rebate that offsets the wiring costs. Existing PEV owners may enroll in the voluntary off-peak charging program that pays a small stipend each month they charge only during off-peak hours. JEA is not currently offering any specific rate tariffs relating to PEV, but will consider additional Time of Use options during the next Rate Tariff Planning Cycle. In the absence of a residential EV rate JEA offers current EV owners the opportunity to enroll in a voluntary off-peak charging program. EV owners that enroll in the program and charge during off-peak hours receive \$7.00 per month.

- a. Of these programs or tariffs, are any designed for or do they include educating customers on electricity as a transportation fuel?

JEA has residential programming to increase the adoption of PEVs in the service area. The programs are largely focused on Education and Awareness about the benefits of EV ownership. Educational offerings include the EV Expert, an opportunity to engage an EV Expert in a one-on-one conversation about EV ownership. JEA also has a website presence that includes a local dealership EV inventory finder tool to help interested customers engage with dealers with the desired make and model. JEA offers residential customers that require wiring upgrades to obtain a rebate of up to \$300 from the utility to offset the costs of installing upgraded panels, additional electric services, or increased service size. JEA Drive Electric Program components of regular ride and drive events and EV expert calls and EV locator have provided a significant amount of high-quality educational interactions. Interest in events that include ride and drive opportunities with EV car shows continues to grow. JEA markets these events, and that impacts awareness of PEV in the community. Follow-ups by interested potential PEV owners through the EV expert helps to educate them about PEV ownership, specific models available, charging process and availability of public charging, and total cost of ownership.

- 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 regularly receives feedback through comments at Board of Directors Meetings, through social media, and through conversations with the customer experience team. Additional feedback is received through the EV Expert interactions.

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 not engaged in a specific study around this question. However, JEA has obtained PEV registration data from a variety of sources in an attempt to determine actual adoption rates

within the service territory. Our data suggests that the service area is very close to the state average percentage of PEVs.

25. 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 acknowledges that these provisions are likely to increase the number of PEV and the adoption rate but cannot predict impacts of these legislative changes on the automobile market in Northeast Florida.

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

At this time, there are not enough PEVs to significantly influence actual utility peak demand. However, encouraging off-peak charging is essential to utility efficiency as PEV ownership increases.

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

N/A

#### Demand Response

28. **[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.

(Please see excel file)

29. **[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.

(Please see excel file)

30. **[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.

(Please see excel file)



31. 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.  
(Please see excel file)

## **Generation & Transmission**

### **Utility-Owned Generation**

32. 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.  
(Please see excel file)
33. 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.  
(Please see excel file)
34. 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.  
(Please see excel file)
- a. For each planned utility-owned traditional generation resource in the table, provide a narrative response discussing the current status of the project.

JEA has identified two potential JEA-owned sites to build a 1x1 advanced-class CCCT. The two locations are being evaluated at this time. Further updates will be presented in subsequent TYSPs as the site evaluation process completes. Development considerations, such as permitting delays, supply chain difficulties, or construction delays, could impact the earliest commercial operation date.

35. 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.  
(Please see excel file)

36. 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.
- (Please see excel file)

37. 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?

On January 31, 2023, JEA released a solicitation for the development of 300 MWAC of solar or solar plus energy storage systems on JEA-owned parcels, with the consideration of both PPA and JEA ownership options. For planning purposes, all proposed facilities are assumed PPA, and thus JEA has no planned utility-owned renewable resources.

38. **[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.

39. 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.
- (Please see excel file)

40. 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.

The preliminary IRP results consistently identified a 1x1 advanced-class combined cycle combustion turbine (CCCT) configuration in the 2029 timeframe as part of the least-cost resource plan across the majority of scenarios and sensitivities studied. JEA's system, Northside Unit 3 unit cannot be retired until a replacement unit has achieved commercial operation. Due to permitting requirements associated with the Florida Power Plant Siting Act (PPSA), specifically Determination of Need and Site Certification (environmental permitting) for a CCCT, Northside Unit 3 may need to continue to operate until the earliest commercial operation date of a new CCCT resource, which is estimated to be in the 2030 timeframe.

