May 14, 2019

Douglas Wright
Florida Public Service Commission
Division of Engineering
2540 Shumard Oak Blvd.
Tallahassee, FL 32399

Re: DN 20190000-OT (Undocketed filings for 2019)

Dear Mr. Wright,
Pursuant to the Staff's Supplemental Data Request # 1, Lakeland Electric hereby submits answers to questions 1 through 82 and Appendix A.
An Excel file containing Answers to questions in Appendix A and an Excel file containing requested tables from the supplemental questions will be submitted in an email to you today, May 14, 2019.

If you have any questions, please do not hesitate to contact me at 863-834-6560.

Sincerely,

Ted Leffler
City of Lakeland
Energy Resource Specialist
Lakeland Electric
863-834-6560
Ted.leffler@LakelandElectric.com
501 E. Lemon St.
Lakeland, Florida 33801

## General Items

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

   See Attached.

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

   See Attached.

## Load & Demand Forecasting

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

N/A. Lakeland Electric is not an Investor-owned Utility.

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

| Year | Month | Actual Peak Demand | Demand Response Activated | Estimated Peak Demand | Day | Hour | System-Average Temperature |
|---|---|---|---|---|---|---|---|
| | | (MW) | (MW) | (MW) | | | (Degrees F) |
| 2018 | 1 | 704.4 | 0 | 704.4 | 1/18/2018 | 8:00 | 29.7 |
| | 2 | 484.0 | 0 | 484.0 | 2/26/2018 | 16:00 | 84.3 |
| | 3 | 451.7 | 0 | 451.7 | 3/29/2018 | 18:00 | 83.0 |
| | 4 | 509.7 | 0 | 509.7 | 4/9/2018 | 18:00 | 83.3 |
| | 5 | 577.0 | 0 | 577.0 | 5/24/2018 | 17:00 | 87.0 |
| | 6 | 621.5 | 0 | 621.5 | 6/19/2018 | 17:00 | 92.3 |
| | 7 | 619.9 | 0 | 619.9 | 7/2/2018 | 18:00 | 88.0 |
| | 8 | 631.7 | 0 | 631.7 | 8/8/2018 | 17:00 | 91.7 |
| | 9 | 637.0 | 0 | 637.0 | 9/17/2018 | 17:00 | 92.2 |
| | 10 | 604.4 | 0 | 604.4 | 10/16/2018 | 16:00 | 92.1 |
| | 11 | 518.1 | 0 | 518.1 | 11/7/2018 | 16:00 | 87.4 |
| | 12 | 506.5 | 0 | 506.5 | 12/12/2018 | 8:00 | 47.0 |
| 2017 | 1 | 538.7 | 0 | 538.7 | 1/9/2017 | 8:00 | 46.1 |
| | 2 | 453.5 | 0 | 453.5 | 2/28/2017 | 17:00 | 83.1 |
| | 3 | 491.9 | 0 | 491.9 | 3/29/2017 | 17:00 | 87.3 |
| | 4 | 585.3 | 0 | 585.3 | 4/28/2017 | 17:00 | 94 |
| | 5 | 609.7 | 0 | 609.7 | 5/22/2017 | 17:00 | 88.6 |
| | 6 | 612.3 | 0 | 612.3 | 6/30/2017 | 17:00 | 87 |
| | 7 | 642.8 | 0 | 642.8 | 7/26/2017 | 17:00 | 94.9 |
| | 8 | 637.5 | 0 | 637.5 | 8/9/2017 | 17:00 | 93.6 |
| | 9 | 615.7 | 0 | 615.7 | 9/26/2017 | 17:00 | 90.9 |
| | 10 | 587.0 | 0 | 587.0 | 10/9/2017 | 17:00 | 87.8 |
| | 11 | 457.0 | 0 | 457.0 | 11/8/2017 | 16:00 | 83.1 |
| | 12 | 518.7 | 0 | 518.7 | 12/11/2017 | 8:00 | 44.9 |
| 2016 | 1 | 587.6 | 0 | 587.6 | 1/25/2016 | 8:00 | 44 |
| | 2 | 565.7 | 0 | 565.7 | 2/11/2016 | 17:00 | 46.6 |
| | 3 | 495.4 | 0 | 495.4 | 3/16/2016 | 17:00 | 83.2 |
| | 4 | 555.2 | 0 | 555.2 | 4/29/2016 | 17:00 | 92.3 |
| | 5 | 565.5 | 0 | 565.5 | 5/2/2016 | 17:00 | 89.7 |
| | 6 | 621.4 | 0 | 621.4 | 6/15/2016 | 17:00 | 92.3 |
| | 7 | 646.7 | 0 | 646.7 | 7/27/2016 | 17:00 | 94.8 |
| | 8 | 646.5 | 0 | 646.5 | 8/22/2016 | 17:00 | 95.3 |
| | 9 | 594.8 | 0 | 594.8 | 9/22/2016 | 17:00 | 86.1 |
| | 10 | 573.3 | 0 | 573.3 | 10/5/2016 | 16:00 | 89.3 |
| | 11 | 435.6 | 0 | 435.6 | 11/1/2016 | 17:00 | 81 |
| | 12 | 451.8 | 0 | 451.8 | 12/19/2016 | 16:00 | 16 |
| Notes | | | | | | | |

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

   The weather information is obtained from Lakeland Electric's own weather stations. Several weather stations are strategically placed throughout the Lakeland Electric service territory to provide the best estimate of overall temperature for the service area. The data from these weather stations are averaged for the month, day, highs and lows.

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

   The 2019 forecast is the same as the 2018 forecast with 2018 actuals replacing the 2018 forecasted values. This is a one-time change of process. We intend on producing a new forecast in summer 2019 which will be used for the 2020 Ten-Year Site Plan. This change was necessary to better spread out the workload given our diminished staff resources.

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

Lakeland Electric is not aware of any FPSC dockets which were based on any 2019-2028 Load forecast and 2019 TYSP in general.

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

N/A. Lakeland Electric is not an Investor-owned Utility.

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

   Residential customers are showing continued year over year growth. In 2018, our residential customers grew at the rate of 1.24%. Residential 10 year AAGR for 2009 through 2018 is 0.8%.

   Commercial customers are in 6th year of year over year growth and in 2018 the growth rate was 1.38%, the strongest it has been in the past 10 years. Commercial 10 year AAGR for 2009 through 2018 is 0.52%.

   Industrial customers had a growth rate of 3.36% in 2018, this is the first year over year positive growth rate since 2011. In terms of actual customer count, this represents of gain of just 2 average customers over the entire year. In 2012 through 2017, the Industrial customer class was losing accounts mostly due to energy efficiency improvements and related rate migration to the commercial rate class. The 10 year Industrial customer AAGR is -1.5%.

   As a whole, the total customers in Lakeland Electric's service territory have been increasing year over year for the past seven years. In 2018, the growth rate was 1.2 % and AAGR for 2009 through 2018 stands at 0.6%.

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

Below is a table of average use by customer type based on average of monthly consumption divided by monthly customer count.

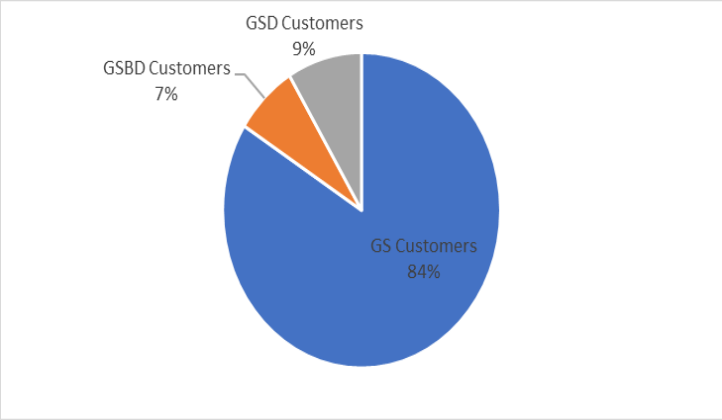
| Calendar Year | Res Average Use (kWh) | AAGR | COMM Usage Per Acct (kWh) | AAGR | Industrial Usage Per Account (kWh) | AAGR |
|---|---|---|---|---|---|---|
| 2008 | 13,752 | | 63,988 | | 6,983,885 | |
| 2009 | 14,109 | 2.59% | 63,325 | -1.04% | 6,992,826 | 0.13% |
| 2010 | 15,205 | 7.77% | 63,818 | 0.78% | 6,949,743 | -0.62% |
| 2011 | 14,283 | -6.06% | 63,120 | -1.10% | 6,690,194 | -3.73% |
| 2012 | 13,286 | -6.98% | 61,779 | -2.12% | 7,180,858 | 7.33% |
| 2013 | 13,432 | 1.10% | 62,548 | 1.24% | 7,869,085 | 9.58% |
| 2014 | 13,596 | 1.22% | 62,526 | -0.04% | 8,371,061 | 6.38% |
| 2015 | 14,054 | 3.37% | 64,874 | 3.76% | 8,802,002 | 5.15% |
| 2016 | 13,918 | -0.97% | 65,049 | 0.27% | 8,863,221 | 0.70% |
| 2017 | 13,570 | -2.50% | 64,927 | -0.19% | 9,040,319 | 2.00% |
| 2018 | 13,989 | 3.09% | 64,813 | -0.18% | 9,100,049 | 0.66% |

Residential average use is trending down and 10 year CAGR is -0.09%.

Commercial average use is flat but there are distinct subtrends within that customer type which is composed of General Service and General Service Business Demand (both less than 50 KW demand) as well as GSD (from 50 to 500 KW demand) as table below illustrates.

| Calendar Year | GS Usage Per Acct (kWh) | AAGR | GSBD Usage Per Acct (kWh) | AAGR | GSD Usage Per Acct (kWh) | AAGR |
|---|---|---|---|---|---|---|
| 2008 | 22,246 | | | | 399,390 | |
| 2009 | 21,898 | -1.56% | | | 389,219 | -2.55% |
| 2010 | 22,016 | 0.54% | | | 393,562 | 1.12% |
| 2011 | 21,787 | -1.04% | | | 387,123 | -1.64% |
| 2012 | 21,205 | -2.67% | | | 381,635 | -1.42% |
| 2013 | 21,348 | 0.68% | | | 390,715 | 2.38% |
| 2014 | 21,302 | -0.22% | | | 397,252 | 1.67% |
| 2015 | 21,615 | 1.47% | | | 481,046 | 21.09% |
| 2016 | 20,755 | -3.98% | 108,132 | | 494,149 | 2.72% |
| 2017 | 20,586 | -0.82% | 96,153 | -11.08% | 493,827 | -0.07% |
| 2018 | 20,848 | 1.27% | 65,889 | -31.47% | 487,810 | -1.22% |

The Commercial customer breakdown in percentage in 2018 can be seen in chart below.




