



Florida Public Services Commission
Office of Commission Clerk
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

RE: Ten-Year Site Plan Supplemental Data Request #2 – Seminole Electric Cooperative Responses

September 5, 2018

Dear Sir/Madam,

Pursuant to the Commission's 2018 Ten-Year Site Plan Supplemental Data Request #2, dated August 9, 2018, Seminole Electric Cooperative is hereby filing one electronic copy of its written response.

Additionally, via email to Ms. Takira Thompson, Seminole Electric Cooperative will submit a copy of this response as requested.

Please do not hesitate to call me if you have any questions or comments.

Thank you for your attention to this request,

A handwritten signature in blue ink, appearing to read "Joseph Clay", with a long, sweeping underline.

Joseph Clay, MSPA
Supervisor of Resource Planning
Seminole Electric Cooperative, Inc.
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1. When does Seminole Electric Cooperative, Inc. (Seminole) anticipate reaching a decision on which SGS coal unit to retire?

Seminole has performed preliminary analyses to inform its decision on which coal unit to retire. This analysis will continue into 2022 to ensure we make the most cost-effective, risk managed choice. We expect to reach a final decision by mid-2022, closer to the chosen unit's removal from service.

2. Please discuss what considerations Seminole is evaluating in their determination of which SGS coal unit to retire.

Seminole is considering efficiency, reliability, safety, cost, status of upgrades/improvements, proximity to support systems, and environmental performance in evaluating the SGS coal units for removal from service.

3. Has Seminole performed cost-effectiveness studies on the retirement of either the SGS Unit 1, SGS Unit 2, or both? If so, please provide those studies. If not, why not?

Seminole's cost-effectiveness study used for the determination of need proceeding for the Seminole Combined Cycle Facility assumed (for modeling purposes) that SGS Unit 1 would be taken out of service. In addition, ongoing assessments are being performed.

4. Please identify and discuss what capacity value is being attributed to the retirement of one of the SGS coal units for forecasted reserve margin purposes.

When one of the SGS coal units is removed from service, there is no capacity value being attributed, it is taken to 0 MW.

5. How will the recent appeal of this Commission's affirmative determination of need for the Seminole Combined Cycle Facility (SCCF) affect Seminole's plan to retire one of the SGS coal units?

Seminole has maintained progress on and is currently proceeding with the plan that was approved by the Commission. Seminole has not identified any affect to the plan to remove a unit from service and fully expects the appeal to be concluded before mid-2022. This coincides with the planned in-service of SCCF and the final decision on which unit is removed from service. Seminole's review, investigation and analysis is continuing.

6. How will the recent appeal of this Commission's affirmative determination of need for the SCCF affect Seminole's plan to bring the SCCF into commercial service in December 2022?

Seminole has maintained progress on and is currently proceeding with the plan that was approved by the Commission. Seminole has not identified an affect to Seminole's plan to bring SCCF into commercial service in December 2022 due to the recently filed notice of

appeal. Seminole expects the appeal to be resolved in a timeframe that would allow Seminole to continue on the current path toward a 2022 in-service, but Seminole's review, investigation and analysis is ongoing.

7. What contingency plans has Seminole developed in the event that this Commission's affirmative determination of need for the SCCF is overturned? Please provide an analysis comparing each of these plans to Seminole's current plan, which involves bringing the SCCF into commercial service in December 2022. If no contingency plans have been developed, why not?

At this time, Seminole's review, investigation and analysis is continuing with regard to the recently filed notice of appeal. However, during Seminole's Determination of Need proceedings Seminole presented an alternative portfolio (the "Limited Build Portfolio") that did not include the SCCF. In the Limited Build Portfolio, Seminole assumed neither coal unit was removed from service, and Seminole utilized additional purchased power offers. This portfolio resulted in a \$502 million NPV of additional cost over the 34 year time period (2018-2051), compared to the portfolio including SCCF. Given the passage of time, some of those purchased power offers are no longer available and Seminole would have to accommodate the needed capacity with the optionality it has available within its current approved portfolio. In such a scenario (i.e., reflecting the purchased power optionality currently available to Seminole), similar to the Limited Build Portfolio, Seminole would assume that both coal units remain in service, resulting in, over the same time period, an estimate of \$908 million NPV of additional cost over the Commission's current approved plan (the SCCF).

8. Please refer to Schedules 3.1 and 3.2 of Seminole's Ten-Year Site Plan (TYSP).
 - a. Please identify and describe the programs responsible for the forecasted peak demand savings associated with interruptible load, distributed generation, and commercial load management.

Commercial Interruptible Rates (Interruptible Load): Direct load control program where Seminole or the Members interrupt electrical service to enrolled member-consumers during extreme peak demand, capacity shortage or emergency conditions.

Commercial Customer Load Generation Program (Distributed Generation): Standby peak-shaving generators which Seminole and its Members may dispatch for purpose of load management and enhanced reliability. Members with standby generators under this program receive a billing credit.

Commercial Coincident Peak Power Rates (Commercial Load Management): Coordinated load management-demand reduction program where enrolled commercial and industrial member-consumers are signaled to shed load during critical peak billing periods.

- b. Why are these programs forecasted to achieve peak demand savings when actual historical data reflects that, for the past six years, these programs have not achieved peak demand savings?