Development considerations, such as permitting delays, supply chain difficulties, or construction delays, could impact the earliest commercial operation date.

For the purposes of planning, all planned renewable units are assumed to be PPA and not utility owned.

41. 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.

(Please see excel file)

42. **[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.

43. 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.

(Please see excel file)

44. 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.

(Please see excel file)

45. 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.

(Please see excel file)

#### Purchases and Sales

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

(Please see excel file)

47. 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.

(Please see excel file)

48. 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.

(Please see excel file)

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

49. 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.

(Please see excel file)

50. 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.

(Please see excel file)

51. 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?

JEA executed contracts for the addition of five 50 MW facilities in February 2019. The facilities, Beaver Street Solar Center, Cecil Commerce Solar Center, Deep Creek Solar Center, Forest Trail Solar Center, and Westlake Solar Center were originally planned to be completed by the end of 2022, however, impacts caused by the COVID-19 pandemic paired with macroeconomic conditions, such as raw material price increases, greater demand for components, and inflation, resulted in project delays. In July 2022, all five of the agreements were terminated and the projects were cancelled.

52. 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.

(Please see excel file)

53. 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.

(Please see excel file)

54. Please list and discuss any long-term power sale agreements within the past year that were cancelled, expired, or modified. What was the primary reason for the change? What, if any, were the secondary reasons?

N/A

### Renewable Generation

55. 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.

(Please see excel file)

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

JEA's Distributed Generation (DG) Policy allows 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.

57. **[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.

58. 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.

Historically, JEA does not consider solar PV to contribute to either seasonal peak; however, as part of JEA's Integrated Resource Plan (IRP) studies, a 20% firm summer capacity was utilized to produce results. JEA based the 20% firm summer capacity on a study on the historical solar output of JEA's oldest solar facility, Jacksonville Solar. The solar data was generated during the hours of when JEA's system peaks typically occur, with the peaks being above 2,500 MW and weather conditions showing some cloud-cover. As JEA obtains more

data from the existing solar farms, a minimum of 5 years' worth, JEA will perform a new study to determine the firm summer capacity for solar.

59. 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 and are currently being fulfilled via REC purchases. 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.

### Energy Storage

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

Longer duration energy storage continues to be a near term industry goal, as current technologies prove to be geographically limited and/or financially infeasible. Additionally, other technologies like solid state batteries and sodium ion batteries are proving to be more of a viable rival for lithium-ion technologies when it comes to energy density, raw material availability, and charge rate. However, these technologies still need to innovate to reach the level of commercialization of lithium ion.

61. If applicable, please describe the strategy of how the Company charges and discharges its energy storage facilities. As part of the response discuss if any recent legislation, including the IRA has changed how the Company dispatches its energy storage facilities.

JEA does not currently own or operate any battery energy storage facilities in its service territory. 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.

62. 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's Integrated Resource Plan (IRP) studies consider the use of energy storage as part of the supply-side options, however the determination of the optimal location of these systems lies outside the scope of the current process. Future studies will examine the optimal placement of energy storage technology on the JEA system.

63. Please explain whether customers have expressed interest in energy storage technologies. If so, describe the type of customer (residential, commercial industrial) and how have their interests been addressed.

To date, over 1,100 residential customers have installed customer-owned battery storage systems paired with photovoltaic systems by directly contracting with installation companies.

64. 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.

(Please see excel file)

65. 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.

(Please see excel file)

66. 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, however a pilot microgrid has been considered. JEA has the opportunity to leverage its relationship with a local university and explore a microgrid installment on their campus. The pilot is still in the conceptual phase with no identified in-service date.