The General Service average use has a 10 year declining AAGR of -0.6%. In contrast, the GSD average use has a 10 year AAGR of 2.2%. The GSD average use has grown because of energy efficiency improvements which have caused the customers of the Industrial rate class immediately above to migrate to the GSD rate class in addition to the creation of new GSD accounts.

In 2018 was the first time in the last 8 years that Industrial customer count actually increased. Therefore it is too soon to tell whether the rate migration from Industrial to Commercial due to energy efficiency has finally leveled off.

Over the past 7 years, Industrial Average use per account grew as the number of Industrial customers diminished and the remaining customers in that class were the largest ones. In 2018, the count of industrial customers actually grew, as did the average use. But upon closer analysis, the majority of the increase in average use for 2018 is attributable to an increase in consumption at one of our largest customer sites associated with a planned increase in their industrial production. Industrial 10 year AAGR is 2.76%.

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

    The only projected source of peak demand that Lakeland Electric reports on in Schedule 3.1 is retail peak. Lakeland Electric is winter peaking and we expect to remain winter peaking for the ten-year forecast horizon.

12. **[Investor-Owned Utilities Only]** If not included in the Company's 2019 TYSP to be filed by April 1, 2019, please provide load forecast sensitivities (high band, low band) to account for the uncertainty inherent in the base case forecasts in the following TYSP schedules, as well as the methodology used to prepare each forecast:

    a. Schedule 2.1 – History and Forecast of Energy Consumption and Number of Customers by Customer Class
    b. Schedule 2.2 - History and Forecast of Energy Consumption and Number of Customers by Customer Class
    c. Schedule 2.3 - History and Forecast of Energy Consumption and Number of Customers by Customer Class
    d. Schedule 3.1 - History and Forecast of Summer Peak Demand
    e. Schedule 3.2 - History and Forecast of Winter Peak Demand
    f. Schedule 3.3 - History and Forecast of Annual Net Energy for Load
    g. Schedule 4 - Previous Year and 2-Year Forecast of Peak Demand and Net Energy for Load by Month.

N/A. Lakeland Electric is not an investor-owned utility.

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

Lakeland Electric did not include plug-in electric vehicle loads in its demand and energy forecasts due to low level of market penetration in Lakeland's service territory.

Lakeland will continue to monitor available data on plug in electric vehicle registrations and will consider creating an electric vehicle forecast when a threshold of at least 1% of total registered vehicles is reached.

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

    For 2018, Lakeland Electric requested and aggregated DMV data for Polk County by PEV vehicle model. The estimate of PEVs for the Lakeland Electric Service area is based on the ratio of estimated Lakeland Electric Service area population to Polk County population.

    Lakeland Electric has not developed a methodology to estimate cumulative impact on system demand and energy consumption yet due to low penetration of electric vehicles in its service territory.

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

See Attached

**Electric Vehicle Charging Impacts**

| Year | Number of PEVs | Number of Public PEV Charging Stations | Number of Public "Quick-charge" PEV Charging Stations | Cumulative Impact of PEVs | | |
|---|---|---|---|---|---|---|
| | | | | Summer Demand | Winter Demand | Annual Energy |
| | | | | (MW) | (MW) | (GWh) |
| **2018** | 189 | 6 | | * | * | * |
| **2019** | | | | | | |
| **2020** | | | | | | |
| **2021** | | | | | | |
| **2022** | | | | | | |
| **2023** | | | | | | |
| **2024** | | | | | | |
| **2025** | | | | | | |
| **2026** | | | | | | |
| **2027** | | | | | | |
| **2028** | | | | | | |
| **Notes** | | | | | | |
| 2018 CHARGING STATION DATA FROM WWW.PLUGSHARE.COM<br>• Insignificant Impact | | | | | | |

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

    Generally applicable time-of-day and demand pricing plans are available to EV owners. Such pricing plans have been available for multiple years.

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

       Not currently, but we are working on a program for that in the near future.

    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.

       Not currently.

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

Lakeland Electric does not monitor installations of charging stations.

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

There were no instances.

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

    Lakeland Electric has not done any research pertaining to EVs.

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

    Lakeland Electric currently does not have a way to know if a customer installs and EV charger at their residence.

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

    See Attached.

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

N/A. Lakeland Electric is not an FEECA Utility and does not have any energy savings goals.

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

See Attached.

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

N/A. Lakeland Electric is not an FEECA Utility and does not have any energy savings goals.

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

See Attached

| [Demand Response Source or All Demand Response Sources] | | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | Average Number of Customers | Summer Peak | | | Winter Peak | | |
| | | Activated During Peak? | Number of Customers Activated | Capacity Activated | Activated During Peak? | Number of Customers Activated | Capacity Activated |
| | | (Y/N) | | (MW) | (Y/N) | | (MW) |
| 2009 | | | | | | | |
| 2010 | | | | | | | |
| 2011 | | | | | | | |
| 2012 | | | | | | | |
| 2013 | | | | | | | |
| 2014 | | | | | | | |
| 2015 | | | | | | | |
| 2016 | | | | | | | |
| 2017 | | | | | | | |
| 2018 | | | | | | | |
| Notes | | | | | | | |
| (Include Notes Here) | | | | | | | |

N/A. Lakeland Electric is not an FEECA Utility and does not have any energy savings goals.

## Generation & Transmission

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

**Existing Utility-Owned Renewable Resources**

| Facility Name | Unit Type | Fuel Type | Installed Capacity (MW) | | Net Firm Capacity (MW) | | Capacity Factor | In-Service Date |
|---|---|---|---|---|---|---|---|---|
| | | | Sum | Win | Sum | Win | (%) | (MM/YYYY) |
| N/A | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Notes** | | | | | | | | |
| (Include Notes Here) | | | | | | | | |

See Attached.

N/A. Lakeland Electric does not own any renewable resources.
All solar plants are under PPA.

25. Please identify and describe each **planned** utility-owned renewable resource for the period 2019–2028. Please include each proposed facility's name, unit type, fuel type, its installed capacity (AC-rating for PV systems), its net firm capacity or anticipated contribution during peak demand (if any), anticipated typical capacity factor, and projected in-service date. For multiple small distributed renewable resources (<250 kW per installation), such as rooftop solar panels, please include a single combined entry for the resources that share the same unit & fuel type. As part of this response, please provide an electronic version of the table below in Microsoft Excel format.

    See Attached.

| Facility Name* | Unit Type | Fuel Type | Installed Capacity (MW) | | Net Firm Capacity (MW) | | Capacity Factor | In-Service Date |
|---|---|---|---|---|---|---|---|---|
| - | - | - | Sum | Win | Sum | Win | (%) | (MM/YYYY) |
| Glendale | IC engine | Methane Gas | 0.4 | 0.4 | 0.4 | 0.4 | To be determined | 8/31/2019 |
| | | | | | | | | |
| | | | | | | | | |
| **Notes** | | | | | | | | |
| *This unit is to be fueled by methane gas produced as a byproduct in an anaerobic digestion process at the Glendale Wastewater Treatment Plant in Lakeland. | | | | | | | | |

26. Please refer to the list of planned utility-owned renewable resources for the period 2019–2028 above. Discuss the current status of each project.

    N/A

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

    N/A

28. Please identify and describe each purchased power agreement with a renewable generator that delivered energy during 2018. Provide the name of the seller, the name of the generation facility associated with the contract, the unit type of the facility, the fuel type, the facility's installed capacity (AC-rating for PV systems), the amount of contracted firm capacity (if any), and the start and end dates of the purchased power agreement.

**Existing Renewable Purchased Power Agreements**

| Seller Name | Facility Name | Unit Type | Fuel Type | Installed Capacity (MW) | | Contracted Firm Capacity (MW) | | In-Service Date | Contract Term (MM/YY) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sum | Win | Sum | Win | (MM/YY) | Start | End |
| Longroad Energy Holding LLC | RP Funding Center | PV | Sunlight | .25 | .25 | | | 04/2010 | 04/2010 | 04/2030 |
| Longroad Energy Holding LLC | Airport I | PV | Sunlight | 2.25 | 2.25 | | | 12//2011 | 11/2011 | 11/2036 |
| DG Solar Partners 1, LLC | Airport II | PV | Sunlight | 2.75 | 2.75 | | | 09/2012 | 09/2012 | 09/2027 |
| TerraForm Utility Solar XIX, LLC | Sutton | PV | Sunlight | 6.0 | 6.0 | | | 07/2015 | 07/2015 | 07/2040 |
| NRG DG Lakeland, LLC | Airport III | PV | Sunlight | 3.15 | 3.15 | | | 12/2016 | 12/2016 | 12/2041 |
| PosiGen | Solar Water Heating | Thermal | Sunlight | .532 | .532 | | | Ongoing since 2009 | 2009 | 2029 |
| | | | | | | | | | | |
| **Notes** | | | | | | | | | | |
| (Include Notes Here) | | | | | | | | | | |

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

**Renewable Purchased Power Agreements**

| Seller Name | Facility Name | Unit Type | Fuel Type | Installed Capacity (MW) | | Contracted Firm Capacity (MW) | | In-Service Date | Contract Term (MM/YY) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Sum | Win | Sum | Win | (MM/YY) | Start | End |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| **Notes** | | | | | | | | | | |
| (Include Notes Here) | | | | | | | | | | |

NONE

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

    N/A

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

    N/A

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

**Renewable Generation by Source**

| Renewable Source | Annual Renewable Generation (GWh) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Actual | Projected | | | | | | | | | |
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| **Utility - Firm** | | | | | | | | | | | |
| **Utility - Non-Firm** | | | | | | | | | | | |
| **Utility - Co-Firing** | | | | | | | | | | | |
| **Purchase - Firm** | | | | | | | | | | | |
| **Purchase - Non-Firm** | | | | | | | | | | | |
| **Purchase - Co-Firing** | | | | | | | | | | | |
| **Customer - Owned** | 26 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| **Total** | | | | | | | | | | | |
| **Notes** | | | | | | | | | | | |
| (Include Notes Here) | | | | | | | | | | | |

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

The potential candidate projects are under study and Lakeland Electric does not have such information yet.

