State of Florida

Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: February 1, 2019

TO: Adam Teitzman, Commission Clerk, Office of Commission Clerk

FROM: Doug Wright, Engineering Specialist, Division of Engineering

RE: Docket No. 20190000-OT - Undocketed filings for 2019.

Please file the attached, "Seminole Electric Cooperative, Inc. – TYSP Staff's Supplemental Data Request #1," in the above mentioned docket file.

Thank you.

DW/pz

Attachment

COMMISSIONERS:
ART GRAHAM, CHAIRMAN
JULIE I. BROWN
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GARY F. CLARK
ANDREW GILES FAY

STATE OF FLORIDA

DIVISION OF ENGINEERING
TOM BALLINGER
DIRECTOR
(850) 413-6910

Public Service Commission

February 1, 2019

Ms. Julie Diazgranados
Mr. Joseph Clay
Seminole Electric Cooperative, Inc.
JDiazgranados@seminole-electric.com
jclay@seminole-electric.com

VIA EMAIL

Dear Ms. Diazgranados and Mr. Clay:

Re: Review of the 2019 Ten-Year Site Plans for Florida's Electric Utilities Supplemental Data Request #1

Please electronically file all responses to the attached Staff's Supplemental Data Request #1, no later than Monday, April 15, 2019, via the Commission's website at www.floridapsc.com by selecting the Clerk's Office tab and Electronic Filing Web Form. Please reference 20190000-OT (Undocketed filings for 2019). In addition, please email responses to Doug Wright at dwright@psc.state.fl.us.

If you have any questions, please contact Doug Wright by phone at (850) 413-6682 or at the email address provided above, or contact Phillip Ellis by phone at (850) 413-6626 or by email at pellis@psc.state.fl.us.

Sincerely,

Doug Wright
Engineering Specialist
Division of Engineering

DW:pz

Enclosure

cc: Office of Commission Clerk (20190000-OT – Undocketed filings for 2019)

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.

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.

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.

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.

Historic Peak Demand Timing & Temperature

Year	Month	Actual Peak Demand	Demand Response Activated	Estimated Peak Demand	Day	Hour	System-Average Temperature
		(MW)	(MW)	(MW)			(Degrees F)
2018	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
2017	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
2016	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
Notes							
(Include Notes Here)							

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.

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.

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.

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.

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

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

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.

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.

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?

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.

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.

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						
2019						
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						
2028						
Notes						
(Include Notes Here)						

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.
    a. Of these programs or tariffs, are any designed for or do they include educating customers on electricity as a transportation fuel?
    b. Does the Company have any programs where customers can express their interest or expectations for electric vehicle infrastructure as provided for by the Utility, and if so, please describe in detail.

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

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

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.

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?

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.

[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)									

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.

[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)										

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.

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

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)
Notes								
(Include Notes Here)								

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.

Planned 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)
Notes								
(Include Notes Here)								

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.

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?

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
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)										

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.

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?

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											
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.

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

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

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.

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.

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

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

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.)

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

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)
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.
    b. Please provide a brief assessment of how these benefits, risks, and operational limitations may change over the next 10 years.
    c. Please identify and describe any plans to periodically update the Commission on the status of your energy storage pilot programs.

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.

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

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.

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)				

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				
Combined Cycle Unit Additions				
Steam Turbine Unit Additions				
Notes				
(Include Notes Here)				

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.

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

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.

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.

Projected Unit Information – Capacity Factor (%)

Plant	Unit #	Unit Type	Fuel Type	Actual	Projected									
				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Notes														
(Include Notes Here)														

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.

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)					

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)								

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)								

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

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
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.

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										
	2010										
	2011										
	2012										
	2013										
	2014										
	2015										
	2016										
	2017										
	2018										
Projected	2019										
	2020										
	2021										
	2022										
	2023										
	2024										
	2025										
	2026										
	2027										
	2028										
Notes											
(Include Notes Here)											

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?
    b. What compliance strategy does the Company anticipate employing for the rule?
    c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?
    d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
    e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding MATS-related costs:

Year	Estimated Cost of Mercury and Air Toxics Standards (MATS) Rule Impacts (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.

62. For the U.S. EPA's Cross-State Air Pollution Rule (CSAPR):
    a. Will your Company be materially affected by the rule?
    b. What compliance strategy does the Company anticipate employing for the rule?
    c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?
    d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
    e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CSAPR-related costs:

Year	Estimated Cross-State Air Pollution Rule (CSAPR) Rule Impacts (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.

63. For the U.S. EPA's Cooling Water Intake Structures (CWIS) Rule:
    a. Will your Company be materially affected by the rule?
    b. What compliance strategy does the Company anticipate employing for the rule?
    c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?
    d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
    e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CWIS-related costs:

Year	Estimated Cost of Cooling Water Intake Structures Rule (CWIS) Rule Impacts (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.

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?
    b. What compliance strategy does the Company anticipate employing for the rule?
    c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?
    d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
    e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding CCR-related costs:

Year	Estimated Coal Combustion Residuals Rule (CCR) Impacts (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.

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?
    b. What compliance strategy does the Company anticipate employing for the rule?
    c. If the strategy has not been completed, what is the Company's timeline for completing the compliance strategy?
    d. Will there be any regulatory approvals needed for implementing this compliance strategy? How will this affect the timeline?
    e. Does the Company anticipate asking for cost recovery for any expenses related to this rule? Please complete the following chart regarding costs:

Year	Estimated Cost of Standards of Performance for Greenhouse Gas Emissions Rule for New Sources Impacts (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.

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.

Estimated Impacts of EPA's Rules on Generating Units

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	
Notes									
(Include Notes Here)									

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.

Estimated Unit Cost of EPA's Rules

Unit	Unit Type	Fuel Type	Net Sum Capacity (MW)	Estimated Cost of EPA Rules Impacts (2019 $ millions)						
				MATS	CSAPR/ CAIR	CWIS	CCR		Anticipated Impacts	Total Cost
							Non-Hazardous Waste	Special Waste		
Notes										
(Include Notes Here)										

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.

Estimated Timing of Unit Impacts of EPA's Rules

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
Notes								
(Include Notes Here)								

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.

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.

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?

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										
	2010										
	2011										
	2012										
	2013										
	2014										
	2015										
	2016										
	2017										
	2018										
Projected	2019										
	2020										
	2021										
	2022										
	2023										
	2024										
	2025										
	2026										
	2027										
	2028										
Notes											
(Include Notes Here)											

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

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)

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.

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.

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.

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

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.

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.

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.

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