67. 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 currently has no energy storage pilot programs running, however a pilot microgrid has been considered. JEA has the opportunity to leverage its relationship with a local university and explore a microgrid installment on their campus. The pilot is still in the conceptual phase with no identified in-service date.

#### Other

68. Please identify and discuss the Company's role in the research and development of utility power technologies, including, but not limited to research programs that are funded through the Energy Conservation Cost Recovery Clause. 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.

There are no ECCR related funds at JEA as this clause is not applicable to the company. JEA does not have R&D projects or research programs funded at this time

#### Environmental

69. Please explain if the Company assumes carbon dioxide (CO<sub>2</sub>) 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<sub>2</sub> compliance costs are first assumed to have a non-zero value.

JEA has not modeled any costs for CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> compliance costs.



70. 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.

The current and planned electricity generation mix for JEA will be a key factor in complying with upcoming CO<sub>2</sub> requirements. In addition to the atmospheric sinks of CO<sub>2</sub> 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, the use of hydrogen 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.

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<sub>2</sub> 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<sub>2</sub> 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 was made on June 30, 2022 to reverse the January 9, 2021 decision. EPA's ACE replacement proposal is expected around April or May 2023.

New Source Review (NSR) Revisions: 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.

New Source Performance Standards (NSPS) Revisions: 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 CO<sub>2</sub> per megawatt-hour on a gross output basis (lb CO<sub>2</sub>/MWh-gross). For small units, the proposed emission rate would be 2,000 lb CO<sub>2</sub>/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 expected 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 YYYYY (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 expected 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 (SO<sub>2</sub>) 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 SO<sub>2</sub> standard. Based on comprehensive dispersion modeling analyses, it was determined that probability of compliance with the 1-hour SO<sub>2</sub> 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<sub>2.5</sub>") standards in September 2006. Since then, the EPA established a more stringent 24-hour average PM<sub>2.5</sub> standard and kept the annual average PM<sub>2.5</sub> standard and the 24-hour coarse particulate matter standard unchanged. The EPA issued a final PM<sub>2.5</sub> rule on December 14, 2012, that reduced the annual PM<sub>2.5</sub> standard from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup>. The rule left the 24-hour PM<sub>2.5</sub> standard of 35 µg/m<sup>3</sup> unchanged. The change in the PM<sub>2.5</sub> 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. On January 23, 2023, EPA proposed to retain the daily standard of 35 µg/m<sup>3</sup> and lower the annual standard from 12 to between 9 and 10 µg/m<sup>3</sup>. Final rule is expected around August 2023.

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). In April 2022, EPA staff recommended retention of 70 ppb.

On March 14, 2021, EPA withdrew a denial of petition to create a NAAQS for CO<sub>2</sub>. At this time, there is a consideration by EPA to create a secondary NAAQS for CO<sub>2</sub>.

71. 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 impact JEA if it builds new EGUs, or significantly modifies or reconstructs existing 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, and permits will be obtained as needed.

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

Not known at this time.

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

Typical permit processing times will 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

72. 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. N/A
- 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: To be determined
- g. Effluent Limitations Guidelines and Standards (ELGS) from the Steam Electric Power Generating Point Source Category. N/A

73. Please refer to the Excel Tables File (EPA Operational Effects). Complete the table by identifying, for each unit affected by one or more of EPA's rules, what the impact is for each rule, including; unit retirement, curtailment, installation of additional emissions controls, fuel switching, or other impacts identified by the Company.

Please see Excel tables. Only the units that may be impacted by EPA rules are listed.

74. 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 SO<sub>2</sub> 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<sub>2</sub> 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 2025. JEA's current estimate of compliance cost shows a one-time cost anywhere between \$10 to 50 million.

**Solid Waste Rules:** The CCR rule applies to Area B of the former St. John's River Power Park (SJRPP) and does not apply to management of byproducts at Northside Generating Station as long as it continues to burn a fuel mix with less than 50 percent coal. The operating cell within Area B of SJRPP was closed and closure construction was completed in January 2022 in accordance with specified performance standards. The facility will continue to comply with the monitoring requirements of the rule in accordance with the post-closure and corrective action plans for groundwater. JEA's current estimate for corrective measures and long term closure near \$5 million.