**Candidate Sites - Solar**

| Plant Name | Land Available (Acres) | Installed Capacity (MW) | Potential Issues |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

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

**Candidate Sites - Wind**

| Plant Name | Land Available (Acres) | Installed Capacity (MW) | Potential Issues |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

N/A for Lakeland Electric.

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

    Lakeland Electric has a Solar Water Heating Program with 249 participating residential customers. The utility provided the installation of solar water heaters through a "no-cost up front" campaign. Customers who subscribe must agree to pay for solar energy for a 20-year term. Solar equipment is installed, owned and maintained by a third-party solar investment company under a long-term contract with the utility. The program is currently not accepting new participants.

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

N/A. Lakeland Electric is not an investor-owned utility.

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

    Lakeland Electric does typically experience solar generation during summer and winter peaks. However, the solar installed capacity in LE is small and LE has not assessed the percentage capacity contribution for solar yet.

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

A declining trend in the cost of lithium ion energy storage has been observed as technology improves and as more providers enter the market.

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

Flow batteries have emerged as major candidates in the development of large-scale battery storage. These battery technologies have long cycle life, 100% depth of discharge and no capacity degradation. As a result, it is suitable for frequent cycling to maintain secondary response for varying renewable resources. For these applications, flow batteries will have competitive advantage over lithium-ion batteries.

The cost has about 50% premium over lithium-ion batteries as of now. But this technology is in the early deployment and is in the industry's main focus for rapid growth in terms of research and development.

There is 200 MW, 800 MWh size flow batteries being developed by Rongke Power in China, and if successful – it can provide a flexible energy storage resources in the future for the electric industry. Lithium-ion batteries remain the technology of choice to date, according to Bloomberg. But vanadium redox flow battery companies have promised significant cost reductions compared to lithium-ion competitors.

Cell Cube Energy Storage Systems, Inc., a Canada-listed maker of batteries system predicts they can last for as long as two decades and cost may halve within for years, potentially boosting its uptake over lithium-ion units.

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

    Lakeland has one 40kwh pilot battery storage system. The site of this battery storage system was selected based on customer peak and duration of peak load that this system will serve.

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

    Interest in energy storage technologies has been expressed by a limited number of customers. LE is weighing possible options to address this interest.

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

| Project Name | Pilot Program (Y/N) | In-Service/ Pilot Start Date | Max Capacity Output (MW) | Max Energy Stored (MHh) |
|---|---|---|---|---|
| Lakeland Electric Battery Project | Y | 10/2017 | 0.006 | .0388 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| **Notes** | | | | |
| (Include Notes Here) | | | | |

43. Please identify and describe the objectives and methodologies of all energy storage pilot programs currently running or in development with an anticipated launch date within the next 10 years.

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

    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.

       The storage project under study in Lakeland Electric is smaller than 1 MW.

    b. Please provide a brief assessment of how these benefits, risks, and operational limitations may change over the next 10 years.

       N/A

    c. Please identify and describe any plans to periodically update the Commission on the status of your energy storage pilot programs.

       Not yet decided yet since the pilot project is small and still we are collecting data.

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

LE has about 15 MW of non-firm solar contract, and it is conducting a small demonstration project of 40 kWh. If storage project provides high energy and capacity value, LE may consider utilizing more storage technologies in future.

45. Please identify and describe any programs you offer that allow your customers to contribute towards the funding of specific renewable projects, such as community solar programs.

    NONE

    a. Please describe any such programs in development with an anticipated launch date within the next 10 years.

       NONE

46. Please identify and discuss the Company's role in the research and development of utility power technologies. As part of this response, please describe any plans to implement the results of research and development into the Company's system portfolio and discuss how any anticipated benefits will affect your customers.

N/A

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

**As-Available Energy Rates**

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

N/A. LE is not an investor-owned utility.

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

**Planned Unit Additions**

| Generating Unit Name | Summer Capacity (MW) | Certification Dates (if Applicable) | | In-Service Date |
|---|---|---|---|---|
| | | Need Approved (Commission) | PPSA Certified | |
| **Nuclear Unit Additions** | | | | |
| | | | | |
| **Combustion Turbine Unit Additions** | | | | |
| C.D. McIntosh Gas Turbine #2 | 115 | N/A | N/A | Apr-19 |
| **Combined Cycle Unit Additions** | | | | |
| | | | | |
| **Steam Turbine Unit Additions** | | | | |
| | | | | |
| **Notes** | | | | |
| | | | | |

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

    The planned unit (MCINTOSH UNIT GT 2) was approved by the City of Lakeland in April of 2018.

    No construction time line was available as of 12/31/2018.

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

    Lakeland Electric included $881,700 in our revenue requirement for the MCINTOSH UNIT GT2 debt service.

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

The 'next best alternative' was a used GE 7FA."
Information similar to Schedule 9:
"Capacity: Summer 240 MW Winter 243 MW
Fuel: Primary NG Alternative DFO
Air Pollution Control Strategy: Water Injection
Cooling Method: Air
Total Site Area: 2 Acres
Projected Unit Performance Data:
Planned Outage Factor: 2%
Forced Outage Factor: 2%
Equivalent Availability Factor: 96%
Resulting Capacity Factor: <10%
Average Net Operating Heat Rate: 10,500
Book Life: 20 years"
The additional revenue requirement that would have been associated with the next best alternative compared to the planned unit is not available.

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

See Attached

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

| Plant | Unit # | Unit Type | Fuel Type | Actual | Projected | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| McIntosh | 2 | Steam | NG/RFO | - | - | - | - | - | - | - | - | - | - | - |
| McIntosh | 3 | Steam | Coal | 56.5 | 37.0 | 57.0 | 68.0 | 69.0 | 72.0 | 69.0 | 46.0 | 42.0 | 40.0 | 28.0 |
| McIntosh | 1 | GT | NG/DFO | 0.1 | - | - | - | - | - | - | - | - | - | - |
| McIntosh | 1 | IC | DFO | 0.1 | - | - | - | - | - | - | - | - | - | - |
| McIntosh | 2 | IC | DFO | 0.0 | - | - | - | - | - | - | - | - | - | - |
| McIntosh | 5 | CC | NG | 68.4 | 81.0 | 71.0 | 75.0 | 74.0 | 63.0 | 79.0 | 76.0 | 76.0 | 84.0 | 81.0 |
| Larsen | 8 | CC | NG/DFO | 8.6 | 6.0 | 4.0 | 4.0 | 5.0 | 5.0 | 4.0 | 5.0 | 6.0 | 6.0 | 5.0 |
| Larsen | 2 | GT | NG/DFO | - | - | - | - | - | - | - | - | - | - | - |
| Larsen | 3 | GT | NG/DFO | 0.0 | - | - | - | - | - | - | - | - | - | - |
| Winston | 1-20 | IC | DFO | 0.1 | - | - | - | - | - | - | - | - | - | - |
| McIntosh [#] | 2 | GT | NG/DFO | - | - | 2.0 | - | 1.0 | 1.0 | - | 1.0 | 1.0 | 1.0 | 1.0 |
| Solar [$] | | PV | SUN | 19.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 |
| | | | | | | | | | | | | | | |

**Notes: *Gross Capacity Factor, [#] New GT to be installed in 2020. [$] Community Solar**

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

LE does not have any planned retirement date for any of the above units.

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

**Repowering Candidate Units - Steam**

| Plant Name | Fuel Type | Summer Capacity (MW) | In-Service Date | Potential Conversion | Potential Issues |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| **Notes** | | | | | |
| (Include Notes Here) | | | | | |

Lakeland Electric does not have any plan for repowering any of the steam units into Combined Cycle Unit.

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

**Existing Purchased Power Agreements**

| Seller | Contract Term | | Contract Capacity (MW) | | Capacity Factor | Primary Fuel (if any) | Firm Capacity | Description |
|---|---|---|---|---|---|---|---|---|
| | Begins | Ends | Summer | Winter | % | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Notes** | | | | | | | | |
| (Include Notes Here) | | | | | | | | |

**Planned Purchased Power Agreements**

| Seller | Contract Term | | Contract Capacity (MW) | | Capacity Factor | Primary Fuel (if any) | Firm Capacity | Description |
|---|---|---|---|---|---|---|---|---|
| | Begins | Ends | Summer | Winter | % | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Notes** | | | | | | | | |
| (Include Notes Here) | | | | | | | | |

There is no planned and expected Power/capacity purchase/import planned for the duration.

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

**Existing Power Sales**

| Purchaser | Contract Term | | Contract Capacity (MW) | | Capacity Factor | Primary Fuel (if any) | Firm Demand | Description |
|---|---|---|---|---|---|---|---|---|
| | Begins | Ends | Summer | Winter | % | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Notes** | | | | | | | | |
| (Include Notes Here) | | | | | | | | |

**Planned Power Sales**

| Purchaser | Contract Term | | Contract Capacity (MW) | | Capacity Factor | Primary Fuel (if any) | Firm Demand | Description |
|---|---|---|---|---|---|---|---|---|
| | Begins | Ends | Summer | Winter | % | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Notes** | | | | | | | | |
| (Include Notes Here) | | | | | | | | |

There is no planned and expected Power/capacity Contracts/exports planned for the duration.

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

N/A

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

**Transmission Projects Requiring TLSA Approval**

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

**Environmental**

59. Provide a narrative explaining the impact of any *existing* environmental regulations relating to air emissions and water quality or waste issues on the Company's system during the 2018 period.

    As part of your narrative, please discuss the potential for *existing* environmental regulations to impact unit dispatch, curtailments, or retirements during the 2019–2028 period.

    The Steam Electric Power Effluent Limitation Guidelines (ELG) approved in November 2015 has recently been stayed by the US EPA. This rule impacted coal burning units. In addition to the stay, EPA has announced plans to reconsider the rule with additional rulemaking. Before the rule was stayed, we were looking at significant investment to meet the strict guidelines. The investment was great enough that retirement was also considered. Outcomes of the rulemaking could influence early retirement decisions.

    The Cooling Water Intake Structures Rule (CWIS) Rule affects units that use surface water for cooling purposes. Two of our units are affected by this rule. Unit 2 has not used surface water for cooling for a number of years and is not planned for use anytime in the near future. However, Unit 8 will feel impacts by this rule. As long as Unit 8's capacity factor remains below 8% over a 24-month rolling period, the impacts are minimal. Once the capacity factor exceeds 8%, an intensive ecological study must be endeavored. At the end of the study, it is quite likely the traveling screens on the intake structures must be upgraded to meet stricter standards. The upgraded traveling screens are estimated to cost several million dollars. One alternative to purchasing the upgraded screens is to operate the unit in a simple cycle which would eliminate the need for the cooling water intake, but reduce the electrical output of the unit.

