

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition to determine need for Seminole combined cycle facility, by Seminole Electric Cooperative, Inc.	DOCKET NO. 20170266-EC
In re: Joint Petition to determine need for the Shady Hills combined cycle facility, by Seminole Electric Cooperative, Inc. and Shady Hills Energy Center, LLC.	DOCKET NO. 20170267-EC DATED: MARCH 8, 2018

**SEMINOLE ELECTRIC COOPERATIVE, INC.'S
MOTION FOR LEAVE TO FILE REVISED
DIRECT TESTIMONY AND EXHIBITS**

Petitioner, Seminole Electric Cooperative, Inc. (“Seminole”), pursuant to Rule 28-106.204, Florida Administrative Code (“F.A.C.”), hereby moves for leave to file the revised direct testimony of Julia A. Diazgranados, along with revised Exhibit Nos. ___ (JAD-6) and revisions to certain sections of Exhibit ___ (MPW-2) discussed herein. In support of its motion, Seminole states:

1. On December 21, 2017, Seminole submitted the pre-filed direct testimony and exhibits of Julia A. Diazgranados in the above dockets. As filed, the testimony and exhibits of Ms. Diazgranados filed in both dockets were identical except for the cover sheets identifying the two dockets, which have since been consolidated for purposes of hearing.

2. In preparing responses to Staff’s Fifth Set of Interrogatories (No. 67-68), Seminole identified a potential error in the outputs from the production cost (“PaR”) modeling for the “No Build Risk - All PPA” portfolio discussed in Ms. Diazgranados’ testimony. As explained in the Response to Staff Interrogatory No. 68 provided as Attachment “A” hereto:

After further evaluation in response to staff’s interrogatory, Seminole has discovered a model glitch within the PaR model. This issue has to do with unit start cost and how it is reported out of PaR. There are three start cost variables: “start cost without fuel;” “start cost fuel;” and “total start cost” which is the summation of the two prior variables. Normally, the model will produce the two detail variables, but occasionally only the “total start cost” variable is produced. This issue has been reported to ABB but at this time they do not have a fix.

In the No Build Risk: All PPA Portfolio the single variable, “total start cost”, was provided. This variable had not been mapped into our new financial forecast model resulting in missed cost. Upon mapping of the variable and rerunning the financial forecast model we now see the cost for the first three years in line with the other portfolios.

Using the correct unit start costs for “No Build Risk: All-PPA” portfolio results in a change in the calculated Net Present Value (“NPV”) cost differential between the selected “CCP/CC” portfolio and the “No Build Risk-All PPA” portfolio discussed on pages 13 (line 2) and 14 (line 19) of Ms. Diazgranados’ pre-filed direct testimony and Exhibit No. __ (JAD-6), as well as in sections 1.5 (page 8 of 153), 6.8 (page 65 of 153) and 8.0 (page 72 of 153) of Seminole’s Need Study, which is Exhibit No. ___ (MPW-2). Specifically, using the correct unit start costs, the NPV savings associated with the selected CCP/CC portfolio is \$530 million, rather than \$388 million as stated on page 14, line 19 of Ms. Diazgranados’ testimony.¹

3. Undersigned counsel advised counsel for the other parties of the issue discussed above and potential correction to Ms. Diazgranados’ testimony by email on February 28, 2018. As such, the issue was the subject of examination during Ms. Diazgranados’ deposition, which occurred on March 2, 2018.

4. In order to provide the Commission with the most accurate information available, Seminole proffers with this motion the revised direct testimony of Julia Diazgranados, as well as revised Exhibit Nos. __ (JAD-6) and an errata for Exhibit No. ___ (MPW-2), which reflect the corrected values discussed above. Additionally, Seminole proposes to correct a typographical error

¹ As indicated in the errata provided in Attachment “B”, the \$530 million figure should also be substituted for the references to \$363 million on page 13, line 2 of Ms. Diazgranados’ testimony, as well as section 1.5 (page 8 of 153) of Seminole’s Need Study, which is Exhibit No. ___ (MPW-2). Those specific references to \$363 million were intended to be \$388 million in the original testimony and exhibit, but were incorrectly transcribed.

on page 10 of Ms. Diazgranados' testimony. Attachment "B" to this motion identifies all proposed changes to the testimony and exhibits.