Commercial Interruptible Rates (Interruptible Load): The capacity necessary to serve Seminole's system load has been available without the need to interrupt electrical service to enrolled member-consumers during the time period in question.

Commercial Customer Load Generation Program (Distributed Generation): The capacity necessary to serve Seminole's system load has been available without the need to dispatch peak-shaving distributed generation during the time period in question.

Commercial Coincident Peak Power Rates (Commercial Load Management): Actual reduced demands associated with Member Cooperative coincident demand billing have not been quantified, but are still reflected in net firm demand.

9. Please refer to Schedules 3.3.1 and 3.3.2 of Seminole's TYSP. Why, in general, are yearly load factors higher for the low case forecast than for the high case forecast when comparing the same year from each case?

In general, the low case shows that peak demand and average-annual hourly demand are more homogenous than in the high case, where peak demand deviates from average-annual hourly demand at a greater degree.

10. Please refer to Section 1.3, Table 1.2, of Seminole's TYSP. Please clarify the contract term for the Oleander Power Project PPA.

The term for the Oleander contract is 1 Jan 2010 through 31 Dec 2022.

11. Please refer to Schedule 7.1 of Seminole's TYSP. Please identify the source(s) of and describe the necessity for the increase of 250 MW of Firm Capacity Import from the year 2018 to 2019.

The purchase power agreement with Duke Energy for a base product of 50 MW capacity expires on 31 Dec 2018. In addition, Seminole entered into another purchase power agreement with Duke Energy in 2009 for a combined cycle product which contractually increases from 200 MW to 500 MW capacity on 1 January 2019; for a net change of 250 MW Firm Capacity Import.

When the combined cycle product contract was initially drafted in 2009, there was an automatic increase if the Levy Nuclear Plant (in which Seminole was going to participate) was not online by the 1st of January 2019. Additionally, in 2009, Seminole forecasted a need of approximately 200 MW in the winter of 2018/2019, with an

additional 500 MW need in the summer of 2019. Given the economic recession along with the departure of Lee County Electric Cooperative, this need did not materialize.

12. Please refer to Schedule 7.2 of Seminole's TYSP. Please clarify if Seminole is planning to allow its reserve margin for the winter of 2024/2025 to fall below its reliability criteria of 15 percent, to a value of 14 percent. If so, please explain. If not, please identify and describe the measures Seminole plans to implement.

Seminole plans for a reliability criteria of 15%. Schedule 7.2 reports the resources available for the entirety of the winter 2024/2025 period. A purchase power agreement with the City of Tampa for the McKay Bay Waste to Energy facility expires 28 Feb 2025 and was not included in schedule 7.2. However, this agreement will still be in effect during the time of the expected peak. Additionally, optionality exists in other purchase power agreements that can be utilized to meet our Reserve Margin Criteria.

13. Please provide a comparison of Seminole's 2017 and 2018 TYSPs, identifying any notable differences.

The primary difference between the 2017 TYSP and the 2018 TYSP involves the Forecasted Facilities section. In the 2017 TYSP, Seminole was uncertain as to how that need was going to be met, however, the 2018 TYSP reflects the portfolio described in the associated Determination of Need proceeding, including the removal of one SGS unit from service. The impacts of this change are reflected throughout the document.

Other differences include:

- *Winter Net Firm Demand forecast lower by approximately 100 MW by 2026.*
- *Net Energy for Load forecast lower by approximately 275 GWh by 2026.*
- *High and Low Alternative Forecast Schedules added to 2018 TYSP.*
- *For Schedules 6.1 & 6.2, Firm Interchange Transactions were removed from the main "Energy Sources" section into the "Other" section to better reflect the data in Schedule 5.*
- *Addition of "Behind the Meter Solar" section in 2018 TYSP.*
- *The "DSM Programs" section was expanded to be more descriptive of the various programs that Seminole and its Members utilize.*
- *Removed MGS as a "Preferred Site" as no corresponding resource was identified in Schedule 8.*

14. Has Seminole taken solar capacity degradation into account in its planning process? If so, please explain how degraded capacity values are calculated, what assumptions are required for calculating degraded capacity values, if solar degradation is taken into account in Seminole's cost-effectiveness evaluations, and what causes solar capacity degradation. If not, why not?

Seminole utilized a 0.05% annual solar degradation factor for the Solar Facility located at MGS. This factor is the median degradation rate as identified by Jordan and Kurtz (2012) and published by the National Renewable Energy Laboratory (NREL). Seminole applied this rate annual to the forecasted solar generation curve.

In regards to the Tillman Solar Center, there is no solar degradation included in its planning. This solar facility's output is limited by the inverter and as such has sufficient energy on the DC side, even when fully degraded, to achieve the full first year output throughout the term of the contract.

In regards to causes of solar degradation, a few possible causes are:

- *Corrosion*
- *Dirt/contamination*
- *Thermal cycling leading to water vapor intrusion*
- *Deterioration of anti-reflective coatings.*

Jordan, D. C., & Kurtz, S. R. (2010). Photovoltaic Degradation Rates — An Analytical Review. *NREL*. Retrieved from <http://https://www.nrel.gov/docs/fy12osti/51664.pdf>