    The Coal Combustion Residuals (CCR) rule took effect in 2015 by regulating the storage of coal combustion byproducts. Lakeland Electric stores only dry byproducts onsite. The regulations required additional monitoring of the groundwater around the byproduct storage site. We are in the midst of determining the nature and extent of groundwater impacts around the byproduct storage area. Final impacts of the rule will not be known until the nature and extent of groundwater impacts are fully understood.

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

**Emissions of Registered Air Pollutants & CO2**

| Year | | SOX | | NOX | | Mercury | | Particulates | | CO2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/MWh | Tons | lb/MWh | Tons | lb/MWh | Tons | lb/MWh | Tons | lb/MWh | Tons |
| Actual | **2009** | 2.3708 | 3,876.9 | 1.7946 | 2,934.6 | 0.00008275 | 0.135312 | 0.1408 | 230.3 | 1,686 | 2,757,074 |
| | **2010** | 2.6270 | 4,243.0 | 0.9849 | 1,590.7 | 0.00001569 | 0.025343 | 0.1197 | 193.3 | 1,604 | 2,590,776 |
| | **2011** | 2.2963 | 4,256.8 | 0.8905 | 1,650.8 | 0.00001350 | 0.025034 | 0.0972 | 180.2 | 1,401 | 2,597,932 |
| | **2012** | 2.7696 | 5,153.3 | 0.9743 | 1,812.8 | 0.00001291 | 0.024017 | 0.0874 | 162.6 | 1,387 | 2,580,538 |
| | **2013** | 3.4898 | 5,792.6 | 1.1303 | 1,876.1 | 0.00001552 | 0.025768 | 0.0860 | 142.7 | 1,491 | 2,475,256 |
| | **2014** | 1.9765 | 2,156.7 | 0.8079 | 881.6 | 0.00000883 | 0.009635 | 0.0485 | 52.9 | 1,221 | 1,332,455 |
| | **2015** | 1.2386 | 2,205.5 | 0.9646 | 1,717.7 | 0.00000154 | 0.002743 | 0.0526 | 93.6 | 1,492 | 2,656,043 |
| | **2016** | 0.7921 | 1,274.8 | 0.8575 | 1,380.1 | 0.00000229 | 0.003689 | 0.0437 | 70.3 | 1,390 | 2,236,779 |
| | **2017** | 0.9748 | 1,459.3 | 1.2162 | 1,820.8 | 0.00000121 | 0.001811 | 0.0502 | 75.1 | 1,596 | 2,388,683 |
| | **2018** | 0.8541 | 1,656.1 | 0.8980 | 1,741.4 | 0.00000102 | 0.001981 | 0.0524 | 101.7 | 1,448 | 2,808,446 |
| Projected | **2019** | 0.8736 | 1,373.6 | 0.9902 | 1,556.9 | 0.00000151 | 0.002371 | 0.0497 | 78.2 | 1,458 | 2,292,099 |
| | **2020** | 0.8736 | 1,409.6 | 0.9902 | 1,597.7 | 0.00000151 | 0.002433 | 0.0497 | 80.2 | 1,458 | 2,352,242 |
| | **2021** | 0.8736 | 1,532.6 | 0.9902 | 1,737.0 | 0.00000151 | 0.002645 | 0.0497 | 87.2 | 1,458 | 2,557,358 |
| | **2022** | 0.8736 | 1,525.0 | 0.9902 | 1,728.5 | 0.00000151 | 0.002632 | 0.0497 | 86.8 | 1,458 | 2,544,775 |
| | **2023** | 0.8736 | 1,407.4 | 0.9902 | 1,595.2 | 0.00000151 | 0.002429 | 0.0497 | 80.1 | 1,458 | 2,348,531 |
| | **2024** | 0.8736 | 1,578.6 | 0.9902 | 1,789.2 | 0.00000151 | 0.002724 | 0.0497 | 89.8 | 1,458 | 2,634,124 |
| | **2025** | 0.8736 | 1,380.8 | 0.9902 | 1,565.0 | 0.00000151 | 0.002383 | 0.0497 | 78.6 | 1,458 | 2,304,102 |
| | **2026** | 0.8736 | 1,352.9 | 0.9902 | 1,533.4 | 0.00000151 | 0.002335 | 0.0497 | 77.0 | 1,458 | 2,257,625 |
| | **2027** | 0.8736 | 1,439.7 | 0.9902 | 1,631.8 | 0.00000151 | 0.002485 | 0.0497 | 81.9 | 1,458 | 2,402,361 |
| | **2028** | 0.8736 | 1,300.7 | 0.9902 | 1,474.3 | 0.00000151 | 0.002245 | 0.0497 | 74.0 | 1,458 | 2,170,475 |

**Notes**

- $SO_2$ and Hg emissions decreased starting in 2015 due to MATS.
- Emission estimates for all pollutants are based on historical averages.
- All MWh or on a net basis.

61. For the U.S. Environmental Protection Agency's (EPA's) Mercury and Air Toxics Standards (MATS) Rule:
    a. Will your Company be materially affected by the rule?

    Yes, our Unit 3 (coal-fired) is affected, while Unit 2 (oil/gas-fired) is exempt (dependent on the amount of oil burned in the unit; see b.).

    b. What compliance strategy does the Company anticipate employing for the rule?
    Lakeland Electric upgraded the Unit 3 scrubber in early 2015, with additional upgrades occurring during the 2016 spring outage, in order to comply with the MATS $SO_2$ limit. LE also utilizes scrubber additives to additionally reduce Hg and $SO_2$ emissions. New continuous emission monitoring system for PM was installed to demonstrate compliance with the new MATS limit. Additionally, Unit 2 is now limited to less than 10% of annual heat input (3-yr average) or 15% (any calendar year) from oil in order to be exempt from MATS.

    c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?
    N/A
    d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
    No

e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding MATS-related costs:

| Year | Estimated Cost of Mercury and Air Toxics Standards (MATS) Rule Impacts (2019 $ millions) | | | |
|---|---|---|---|---|
| | Capital Costs | O&M Costs | Fuel Costs | Total Costs |
| **2019** | $0 | $0.043 | $0.685 | $0.728 |
| **2020** | $0 | $0.043 | $0.685 | $0.728 |
| **2021** | $0 | $0.043 | $0.685 | $0.728 |
| **2022** | $0 | $0.043 | $0.685 | $0.728 |
| **2023** | $0 | $0.043 | $0.685 | $0.728 |
| **2024** | $0 | $0.043 | $0.685 | $0.728 |
| **2025** | $0 | $0.043 | $0.685 | $0.728 |
| **2026** | $0 | $0.043 | $0.685 | $0.728 |
| **2027** | $0 | $0.043 | $0.685 | $0.728 |
| **2028** | $0 | $0.043 | $0.685 | $0.728 |
| **Notes** | | | | |
| - Total capital expenditure ($3,785,987) occurred in fiscal years 2014, 2015 and 2016.<br>- Annual fuel cost is in fact increased limestone cost due to the increased $SO_2$ removal associated with MATS. This cost is included in the fuel adjustment and is recovered.<br>- LE implemented an "environmental compliance charge" on customer bills a few years ago so O&M cost and annual allocation of capital expense are likely being recovered. | | | | |

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

N/A

62. For the U.S. EPA's Cross-State Air Pollution Rule (CSAPR):
    a. Will your Company be materially affected by the rule?

Currently, none of our units are subject to this rule. Units 2, 3, 5, and 8 were subject to the old CAIR and CSAPR rules, but EPA's latest iteration of the transport rule ("CSAPR Update") does not include Florida.

b. What compliance strategy does the Company anticipate employing for the rule?
Not applicable because Florida is exempt (Note: Units 3 and 5 have SCR systems installed for $NO_x$ control, while Unit 8 utilizes water injection, also for $NO_x$).

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

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

e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CSAPR-related costs:

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

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

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

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

It is possible, but the final impact of the rule will depend on the results of additional studies and how the rule is implemented by state regulators based on site-specific factors.

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

Our strategy will be dependent on the results of studies that have yet to be completed.

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

The compliance strategy will be completed once the studies have been completed ahead of the next permit renewal cycle in 2021.

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

Regardless of the compliance strategy that is implemented, we will need the acceptance of state regulators. The next permit renewal includes the timeline for regulatory approval.

e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CWIS-related costs:

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

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

64. For the U.S. EPA's Coal Combustion Residuals Rule (CCR), both for classification of coal ash as a "Non-Hazardous Waste" and as a "Special Waste."
    a. Will your Company be materially affected by the rule?

    Yes, our affected unit is Unit 3.

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

    Compliance strategy is still being evaluated, but we expect to keep selling all our by-products (fly ash, bottom ash, gypsum) to the greatest extent possible. We will continue to follow all rules and provisions that are set forth in Federal and State programs.

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

    We intend to complete all CCR rule requirements by the rule deadlines.