5. In accordance with Rule 28-106.204(3), F.A.C., counsel for Seminole has contacted counsel for all of the parties in Docket Nos. 20170266-EC and 20170267-EC, and is authorized to state that Commission Staff have no objection to this motion and the Intervenors, Quantum Pasco Power, L.P., Michael Tulk and Patrick Daly do not object to this motion, provided they are granted leave to file supplemental testimony for their witness, Paul Sotkiewicz, Ph.D., addressing the change in Ms. Diazgranados' testimony. Petitioners, Seminole and Shady Hills Energy Center, LLC., do not oppose the filing of such testimony provided that the supplemental testimony is limited to discussion of the changes in Ms. Diazgranados' testimony. Counsel for Intervenors has indicated that they will endeavor to file such testimony by Monday, March 12, 2018, but no later than Tuesday, March 13, 2018.

WHEREFORE, Seminole respectfully requests leave to file the revised direct testimony of Julia A. Diazgranados and revised Exhibit Nos. ___ (JAD- 6) and pertinent portions of Exhibit No. ___ (MPW-2) proffered with this motion for inclusion in the record at the Commission's hearing in this proceeding and that Intervenors be provided leave to file supplemental testimony of Paul Sotkiewicz, Ph.D., addressing the change in Ms. Diazgranados' testimony.

Respectfully submitted this 8th day of March, 2018.

HOPPING GREEN & SAMS

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Attorneys for SEMINOLE ELECTRIC COOPERATIVE,
INC., and SHADY HILLS ENERGY CENTER, LLC.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was served via electronic
mail to the following on this 8th day of March, 2018:

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/s/Gary V. Perko
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68. **Please refer to the rebuttal testimony of Witness Taylor, page 2, lines 11-12, and to Seminole's response to Staff's First Set of Interrogatories, Question No. 1, Attachment "170266-Staff's 1st INTs No. 1 Attachment Q-1". According to the response to Staff's First Set of Interrogatories, the Annual Revenue Requirements in Net Present Value terms for the CPP/CC Portfolio are \$9 million, \$8 million, and \$7 million greater than the No Build Risk: All PPA Portfolio for the years 2018, 2019, and 2020, respectively. Please reconcile this with Witness Taylor's rebuttal testimony, which indicates that all Portfolios were the same for the pre-2021 time period.**

RESPONSE: Witness Taylor's rebuttal testimony is correct; all of the portfolios had the same resource mix prior to 2021. After further evaluation in response to staff's interrogatory, Seminole has discovered a model glitch within the PaR model. This issue has to do with unit start cost and how it is reported out of PaR. There are three start cost variables: "start cost without fuel;" "start cost fuel;" and "total start cost" which is the summation of the two prior variables. Normally, the model will produce the two detail variables, but occasionally only the "total start cost" variable is produced. This issue has been reported to ABB but at this time they do not have a fix.

In the No Build Risk: All PPA Portfolio the single variable, "total start cost", was provided. This variable had not been mapped into our new financial forecast model resulting in missed cost. Upon mapping of the variable and rerunning the financial forecast model we now see the cost for the first three years in line with the other portfolios. Seminole is providing revised Exhibit No.__(JAD-6) and a revised tab to Attachment Q-1 to Seminole's Response to Staff's Interrogatory No. 1 for the No Build Risk: All PPA Portfolio to reflect the change discussed above.

AFFIDAVIT

STATE OF FLORIDA)
)
COUNTY OF HILLSBOROUGH)

Before me, the undersigned authority, personally appeared Julia Diazgranados,
who

is personally known to me, or

produced _____ as identification and who,

being duly sworn, deposes and says that the foregoing answers to Interrogatory Nos. 68 of The Florida Public Service Commission's Fifth Set of Interrogatories to Seminole Electric Cooperative, Inc., in Docket No. 20170266-EC are true and correct to the best of his knowledge, information and belief.