Please see Excel tables. Only the units that may be impacted by EPA rules are listed.

75. 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.

Please see Excel tables. Only the units that may be impacted by EPA rules are listed.

76. 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.

N/A

### **Fuel Supply & Transportation**

77. 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.

(Please see excel file)

78. 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.

79. 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. 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, Greenland, and Northside. Additional diesel supply is purchased from time to time in the open market as needed. The price of diesel fuel oil is 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.

80. Please provide a comparison of the Utility's 2022 fuel price forecast and the actual 2022 delivered fuel prices.

Actual 2022 delivered fuel prices came in higher for all the fuel types that JEA consumes compared to the 2022 fuel price forecast. On a percentage basis, prices for natural gas and coal increased by the largest margin.

81. Please explain any notable changes in the Utility's forecast of fuel prices used to prepare the Utility's 2023 TYSP compared to the fuel process used to prepare the Utility's 2022 TYSP.

JEA's process for preparing the Utility's 2023 TYSP was relatively similar to that used for the 2022 TYSP. As was the case last year, the EIA's annual publication of the Annual Energy Outlook was not released in time for use in the TYSP. NYMEX exchange futures prices were updated to capture the latest price movements.

82. 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.

83. 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, 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.

84. 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.

EIA's projected increase in U.S. LNG export capability 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.

85. 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.

86. 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 insures 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.

87. 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.

88. 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

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

N/A

90. [FPL Only] The following questions are with regard to hydrogen fuel creation and use at the Cavendish NextGen Hydrogen Hub:

- a. Please explain how FPL plans to account for the produced hydrogen fuel that is integrated into the natural gas system for use at FPL's Okeechobee Clean Energy Center.
- b. Please explain how FPL plans to price the produced hydrogen fuel that is integrated into FPL's natural gas system over the Ten-Year Site Plan time horizon

### **Extreme Weather**

91. 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

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

JEA has secured an external SME contractor to conduct a full operational evaluation and critical operating system mitigation matrix for all of their generating stations. The goal is to identify and prioritize areas in need of upgrading. Initial reports are expected to be received for all plant sites before October 2023. Once all reports are received and reviewed, a comprehensive plan will be developed in order to determine the optimal mitigation plan. Final timeline will depend on complexity, cost and supply chain issues associated with the recommended changes.

93. 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.

94. Please address the following questions regarding the impact of all major storm events, such as Hurricane Ian, with associated flooding, destruction of utility facilities and customer buildings, and forced customer permanent migration.
- a. Based on actual data, please briefly summarize the impact that major storms have had on your utility's customer number, retail sales and peak load.

For Hurricane Ian, JEA had a total of 162,940 customers impacted out of its approximate 506,284 customer base during the 3 day event. JEA worked to restore power as the storm took place when safe to work. The maximum number of customers out during the period was 21,440 customers on 9/29/22 @0752. The retail sales were lower these days due to the weather which is typical on stormy days. Peak load reduction due to the storm was estimated to be 700 MW mostly due to the temperature decrease for load demand not customer outages. Estimated impact due to load loss is 130MW most commercial load which shutdown for safety.

- b. Please explain whether the above discussed impact is include in your company's customer/retail energy sales/demand forecasts.

JEA did not include the impact of the major storm mentioned above to the Energy sales and Demand Forecast.

- c. If your response to subpart (b) is affirmative, please explain how this impact is modeled.  
N/A

95. Has the Company had to make any upgrades to any generating units or changes to operations practices as a result of any FERC Orders addressing extreme weather planning within the last two years? If so, please describe.

JEA has not made any changes to their generation units for extreme weather planning as a result of a FERC Order within the last two years. Where necessary, operating procedures were modified to directly reflect FERC order requirements.