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

    If the rules stay as they are currently written, the CCR rules are self-implementing. There are no approvals needed for implementing compliance strategies. If Florida adopts a state permitting program, as it has indicated that it plans to do, then we would need regulatory approval for any compliance strategy. This would most likely result in a lengthened timeline due to negotiation of permit conditions.

    e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CCR-related costs:

| Year | Estimated Coal Combustion Residuals Rule (CCR) Impacts (2018 $ millions) | | | |
|---|---|---|---|---|
| | Capital Costs | O&M Costs | Fuel Costs | Total Costs |
| 2019 | $0 | $0.6 | $0 | $0.6 |
| 2020 | $0 | $0.1 | $0 | $0.2 |
| 2021 | $0 | $0.1 | $0 | $0.1 |
| 2022 | $0 | $0.1 | $0 | $0.1 |
| 2023 | $0 | $0.1 | $0 | $0.1 |
| 2024 | $0 | $0.1 | $0 | $0.1 |
| 2025 | $0 | $0.1 | $0 | $0.1 |
| 2026 | $0 | $0.1 | $0 | $0.1 |
| 2027 | $0 | $0.1 | $0 | $0.1 |
| 2028 | $0 | $0.1 | $0 | $0.1 |
| Notes | | | | |
| (Include Notes Here) | | | | |

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

    N/A

65. 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?
    Future of the existing NSPS GHG rule is uncertain due to recent actions by current EPA administration. A revised NSPS GHG Rule was proposed in December 2018.
    b. What compliance strategy does the Company anticipate employing for the rule?
    N/A
    c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?
    N/A
    d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
    N/A
    e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding costs:

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

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

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

See Attached.

| Unit | Unit Type | Fuel Type | Net Sum Capacity (MW) | Type of EPA Rule Impacts | | | | | Anticipated Impacts |
|---|---|---|---|---|---|---|---|---|---|
| | | | | MATS | CSAPR/ CAIR | CWIS | CCR | | |
| | | | | | | | Non-Hazardous Waste | Special Waste | |
| 2 | Steam | Gas/oil | 106 | X | | X | | | Fuel restrictions (MATS). |
| 3 | Steam | Coal | 342 | X | | | X | X | Scrubber upgrade (already completed) and use of scrubber additives (MATS). |
| 5 | CC | Gas | 338 | | | | | | |
| 8 | CC | Gas/oil | 105 | | | X | | | Possible operation limited to simple cycle only[1] |
| **Notes** | | | | | | | | | |
| [1]Dependent on the costs of CWIS compliance strategies. | | | | | | | | | |

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

See Attached.

| Unit | Unit Type | Fuel Type | Net Sum Capacity (MW) | Estimated Cost of EPA Rules Impacts (2018 $ millions) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | MATS | CSAPR/CAIR | CWIS | CCR | | Anticipated Impacts | Total Cost |
| | | | | | | | Non-Hazardous Waste | Special Waste | | |
| 2 | Steam | Gas/oil | 106 | X | | X | | | See 66. | None expected. |
| 3 | Steam | Coal | 342 | X | | | X | X | See 66. | See 61 and 64[1]. |
| 5 | CC | Gas | 338 | | | | | | | |
| 8 | CC | Gas/oil | 105 | | | X | | | | Unknown at this point. |
| **Notes** | | | | | | | | | | |
| [1]Depending on the outcome of the ELG rulemaking, significant costs could be expected. | | | | | | | | | | |

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

    See Attached.

| Unit | Unit Type | Fuel Type | Net Sum Capacity (MW) | Estimated Timing of EPA Rule Impacts (Month/Year - Duration) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | MATS | CSAPR/ CAIR | CWIS | CCR | |
| | | | | | | | Non-Hazardous Waste | Special Waste |
| 2 | Steam | Gas/oil | 106 | X | | X | | |
| 3 | Steam | Coal | 342 | X | | | X | X |
| 5 | CC | Gas | 338 | | | | | |
| 8 | CC | Gas/oil | 105 | | | X | | |
| **Notes** | | | | | | | | |
| Retirements, curtailments, installation of additional controls, or additional maintenance not expected, except for Unit 8 whose operation may be limited due to CWIS (316(b)) rule – requirements are considerably less stringent if capacity factor remains below 8%. Additionally, depending on the ELG rulemaking, Unit 3 may need to be offline in the future for short periods of time to install compliance equipment. | | | | | | | | |

69. Explain any expected reliability impacts resulting from each of the EPA rules listed below. As part of your explanation, please discuss the impacts of transmission constraints and units not modified by the rule, that may be required to maintain reliability if unit retirements, curtailments, additional emissions control upgrades, or longer outage times due to each of these EPA rules.
    a. Mercury and Air Toxics Standards (MATS) Rule.
    b. Cross-State Air Pollution Rule (CSAPR).
    c. Cooling Water Intake Structures (CWIS) Rule.
    d. Coal Combustion Residuals (CCR) Rule.
    e. Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units.

    The only unit that may be impacted by the rules listed above is Unit 8 which is subject to the Cooling Water Intake Structures Rule (316(b)). Additional environmental studies will need to be completed. If state regulators review the studies and determine we must comply with each provision of the rule, a decision would be needed whether to invest in significant capital expenses or to limit the Unit to simple cycle operation. It is possible that the results of the studies and negotiations with regulators bring about no significant change to Unit 8.

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

    N/A

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

    Clean Power Plan (CPP) had the potential to significantly impact operation of most of our generating units. However, following Supreme Court's stay of this rule in February 2016 as well as new administration's recent actions to repeal it and replace with a new $CO_2$ regulation, it is very unlikely that CPP will survive. The CPP replacement rule, Affordable Clean Energy (ACE), has been proposed and is expected to be finalized in 2019. As proposed, the ACE rule would only affect our coal-fired Unit 3. Future rulemaking that would cover gas-fired units is possible. While it is unknown at this point how all these proposed and potential new $CO_2$ rules would affect Lakeland Electric's generating units, our utility has been evaluating less carbon-intensive options for future generation.

## Fuel Supply & Transportation

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

**Average Fuel Price Comparison**

| Year | | Uranium | | Coal | | Natural Gas | | Residual Oil | | Distillate Oil | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | GWh | $/MMBTU | GWh | $/MMBTU | GWh | $/MMBTU | GWh | $/MMBTU | GWh | $/MMBTU |
| Actual | 2009 | n/a | n/a | 964 | $3.62 | 1,664 | $5.79 | 1 | $11.13 | 0 | $15.48 |
| | 2010 | n/a | n/a | 843 | $3.83 | 1,826 | $5.67 | 0 | $10.64 | 5 | $15.70 |
| | 2011 | n/a | n/a | 821 | $4.40 | 2,346 | $4.69 | 0 | $15.91 | 0 | $21.36 |
| | 2012 | n/a | n/a | 759 | $4.20 | 2,464 | $2.95 | 0 | $15.12 | 0 | $20.50 |
| | 2013 | n/a | n/a | 786 | $3.78 | 2,018 | $5.01 | 0 | $15.51 | 0 | $20.93 |
| | 2014 | n/a | n/a | 278 | $3.65 | 1714 | $4.49 | 0 | $11.63 | 0 | $20.07 |
| | 2015 | n/a | n/a | 686 | $3.10 | 2,985 | $3.57 | 0 | $10.71 | 0 | $19.17 |
| | 2016 | n/a | n/a | 1,555 | $3.29 | 1,892 | $2.48 | 0 | $10.39 | 0 | $12.25 |
| | 2017 | n/a | n/a | 1,389 | $2.81 | 1,617 | $2.50 | 1 | $11.60 | 0 | $16.56 |
| | 2018 | n/a | n/a | 969 | $2.77 | 2270 | $3.45 | N/A | N/A | 0 | $14.64 |
| Projected | 2019 | n/a | n/a | 673 | $2.95 | 2475 | $3.70 | 0 | 0 | 0 | $14.99 |
| | 2020 | n/a | n/a | 1032 | $3.02 | 2201 | $3.99 | 0 | 0 | 0 | $15.82 |
| | 2021 | n/a | n/a | 1228 | $3.09 | 2287? | $3.96 | 0 | 0 | 0 | $16.60 |
| | 2022 | n/a | n/a | 1238 | $3.17 | 2219 | $3.99 | 0 | 0 | 0 | $16.85 |
| | 2023 | n/a | n/a | 1288 | $3.24 | 1941 | $4.13 | 0 | 0 | 0 | $17.65 |
| | 2024 | n/a | n/a | 1235 | $3.32 | 2384 | $4.24 | 0 | 0 | 0 | $18.85 |
| | 2025 | n/a | n/a | 831 | $3.41 | 2336 | $4.37 | 0 | 0 | 0 | $19.98 |
| | 2026 | n/a | n/a | 753 | $3.50 | 2351 | $4.42 | 0 | 0 | 0 | $20.99 |
| | 2027 | n/a | n/a | 719 | $3.59 | 2583 | $4.47 | 0 | 0 | 0 | $22.08 |
| | 2028 | n/a | n/a | 508 | $3.68 | 2471 | $4.49 | 0 | 0 | 0 | $23.05 |
| **Notes508?** | | | | | | | | | | | |
| (Include Notes Here) | | | | | | | | | | | |

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

Lakeland Electric uses traditional and widely-used methodologies to forecast pricing for natural gas, coal, and oil. Once forecasts are produced, we typically compare them to regionally-focused Energy Information Agency (EIA) projections of costs, along with outside vendors such as Energy Ventures Analysis, Wood MacKenzie, information in Platts, The Energy Authority, and finally to projections made by other utilities both within and outside of our power pool – Florida Municipal Power Pool (FMPP). Lakeland is one of the three members of FMPP.

74. Please identify and discuss expected industry trends and factors for each fuel type (coal, natural gas, nuclear fuel, oil, etc.) that may affect the Company during the period 2019–2028.
    a. Coal
    b. Natural Gas
    c. Nuclear (if applicable)
    d. Fuel Oil
    e. Other (please specify each, if any)

        i. Coal – While the coal industry continues to face uncertain times, a reduction in regulation is helping the life cycles of plants. Coal exports to other countries are sustaining the price of coal and helping coal producers continue operations.
        ii. Natural Gas – Current market futures trading is below $3 through 2023 and below $4 through 2030. The market lacks the volatility it once experienced, but that may change with the continuing retirement of coal units both in Florida and nationally. Pipeline capacity within Florida seems adequate for today's demands, but that may change with increasing reliability on natural gas for generation facilities in the state of Florida.
        iii. Nuclear (if applicable) – Not applicable.
        iv. Fuel Oil – Fuel oil is generally used only as an emergency fuel. LE maintains a supply for that purpose, but fuel oil prices preclude it from being used as a means of economically dispatching units.
        v. Other (please specify each, if any) - Solar – Solar power is being installed by a lot of utilities and represents both a challenge and opportunity to the utility. Solar can complicate the generation process in some instances, but it helps reduce our reliance on fossil fuels as well.

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

The City holds firm transportation rights on the Florida Gas Transmission (FGT) pipeline with variable volumes by month. The capacity falls under two rate classifications; FTS-1 and FTS-2. The two contracts under FTS-1 expire in 2030 and the two contracts under FTS-2 expire in 2025 and 2027. All FTS contracts will be renewed before expiration. The City also has three firm contracts on Gulfstream that are effective through May 2022, December 2027 and April 2037.

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

No current expansions planned.

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

LNG may have the tendency to increase natural gas prices if the fuel is sold to overseas interests and if domestic demand for natural gas increases. Domestic use will increase in the years to come, since many power producers are switching to natural gas units due to their lower heat rates and the low-cost availability of gas. Current natural gas rig technology makes it much more likely that the fuel is sold to overseas interests rather than being imported.

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

No plans at present time.