Julia Diazgranados
Julia Diazgranados

Director of Treasury and Planning
Title

Sherrie Matthews
Notary Public
State of Florida

My commission Expires: June 5, 2019



**ERRATA SHEET FOR
JULIA A. DIAZGRANADOS**

Direct Testimony Filed in Docket Nos. 20170266-EC & 20170267-EC on December 21, 2017

Page	Line(s)	Correction
10	22	Change "\$43.00" to "\$34.00"
13	2	Change "\$363 million" to "\$530 million"
14	19	Change "\$388 million" to "\$530 million"

Substitute the following Revised Exhibit No. __ (JAD-6) for version originally filed:

Docket Nos. 20170266-EC and 20170267-EC
Summary of Updated Economic Analyses
Exhibit No. __ (JAD-6), Page 1 of 1
(REVISED)

Portfolio Summaries Revised Economic Analysis Results (millions of \$)				
	SGS 2x1 Portfolio	CPP/CC Portfolio	Limited Build Risk: Shady Hills Portfolio	No Build Risk: All PPA Portfolio
Resources	-SGS 2x1 -Multiple PPA	-SGS 2x1 -Shady Hills 1x1 -Multiple PPA	-Shady Hills 1x1 -Multiple PPA	-Multiple PPA
Total Member Revenue Requirements - Years 2018-2027 (millions of \$)				
Nominal	11,859	11,754	11,735	11,571 11,666
NPV @ 6.0%	8,641	8,568	8,549	8,432 8,499
Total Member Revenue Requirements - Years 2018-2051 (millions of \$)				
Nominal	57,539	56,465	58,312	58,289 58,616
NPV @ 6.0%	20,981	20,618	21,120	21,006 21,148

**ERRATA SHEET FOR
EXHIBIT NO. ____ (MPW-2)
SEMINOLE NEED STUDY
Filed in Docket Nos. 20170266-EC & 20170267-EC**

Section	Page	Correction
1.5	8 of 153	Change "\$363 million" to "\$530 million"
6.8	65 of 153	Change Figure 13 to attached revised Figure 13 (Note: Figure 13 is the same as Exhibit (JAD-6))
8.0	72 of 153	Change "\$388 million" to "\$530 million"

Figure 13 Summary of Updated Economic Analysis

Portfolio Summaries Revised Economic Analysis Results (millions of \$)				
	SGS 2x1 Portfolio	CPP/CC Portfolio	Limited Build Risk: Shady Hills Portfolio	No Build Risk: All PPA Portfolio
Resources	-SGS 2x1 -Multiple PPA	-SGS 2x1 -Shady Hills 1x1 -Multiple PPA	-Shady Hills 1x1 -Multiple PPA	-Multiple PPA
Total Member Revenue Requirements - Years 2018-2027 (millions of \$)				
Nominal	11,859	11,754	11,735	11,571 11,666
NPV @ 6.0%	8,641	8,568	8,549	8,432 8,499
Total Member Revenue Requirements - Years 2018-2051 (millions of \$)				
Nominal	57,539	56,465	58,312	58,289 58,616
NPV @ 6.0%	20,981	20,618	21,120	21,006 21,148

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 2017-266-EC

**IN RE: PETITION OF SEMINOLE ELECTRIC COOPERATIVE,
INC., FOR DETERMINATION OF NEED FOR
SEMINOLE COMBINED CYCLE FACILITY**

REVISED DIRECT TESTIMONY & EXHIBITS OF:

JULIA A. DIAZGRANADOS

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BEFORE THE PUBLIC SERVICE COMMISSION
SEMINOLE ELECTRIC COOPERATIVE, INC.
DIRECT TESTIMONY OF JULIA DIAZGRANADOS
DOCKET NO. 2017-266-EC
MARCH 8, 2018