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

The City has a coal transportation contract with CSX ending December 31, 2019. The City has imported Colombian coal through the Port of Tampa in the past and used trucking to deliver it. While the most efficient coal delivery method is by rail since the coal yard is designed for bottom dump hopper railcars, LE will continue to look at all methods of transportation to bring the best value to our ratepayers.

Rail transportation rates have risen to high levels because some coal production regions no longer produce the amount of coal they once did. The rising rates then result in higher production costs for coal generation units. The problem is further exacerbated by coal units generally having higher heat rates than natural gas units. The impact of the higher rail rates the hastens the shuttering of coal units.

The utility might partner with another Investor Owned Utility to split cargo on vessels to be able to bring in larger volumes of coal for more competitive pricing.

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

With the use of our plant simulation software, we are better able to identify desirable blends of coal for economic, environmental, and operational requirements. We have new mines available on our CSX contract that will allow us to choose blending coals, which in turn allows us to meet environmental requirements while still meeting the needs of our ratepayers. Upgrades to the scrubber has allow the utility to burn 100% Illinois basin coal for longer periods of time, reducing the cost of blending making our coal dispatch more competitive.

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

**N/A**

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

**N/A**

**Appendix A of Lakeland's Supplemental Questions #1 reference 20190000-OT follows:**

**Electronic Excel file has been emailed to: dwright@psc.state.fl.us**

## History and Forecast of Summer Peak Demand
## High Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|
| Year | Total | Wholesale | Retail | Interruptible | Residential Load Management | Residential Conservation | C / I Load Management | C / I Conservation | Net Firm Demand |
| **HISTORY:** | | | | | | | | | |
| 2009 | 625 | 0 | 625 | 0 | 0 | 0 | 0 | 0 | 625 |
| 2010 | 638 | 0 | 638 | 0 | 0 | 0 | 0 | 0 | 638 |
| 2011 | 611 | 0 | 611 | 0 | 0 | 0 | 0 | 0 | 611 |
| 2012 | 590 | 0 | 590 | 0 | 0 | 0 | 0 | 0 | 590 |
| 2013 | 602 | 0 | 602 | 0 | 0 | 0 | 0 | 0 | 602 |
| 2014 | 627 | 0 | 627 | 0 | 0 | 0 | 0 | 0 | 627 |
| 2015 | 630 | 0 | 630 | 0 | 0 | 0 | 0 | 0 | 630 |
| 2016 | 647 | 0 | 647 | 0 | 0 | 0 | 0 | 0 | 647 |
| 2017 | 643 | 0 | 643 | 0 | 0 | 0 | 0 | 0 | 643 |
| 2018 | 637 | 0 | 637 | 0 | 0 | 0 | 0 | 0 | 637 |
| **FORECAST:** | | | | | | | | | |
| 2019 | 648 | 0 | 648 | 0 | 0 | 0 | 0 | 0 | 648 |
| 2020 | 653 | 0 | 653 | 0 | 0 | 0 | 0 | 0 | 653 |
| 2021 | 658 | 0 | 658 | 0 | 0 | 0 | 0 | 0 | 658 |
| 2022 | 664 | 0 | 664 | 0 | 0 | 0 | 0 | 0 | 664 |
| 2023 | 670 | 0 | 670 | 0 | 0 | 0 | 0 | 0 | 670 |
| 2024 | 677 | 0 | 677 | 0 | 0 | 0 | 0 | 0 | 677 |
| 2025 | 683 | 0 | 683 | 0 | 0 | 0 | 0 | 0 | 683 |
| 2026 | 689 | 0 | 689 | 0 | 0 | 0 | 0 | 0 | 689 |
| 2027 | 696 | 0 | 696 | 0 | 0 | 0 | 0 | 0 | 696 |
| 2028 | 705 | 0 | 705 | 0 | 0 | 0 | 0 | 0 | 705 |

## History and Forecast of Summer Peak Demand
## Low Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|
| Year | Total | Wholesale | Retail | Interruptible | Residential Load Management | Residential Conservation | C / I Load Management | C / I Conservation | Net Firm Demand |
| **HISTORY:** | | | | | | | | | |
| 2009 | 625 | 0 | 625 | 0 | 0 | 0 | 0 | 0 | 625 |
| 2010 | 638 | 0 | 638 | 0 | 0 | 0 | 0 | 0 | 638 |
| 2011 | 611 | 0 | 611 | 0 | 0 | 0 | 0 | 0 | 611 |
| 2012 | 590 | 0 | 590 | 0 | 0 | 0 | 0 | 0 | 590 |
| 2013 | 602 | 0 | 602 | 0 | 0 | 0 | 0 | 0 | 602 |
| 2014 | 627 | 0 | 627 | 0 | 0 | 0 | 0 | 0 | 627 |
| 2015 | 630 | 0 | 630 | 0 | 0 | 0 | 0 | 0 | 630 |
| 2016 | 647 | 0 | 647 | 0 | 0 | 0 | 0 | 0 | 647 |
| 2017 | 643 | 0 | 643 | 0 | 0 | 0 | 0 | 0 | 643 |
| 2018 | 637 | 0 | 637 | 0 | 0 | 0 | 0 | 0 | 637 |
| **FORECAST:** | | | | | | | | | |
| 2019 | 641 | 0 | 641 | 0 | 0 | 0 | 0 | 0 | 641 |
| 2020 | 646 | 0 | 646 | 0 | 0 | 0 | 0 | 0 | 646 |
| 2021 | 651 | 0 | 651 | 0 | 0 | 0 | 0 | 0 | 651 |
| 2022 | 657 | 0 | 657 | 0 | 0 | 0 | 0 | 0 | 657 |
| 2023 | 663 | 0 | 663 | 0 | 0 | 0 | 0 | 0 | 663 |
| 2024 | 670 | 0 | 670 | 0 | 0 | 0 | 0 | 0 | 670 |
| 2025 | 675 | 0 | 675 | 0 | 0 | 0 | 0 | 0 | 675 |
| 2026 | 682 | 0 | 682 | 0 | 0 | 0 | 0 | 0 | 682 |
| 2027 | 688 | 0 | 688 | 0 | 0 | 0 | 0 | 0 | 688 |
| 2028 | 697 | 0 | 697 | 0 | 0 | 0 | 0 | 0 | 697 |

## History and Forecast of Winter Peak Demand
## High Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|
| Year | Total | Wholesale | Retail | Interruptible | Residential Load Management | Residential Conservation | C / I Load Management | C / I Conservation | Net Firm Demand |
| **HISTORY:** | | | | | | | | | |
| 2009/10 | 804 | 0 | 804 | 0 | 0 | 0 | 0 | 0 | 804 |
| 2010/11 | 665 | 0 | 665 | 0 | 0 | 0 | 0 | 0 | 665 |
| 2011/12 | 612 | 0 | 612 | 0 | 0 | 0 | 0 | 0 | 612 |
| 2012/13 | 553 | 0 | 553 | 0 | 0 | 0 | 0 | 0 | 553 |
| 2013/14 | 579 | 0 | 579 | 0 | 0 | 0 | 0 | 0 | 579 |
| 2014/15 | 656 | 0 | 656 | 0 | 0 | 0 | 0 | 0 | 656 |
| 2015/16 | 588 | 0 | 588 | 0 | 0 | 0 | 0 | 0 | 588 |
| 2016/17 | 539 | 0 | 539 | 0 | 0 | 0 | 0 | 0 | 539 |
| 2017/18 | 704 | 0 | 704 | 0 | 0 | 0 | 0 | 0 | 704 |
| 2018/19 | 550 | 0 | 550 | 0 | 0 | 0 | 0 | 0 | 550 |
| **FORECAST:** | | | | | | | | | |
| 2019/20 | 691 | 0 | 691 | 0 | 0 | 0 | 0 | 0 | 691 |
| 2020/21 | 693 | 0 | 693 | 0 | 0 | 0 | 0 | 0 | 693 |
| 2021/22 | 698 | 0 | 698 | 0 | 0 | 0 | 0 | 0 | 698 |
| 2022/23 | 703 | 0 | 703 | 0 | 0 | 0 | 0 | 0 | 703 |
| 2023/24 | 712 | 0 | 712 | 0 | 0 | 0 | 0 | 0 | 712 |
| 2024/25 | 715 | 0 | 715 | 0 | 0 | 0 | 0 | 0 | 715 |
| 2025/26 | 720 | 0 | 720 | 0 | 0 | 0 | 0 | 0 | 720 |
| 2026/27 | 726 | 0 | 726 | 0 | 0 | 0 | 0 | 0 | 726 |
| 2027/28 | 735 | 0 | 735 | 0 | 0 | 0 | 0 | 0 | 735 |
| 2028/29 | 739 | 0 | 739 | 0 | 0 | 0 | 0 | 0 | 739 |

## History and Forecast of Winter Peak Demand
## Low Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|
| Year | Total | Wholesale | Retail | Interruptible | Residential Load Management | Residential Conservation | C / I Load Management | C / I Conservation | Net Firm Demand |
| **HISTORY:** | | | | | | | | | |
| 2009/10 | 804 | 0 | 804 | 0 | 0 | 0 | 0 | 0 | 804 |
| 2010/11 | 665 | 0 | 665 | 0 | 0 | 0 | 0 | 0 | 665 |
| 2011/12 | 612 | 0 | 612 | 0 | 0 | 0 | 0 | 0 | 612 |
| 2012/13 | 553 | 0 | 553 | 0 | 0 | 0 | 0 | 0 | 553 |
| 2013/14 | 579 | 0 | 579 | 0 | 0 | 0 | 0 | 0 | 579 |
| 2014/15 | 656 | 0 | 656 | 0 | 0 | 0 | 0 | 0 | 656 |
| 2015/16 | 588 | 0 | 588 | 0 | 0 | 0 | 0 | 0 | 588 |
| 2016/17 | 539 | 0 | 539 | 0 | 0 | 0 | 0 | 0 | 539 |
| 2017/18 | 704 | 0 | 704 | 0 | 0 | 0 | 0 | 0 | 704 |
| 2018/19 | 550 | 0 | 550 | 0 | 0 | 0 | 0 | 0 | 550 |
| **FORECAST:** | | | | | | | | | |
| 2019/20 | 682 | 0 | 682 | 0 | 0 | 0 | 0 | 0 | 682 |
| 2020/21 | 684 | 0 | 684 | 0 | 0 | 0 | 0 | 0 | 684 |
| 2021/22 | 689 | 0 | 689 | 0 | 0 | 0 | 0 | 0 | 689 |
| 2022/23 | 694 | 0 | 694 | 0 | 0 | 0 | 0 | 0 | 694 |
| 2023/24 | 702 | 0 | 702 | 0 | 0 | 0 | 0 | 0 | 702 |
| 2024/25 | 705 | 0 | 705 | 0 | 0 | 0 | 0 | 0 | 705 |
| 2025/26 | 711 | 0 | 711 | 0 | 0 | 0 | 0 | 0 | 711 |
| 2026/27 | 716 | 0 | 716 | 0 | 0 | 0 | 0 | 0 | 716 |
| 2027/28 | 725 | 0 | 725 | 0 | 0 | 0 | 0 | 0 | 725 |
| 2028/29 | 729 | 0 | 729 | 0 | 0 | 0 | 0 | 0 | 729 |

## History and Forecast of Annual Net Energy for Load - GWH
## High Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| Year | Total | Residential Conservation | C / I Conservation | Retail | Wholesale | Utility Use & Losses | Net Energy for Load | Load Factor (%) |
| **HISTORY:** | | | | | | | | |
| 2009 | 2992 | 0 | 0 | 2860 | 0 | 132 | 2992 | 48.11 |
| 2010 | 3118 | 0 | 0 | 2966 | 0 | 152 | 3118 | 44.27 |
| 2011 | 2893 | 0 | 0 | 2864 | 0 | 29 | 2893 | 49.67 |
| 2012 | 2873 | 0 | 0 | 2751 | 0 | 122 | 2873 | 53.58 |
| 2013 | 2919 | 0 | 0 | 2831 | 0 | 88 | 2919 | 55.37 |
| 2014 | 3006 | 0 | 0 | 2903 | 0 | 103 | 3006 | 54.73 |
| 2015 | 3126 | 0 | 0 | 3034 | 0 | 92 | 3126 | 54.44 |
| 2016 | 3109 | 0 | 0 | 3030 | 0 | 79 | 3109 | 55.02 |
| 2017 | 3086 | 0 | 0 | 3018 | 0 | 68 | 3086 | 55.02 |
| 2018 | 3118 | 0 | 0 | 3118 | 0 | 62 | 3180 | 54.81 |
| **FORECAST:** | | | | | | | | |
| 2019 | 3212 | 0 | 0 | 3120 | 0 | 92 | 3212 | 53.08 |
| 2020 | 3228 | 0 | 0 | 3136 | 0 | 92 | 3228 | 53.21 |
| 2021 | 3253 | 0 | 0 | 3160 | 0 | 93 | 3253 | 53.22 |
| 2022 | 3283 | 0 | 0 | 3189 | 0 | 94 | 3283 | 53.29 |
| 2023 | 3314 | 0 | 0 | 3219 | 0 | 95 | 3314 | 53.17 |
| 2024 | 3348 | 0 | 0 | 3253 | 0 | 95 | 3348 | 53.49 |
| 2025 | 3381 | 0 | 0 | 3284 | 0 | 97 | 3381 | 53.59 |
| 2026 | 3413 | 0 | 0 | 3315 | 0 | 98 | 3413 | 53.70 |
| 2027 | 3448 | 0 | 0 | 3349 | 0 | 99 | 3448 | 53.55 |
| 2028 | 3387 | 0 | 0 | 3387 | 0 | 100 | 3487 | 53.86 |

## History and Forecast of Annual Net Energy for Load - GWH
## Low Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| Year | Total | Residential Conservation | C / I Conservation | Retail | Wholesale | Utility Use & Losses | Net Energy for Load | Load Factor (%) |
| **HISTORY:** | | | | | | | | |
| 2009 | 2992 | 0 | 0 | 2860 | 0 | 132 | 2992 | 48.11 |
| 2010 | 3118 | 0 | 0 | 2966 | 0 | 152 | 3118 | 44.27 |
| 2011 | 2893 | 0 | 0 | 2864 | 0 | 29 | 2893 | 49.67 |
| 2012 | 2873 | 0 | 0 | 2751 | 0 | 122 | 2873 | 53.58 |
| 2013 | 2919 | 0 | 0 | 2831 | 0 | 88 | 2919 | 55.37 |
| 2014 | 3006 | 0 | 0 | 2903 | 0 | 103 | 3006 | 54.73 |
| 2015 | 3126 | 0 | 0 | 3034 | 0 | 92 | 3126 | 54.44 |
| 2016 | 3109 | 0 | 0 | 3030 | 0 | 79 | 3109 | 55.02 |
| 2017 | 3086 | 0 | 0 | 3018 | 0 | 68 | 3086 | 55.02 |
| 2018 | 3180 | 0 | 0 | 3118 | 0 | 62 | 3180 | 54.81 |
| **FORECAST:** | | | | | | | | |
| 2019 | 3178 | 0 | 0 | 3087 | 0 | 91 | 3178 | 53.19 |
| 2020 | 3192 | 0 | 0 | 3102 | 0 | 91 | 3192 | 53.29 |
| 2021 | 3217 | 0 | 0 | 3125 | 0 | 92 | 3217 | 53.31 |
| 2022 | 3246 | 0 | 0 | 3153 | 0 | 93 | 3246 | 53.38 |
| 2023 | 3277 | 0 | 0 | 3183 | 0 | 94 | 3277 | 53.26 |
| 2024 | 3310 | 0 | 0 | 3216 | 0 | 94 | 3310 | 53.58 |
| 2025 | 3341 | 0 | 0 | 3246 | 0 | 96 | 3341 | 53.69 |
| 2026 | 3373 | 0 | 0 | 3277 | 0 | 97 | 3373 | 53.79 |
| 2027 | 3407 | 0 | 0 | 3309 | 0 | 98 | 3407 | 53.65 |
| 2028 | 3446 | 0 | 0 | 3347 | 0 | 99 | 3446 | 53.96 |

# Existing Generating Unit Operating Performance (2016-2018)

| (1) | (2) | (3) | | | (4) | | | (5) | | | (6) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Planned Outage Factor (POF) | | | Forced Outage Factor (FOF) | | | Equivalent Availability Factor (EAF) | | | Average Net Operating Heat Rate (ANOHR) | |
| Plant Name | Unit No. | Historical | Projected | | Historical | Projected | | Historical | Projected | | Historical | Projected |
| Charles Larsen Memorial | 2 | | | | 100.00 | | | 0.00 | | | N/A | |
| | 3 | | | | 12.55 | | | 85.42 | | | 28,311 | |
| | 8ST | | | | 0.75 | | | 96.59 | | | N/A | |
| | 8CT | | | | 0.36 | | | 97.50 | | | 14,824 | |
| | | | | | | | | | | | | |
| Winston Peaking Station | 1-20 | | | | 0.74 | | | 95.77 | | | N/A | |
| | | | | | | | | | | | | |
| C.D. McIntosh Jr. | D1 | | | | 0.57 | | | 98.57 | | | 14,458 | |
| | D2 | | | | 0.00 | | | 99.20 | | | 19,111 | |
| | GT1 | | | | 1.63 | | | 97.82 | | | 17,029 | |
| | 1* | | | | | | | | | | | |
| | 2 | | | | 57.18 | | | 37.34 | | | 12,630 | |
| | 3 | | | | 2.40 | | | 82.52 | | | 11,039 | |
| | 5ST | | | | 13.71 | | | 75.47 | | | N/A | |
| | 5CT | | | | 13.38 | | | 74.88 | | | 11,321 | |

NOTE: Historical - average of past three years **CY2016 - 2018**

* Unit retired

N/A Not applicable

## Nominal, Delivered Residual Oil Prices
## Base Case



| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|
| | Residual Oil (By Sulfur Content) | | | | | | | | |
| | Less Than 0.7% | | Escalation | 0.7 - 2.0% | | Escalation | Greater Than 2.0% | | Escalation |
| Year | $/BBL | c/MBTU | % | $/BBL | c/MBTU | % | $/BBL | c/MBTU | % |
| **HISTORY:** | | | | | | | | | |
| 2016 | - | 10.39 | - | - | 10.39 | - | - | - | - |
| 2017 | - | 11.6 | - | - | 11.6 | - | - | - | - |
| 2018 | - | N/A | - | - | N/A | - | - | - | - |
| **FORECAST:** | | | | | | | | | |
| 2019 | - | 0 | - | - | 0 | - | - | - | - |
| 2020 | - | 0 | - | - | 0 | - | - | - | - |
| 2021 | - | 0 | - | - | 0 | - | - | - | - |
| 2022 | - | 0 | - | - | 0 | - | - | - | - |
| 2023 | - | 0 | - | - | 0 | - | - | - | - |
| 2024 | - | 0 | - | - | 0 | - | - | - | - |
| 2025 | - | 0 | - | - | 0 | - | - | - | - |
| 2026 | - | 0 | - | - | 0 | - | - | - | - |
| 2027 | - | 0 | - | - | 0 | - | - | - | - |
| 2028 | - | 0 | - | - | 0 | - | - | - | - |

N/A = NOT AVAILABLE

ASSUMPTIONS: heat content, ash content

## Nominal, Delivered Residual Oil Prices
## High Case

NOT AVAILABLE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|
| | Residual Oil (By Sulfur Content) | | | | | | | | |
| | Less Than 0.7% | | Escalation | 0.7 - 2.0% | | Escalation | Greater Than 2.0% | | Escalation |
| Year | $/BBL | c/MBTU | % | $/BBL | c/MBTU | % | $/BBL | c/MBTU | % |
| **HISTORY:** | | | | | | | | | |
| 2016 | - | - | - | - | - | - | - | - | - |
| 2017 | - | - | - | - | - | - | - | - | - |
| 2018 | - | - | - | - | - | - | - | - | - |
| **FORECAST:** | | | | | | | | | |
| 2019 | - | - | - | - | - | - | - | - | - |
| 2020 | - | - | - | - | - | - | - | - | - |
| 2021 | - | - | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - | - | - | - |
| 2026 | - | - | - | - | - | - | - | - | - |
| 2027 | - | - | - | - | - | - | - | - | - |
| 2028 | - | - | - | - | - | - | - | - | - |