Q. Please state your name and address.

A. My name is Julia Diazgranados. My business address is 16313 North Dale Mabry Highway, Tampa, Florida 33618.

Q. By whom are you employed and in what capacity?

A. I am employed by Seminole Electric Cooperative, Inc. (“Seminole”) as Director of Treasury and Planning.

Q. Please describe your responsibilities in your current position.

A. As Director of Treasury and Planning, I am responsible for coordinating, managing and directing Seminole’s planning process. My team produces study results used to assist executive staff in establishing long-term plans to meet our Members’ energy needs while maintaining competitive rates, mitigating risk, and preserving reliability. We evaluate existing available resources along with proposed resources over our planning horizon and in line with Seminole’s load forecast. In my role, I have overseen the completion and filing of Seminole’s most recent Ten-Year Site Plan (“TYSP”) provided as Appendix A to Seminole’s Need Study, which has been submitted as Composite Exhibit __

1 (SECI-1). I also represent Seminole on the Florida Reliability Coordinating
2 Council's Resource Subcommittee.

3

4 **Q. Please state your professional experience and education background.**

5 A I have over twenty years of experience in the electric utility industry. I began
6 my career in 1991 as a financial analyst for eight years with Allegheny Energy.
7 From 1999 until 2004, I was a principal in a consulting company that
8 specialized in electric utility planning software. I joined Seminole in 2005 as a
9 Senior Strategic Planning Analyst with the lead role in the development of
10 annual long-term strategic plans. In 2007, I was promoted to Lead Generation
11 Planning Analyst. I was promoted in 2010 to Supervisor of Generation
12 Planning, and advanced to Manager of Generation Planning in 2013. In 2017, I
13 assumed my current position as Director of Treasury and Planning. I hold a
14 Bachelor of Science degree in Business Management and an Associate degree
15 in Electronic Data Processing from Fairmont State University.

16

17 **Q. What is the purpose of your testimony in this proceeding?**

18 A. The purpose of my testimony is to address three areas. First, I will describe the
19 power supply planning process and need assessment that Seminole performed
20 to identify its need for capacity in 2021 and beyond. Next, I will review
21 Seminole's economic evaluation of self-build and purchased power
22 alternatives along with risk assessments to explain why the Seminole
23 Combined Cycle Facility ("SCCF") and the Shady Hills Combined Cycle
24 Facility ("SHCCF") are the best, most cost-effective, risk-managed options to
25 meet the reliability and economic needs of Seminole and its Members. Finally,

1 I will discuss the unfavorable consequences if the requested need
2 determination is not granted.

3

4 **Q. Are you sponsoring any exhibits in the case?**

5 A. Yes, I am sponsoring the following exhibits, which were prepared by me or
6 under my supervision and are attached to my pre-filed testimony:

- 7 • Exhibit No. ___ (JAD-1) – Resume
- 8 • Exhibit No. ___ (JAD-2) – Seminole’s gap chart (forecasted winter
9 peak demands plus reserves vs. committed resources)
- 10 • Exhibit No. ___ (JAD-3) – Seminole’s initial economic analysis results
- 11 • Exhibit No. ___ (JAD-4) – Seminole’s scorecard analysis
- 12 • Exhibit No. ___ (JAD-5) – Seminole’s sensitivity analysis; and
- 13 • Exhibit No. ___ (JAD-6) – Seminole’s revised economic analysis
14 results.

15 I also am sponsoring Sections 5.1, 5.3, 5.4, 6.1, 6.4.1, 6.4.2, 6.4.4, 6.5, 6.6, 6.7,
16 6.8, 8 and 9 of the Need Study (Exhibit No. ___ (MPW-2)), as well as Appendix
17 A to the Need Study, all of which were prepared by me or under my
18 supervision.

19

20 **POWER SUPPLY PLANNING PROCESS & PROJECTED NEED**

21

22 **Q. What is the objective of Seminole's power supply planning process?**

23 A. The objective of Seminole’s power supply planning process is to provide a
24 portfolio of resources that will satisfy two criteria: (1) to satisfy Seminole’s
25 reliability criteria; and (2) to provide our nine Members with reliable wholesale

1 energy to serve their member-consumers' future electrical needs in the most
2 cost-effective and risk-managed manner.