ASSUMPTIONS: heat content, ash content

## Nominal, Delivered Residual Oil Prices
## Low Case

NOT AVAILABLE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|
| | Residual Oil (By Sulfur Content) | | | | | | | | |
| | Less Than 0.7% | | Escalation | 0.7 - 2.0% | | Escalation | Greater Than 2.0% | | Escalation |
| Year | $/BBL | c/MBTU | % | $/BBL | c/MBTU | % | $/BBL | c/MBTU | % |
| **HISTORY:** | | | | | | | | | |
| 2016 | - | - | - | - | - | - | - | - | - |
| 2017 | - | - | - | - | - | - | - | - | - |
| 2018 | - | - | - | - | - | - | - | - | - |
| **FORECAST:** | | | | | | | | | |
| 2019 | - | - | - | - | - | - | - | - | - |
| 2020 | - | - | - | - | - | - | - | - | - |
| 2021 | - | - | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - | - | - | - |
| 2026 | - | - | - | - | - | - | - | - | - |
| 2027 | - | - | - | - | - | - | - | - | - |
| 2028 | - | - | - | - | - | - | - | - | - |

ASSUMPTIONS: heat content, ash content

## Nominal, Delivered Distillate Oil and Natural Gas Prices
## Base Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | Distillate Oil | | | Natural Gas | | |
| Year | $/BBL | c/MBTU | Escalation % | c/MBTU | $/MCF | Escalation % |
| **HISTORY:** | | | | | | |
| 2016 | - | 12.25 | - | 2.48 | - | - |
| 2017 | - | 16.56 | - | 2.50 | - | - |
| 2018 | - | 14.64 | - | 3.45 | - | - |
| **FORECAST:** | | | | | | |
| 2019 | - | 14.99 | - | 3.70 | - | - |
| 2020 | - | 15.82 | - | 3.99 | - | - |
| 2021 | - | 16.60 | - | 3.96 | - | - |
| 2022 | - | 16.85 | - | 3.99 | - | - |
| 2023 | - | 17.65 | - | 4.13 | - | - |
| 2024 | - | 18.85 | - | 4.24 | - | - |
| 2025 | - | 19.98 | - | 4.37 | - | - |
| 2026 | - | 20.99 | - | 4.42 | - | - |
| 2027 | - | 22.08 | - | 4.47 | - | - |
| 2028 | - | 23.05 | - | 4.49 | - | - |

ASSUMPTIONS FOR DISTILLATE OIL: heat content, ash content, sulfur content

## Nominal, Delivered Distillate Oil and Natural Gas Prices
## High Case

NOT AVAILABLE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | Distillate Oil | | | Natural Gas | | |
| Year | $/BBL | c/MBTU | Escalation % | c/MBTU | $/MCF | Escalation % |
| **HISTORY:** | | | | | | |
| 2016 | - | - | - | - | - | - |
| 2017 | - | - | - | - | - | - |
| 2018 | - | - | - | - | - | - |
| **FORECAST:** | | | | | | |
| 2019 | - | - | - | - | - | - |
| 2020 | - | - | - | - | - | - |
| 2021 | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - |
| 2026 | - | - | - | - | - | - |
| 2027 | - | - | - | - | - | - |
| 2028 | - | - | - | - | - | - |

ASSUMPTIONS FOR DISTILLATE OIL: heat content, ash content, sulfur content

## Nominal, Delivered Distillate Oil and Natural Gas Prices
## Low Case

NOT AVAILABLE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | Distillate Oil | | | Natural Gas | | |
| Year | $/BBL | c/MBTU | Escalation % | c/MBTU | $/MCF | Escalation % |
| **HISTORY:** | | | | | | |
| 2016 | - | - | - | - | - | - |
| 2017 | - | - | - | - | - | - |
| 2018 | - | - | - | - | - | - |
| **FORECAST:** | | | | | | |
| 2019 | - | - | - | - | - | - |
| 2020 | - | - | - | - | - | - |
| 2021 | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - |
| 2026 | - | - | - | - | - | - |
| 2027 | - | - | - | - | - | - |
| 2028 | - | - | - | - | - | - |

ASSUMPTIONS FOR DISTILLATE OIL: heat content, ash content, sulfur content

## Nominal, Delivered Coal Prices
## Base Case

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low Sulfur Coal ( < 1.0% ) | | | | Medium Sulfur Coal ( 1.0 - 2.0% ) | | | | High Sulfur Coal ( > 2.0% ) | | | |
| Year | $/Ton | c/MBTU | Escalation % | % Spot Purchase | $/Ton | c/MBTU | Escalation % | % Spot Purchase | $/Ton | c/MBTU | Escalation % | % Spot Purchase |
| **HISTORY:** | | | | | | | | | | | | |
| 2016 | - | - | - | - | 3.29 | - | - | - | - | - | - | - |
| 2017 | - | - | - | - | 2.81 | - | - | - | - | - | - | - |
| 2018 | - | - | - | - | 2.77 | - | - | - | - | - | - | - |
| **FORECAST:** | | | | | | | | | | | | |
| 2019 | - | - | - | - | 2.95 | - | - | - | - | - | - | - |
| 2020 | - | - | - | - | 3.02 | - | - | - | - | - | - | - |
| 2021 | - | - | - | - | 3.09 | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | 3.17 | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | 3.24 | - | - | - | - | - | - | - |
| 2024 | - | - | - | - | 3.32 | - | - | - | - | - | - | - |
| 2025 | - | - | - | - | 3.41 | - | - | - | - | - | - | - |
| 2026 | - | - | - | - | 3.5 | - | - | - | - | - | - | - |
| 2027 | - | - | - | - | 3.59 | - | - | - | - | - | - | - |
| 2028 | - | - | - | - | 3.68 | - | - | - | - | - | - | - |

ASSUMPTIONS: type of coal, heat content, ash content

## Nominal, Delivered Coal Prices
## High Case

NOT AVAILABLE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low Sulfur Coal ( < 1.0% ) | | | | Medium Sulfur Coal ( 1.0 - 2.0% ) | | | | High Sulfur Coal ( > 2.0% ) | | | |
| Year | $/Ton | c/MBTU | Escalation % | % Spot Purchase | $/Ton | c/MBTU | Escalation % | % Spot Purchase | $/Ton | c/MBTU | Escalation % | % Spot Purchase |
| **HISTORY:** | | | | | | | | | | | | |
| 2016 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2017 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2018 | - | - | - | - | - | - | - | - | - | - | - | - |
| **FORECAST:** | | | | | | | | | | | | |
| 2019 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2020 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2021 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2026 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2027 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2028 | - | - | - | - | - | - | - | - | - | - | - | - |

ASSUMPTIONS: type of coal, heat content, ash content

## Nominal, Delivered Coal Prices
## Low Case

NOT AVAILABLE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low Sulfur Coal ( < 1.0% ) | | | | Medium Sulfur Coal ( 1.0 - 2.0% ) | | | | High Sulfur Coal ( > 2.0% ) | | | |
| Year | $/Ton | c/MBTU | Escalation % | % Spot Purchase | $/Ton | c/MBTU | Escalation % | % Spot Purchase | $/Ton | c/MBTU | Escalation % | % Spot Purchase |
| **HISTORY:** | | | | | | | | | | | | |
| 2016 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2017 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2018 | - | - | - | - | - | - | - | - | - | - | - | - |
| **FORECAST:** | | | | | | | | | | | | |
| 2019 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2020 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2021 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2026 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2027 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2028 | - | - | - | - | - | - | - | - | - | - | - | - |

ASSUMPTIONS: type of coal, heat content, ash content

## Nominal, Delivered Nuclear Fuel and Firm Purchases

| (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|
| | Nuclear | | Firm Purchases | |
| Year | c/MBTU | Escalation % | $/MWh | Escalation % |
| **HISTORY:** | | | | |
| 2016 | - | - | - | - |
| 2017 | - | - | - | - |
| 2018 | - | - | - | - |
| **FORECAST:** | | | | |
| 2019 | - | - | - | - |
| 2020 | - | - | - | - |
| 2021 | - | - | - | - |
| 2022 | - | - | - | - |
| 2023 | - | - | - | - |
| 2024 | - | - | - | - |
| 2025 | - | - | - | - |
| 2026 | - | - | - | - |
| 2027 | - | - | - | - |
| 2028 | - | - | - | - |

## Financial Assumptions
## Base Case

| | | | |
|---|---|---|---|
| AFUDC RATE | | 4.481 | % |
| CAPITALIZATION RATIOS: | | | |
| | DEBT | N/A | % |
| | PREFERRED | N/A | % |
| | EQUITY | N/A | % |
| RATE OF RETURN | | | |
| | DEBT | N/A | % |
| | PREFERRED | N/A | % |
| | EQUITY | N/A | % |
| INCOME TAX RATE: | | | |
| | STATE | N/A | % |
| | FEDERAL | N/A | % |
| | EFFECTIVE | N/A | % |
| OTHER TAX RATE: | | 6.95 | |
| | | 2.5 | % |
| DISCOUNT RATE: | | 4.0 | % |
| TAX DEPRECIATION RATE: | | 3.4 | % |

State Sales Tax on non-exempt commercial and industrial customers
Gross Receipts Tax on the sale of electricity to retail consumers

Depreciation expense as a percentage of depreciable assets.
*We have no "tax depreciation rate".*

## Financial Escalation Assumptions

| (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|
| Year | General Inflation % | Plant Construction Cost % | Fixed O&M Cost % | Variable O&M Cost % |
| 2019 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2020 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2021 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2022 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2023 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2024 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2025 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2026 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2027 | 2.1 | 2.1 | 1.5 | 1.5 |
| 2028 | 2.1 | 2.1 | 1.5 | 1.5 |

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

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | | Annual Isolated | | | Annual Assisted | |
| Year | Loss of Load Probability (Days/Yr) | Reserve Margin (%) (Including Firm Purchases) | Expected Unserved Energy (MWh) | Loss of Load Probability (Days/Yr) | Reserve Margin (%) (Including Firm Purchases) | Expected Unserved Energy (MWh) |
| 2019 | Lakeland isolated case has not been performed since LAK is operated under the FMPP Pool. | | | 0.00 | 30.85% | <1 |
| 2020 | | | | 0.00 | 47.54% | <1 |
| 2021 | | | | 0.00 | 46.64% | 0.00 |
| 2022 | | | | 0.00 | 45.30% | 0.00 |
| 2023 | | | | 0.00 | 43.99% | 0.00 |
| 2024 | | | | 0.00 | 42.50% | 0.00 |
| 2025 | | | | 0.00 | 41.24% | 0.00 |
| 2026 | | | | 0.00 | 39.80% | 0.00 |
| 2027 | | | | 0.00 | 38.58% | 0.00 |
| 2028 | | | | 0.00 | 36.80% | 0.00 |