3

4 **Q. What reliability criteria does Seminole use to determine the need for
5 additional resources?**

6 **A.** Seminole uses utility industry planning practices and tools which utilize both
7 deterministic and probabilistic approaches for planning a resource mix that
8 satisfies a Reserve Margin criterion of 15 percent and achieves a Loss of Load
9 Probability ("LOLP") of one day in 10 years. The Reserve Margin is a
10 percentage of the load forecast peak demand and is the additional amount of
11 capacity that a utility maintains above the forecasted peak demand. Reserves
12 are necessary to accommodate generator outages, load forecast uncertainty, and
13 abnormal weather. The Reserve Margin considers only the forecasted peak
14 demand versus the amount of generation resources, but the LOLP criterion
15 takes into account load shape, unit sizes, unit availability, and capacity mix
16 when calculating the probability of a utility not adequately meeting load.
17 These reliability criteria help to ensure that sufficient generation capacity is
18 available to meet our Members' load forecast needs.

19

20 **Q. Please describe Seminole's power supply planning process.**

21 **A.** Seminole's power supply planning process begins with the development of the
22 peak demand and energy forecasts ("load forecast") for each of our nine
23 Members, which are aggregated into a Seminole load forecast. The Seminole
24 load forecast's coincident peak demands are used to determine the amount of
25 capacity needed to meet our Members forecasted demand plus an additional 15

1 percent to satisfy Seminole’s Reserve Margin requirement. A gap analysis is
2 used to identify deficiencies between forecasted requirements and current
3 available capacity. When a deficiency is identified, Seminole evaluates all
4 available alternatives (purchased power, acquisitions, and self-build) to
5 establish a portfolio that provides a cost-effective and reliable generation mix
6 to meet our Members’ needs.

7

8 **Q. What is Seminole's future capacity need?**

9 A. Seminole’s future capacity need results primarily from the expiration of
10 purchased power agreements (“PPA”). These PPAs consist of multiple system
11 deals starting with the expiration of 150 MW from Duke Energy Florida on
12 December 31, 2020, followed by expiration of 200 MW from Florida Power &
13 Light on May 31, 2021. Additionally in May of 2021, Seminole has the
14 expiration of a PPA with Southern Power Company for three of their Oleander
15 peaking units with total capacity ratings of 550 MW winter and 460 MW
16 summer. In total, Seminole will lose 900 MW of purchased power in 2021.

17

18 When forecasted load is taken into account, by the end of 2021, Seminole will
19 need 901 MW of generation to meet its Members’ energy needs along with its
20 Reserve Margin requirements. That need will grow to 1,265 MW the next year
21 due to load growth and the expiration of a 300 MW PPA with Duke Energy
22 Florida. This is reflected in Exhibit No. ____ (JD-2).

23

24 **Q. How does Seminole plan to meet that need?**

1 A. The most cost effective, risk-managed resource plan for Seminole to meet the
2 future needs of our Members is a mix of resources consisting of existing
3 generation resources, PPAs, and the construction of two natural gas-fired
4 combined cycle units. The first combined cycle unit (SHCCF) will be a 573
5 MW (winter) 1x1 unit to be constructed by GE Capital at its existing Shady
6 Hills site in Pasco County pursuant to a tolling facility agreement with
7 Seminole. The second combined cycle plant (SCCF) will be a self-build 1,122
8 MW (winter) 2x1 combined cycle plant at our existing Seminole Generation
9 Station (“SGS”) site, along with taking one of the two existing 664 MW
10 (winter) SGS coal units out of service.

11

12 **ECONOMIC EVALUATION AND RISK ASSESSMENT**

13

14 **Q. How did Seminole determine that a combined cycle tolling facility and**
15 **self-build combined cycle facility along with taking a SGS coal unit out of**
16 **service should be pursued to meet the projected need in 2021 and beyond?**

17 A. The process began over two years ago. Seminole first determined which self-
18 build alternatives would be evaluated. We then issued a request for proposals
19 (“RFP”) for firm capacity to solicit alternative proposals from the market.
20 Lastly, we performed economic and risk evaluations on all available
21 alternatives and developed portfolios of generation resources to fulfill
22 Seminole’s need.

23

24 **Q. What self-build alternatives did Seminole consider?**

1 A. Due to the high costs and regulatory uncertainties associated with new nuclear
2 and coal-fired generation, Seminole limited its analysis of self-build
3 alternatives to natural gas-fired generation. As discussed in Mr. Kezell's
4 testimony, Seminole evaluated several different gas-fired technologies from
5 three different vendors.

6

7 **Q. Please, describe Seminole's evaluation process of its self-build generation**
8 **alternatives along with its market alternatives.**

9 A. Seminole identified market alternatives by issuing an RFP in March 2016 for
10 firm capacity up to 1,000 MW beginning as early as June 1, 2021. The RFP
11 stated that the need for capacity of 600 MW would start in June 2021, with
12 total needs increasing to 1,000 MW by June 2022. Seminole encouraged
13 proposals of base, intermediate, and/or peaking capacity, as well as renewable
14 resources. The RFP also stated that proposals providing demand side options
15 would be considered, although no such proposals were received. In May 2016,
16 Seminole received proposals for purchased power alternatives in response to
17 its RFP. The response was robust, with Seminole receiving responses from 38
18 counterparties for a total of 223 proposals with offers providing generation
19 from renewables, existing and new gas-fired facilities, and system offers.
20 Following receipt of the bids, Seminole's staff reviewed the proposals for
21 completeness along with technical and operational viability. We performed an
22 initial economic screening using bus bar cost analysis (i.e., the total cost to
23 operate a resource on a \$/MWh basis) of all alternatives within a stratification
24 (base, intermediate, or peaking). Those with significantly higher operating cost
25 based on a typical capacity factor within a stratification were eliminated.

1 Next, all remaining alternatives, including self-build options, were modeled
2 and analyzed using System Optimizer. System Optimizer is an ABB tool that
3 is an industry-recognized utility model used to develop an optimal resource
4 mix to satisfy future needs. The model simulates how each generating
5 resource, potential resources along with existing resources, will be used to
6 serve the forecasted peak demand and energy requirements in the load forecast.
7 System Optimizer’s inputs include the demand and energy forecast, Reserve
8 Margin requirements, fuel price forecast, plus the individual resource’s cost
9 and performance characteristics (e.g. fixed cost, variable cost, heat rates,
10 forced outage rates, and maintenance schedules). Seminole used System
11 Optimizer to develop economical portfolios of resources to meet the projected
12 future need.

13
14 Seminole ran multiple iterations through System Optimizer. The first iteration
15 was to develop a portfolio for the need starting in winter of 2022 with all
16 resources available (“SGS 2x1 Portfolio”). We then developed a limited build
17 portfolio which allowed one 1x1combined cycle unit to be built (“Limited
18 Build Risk: Shady Hills Portfolio”). We also developed a no build portfolio
19 consisting of only PPAs (“No Build Risk: All PPA Portfolio”). In addition,
20 due to the regulatory uncertainty and long-term economics of coal-fired
21 generation, Seminole also developed a portfolio taking into account the
22 removal of one coal unit from service (“CPP/CC Portfolio”). The components
23 of the various portfolios are summarized in Exhibit No. ____ (JD-3).

24

1 Once the optimal portfolio candidates were identified via System Optimizer,
2 Seminole used Planning and Risk (“PaR”), another industry-recognized utility
3 model from ABB, to further evaluate the production cost. PaR is a detailed
4 production cost model, which commits resources in each hour over the thirty-
5 three year study period from 2018-2051 based on costs and operational
6 constraints. The operational constraints are similar to those in System
7 Optimizer but more extensive, including such constraints as minimum up and
8 down times, must run requirements, and natural gas pipeline flow limits. The
9 production costs from PaR along with any capital and transmission cost
10 increases for network upgrades are loaded into the corporate financial model to
11 develop the annual revenue requirements.

12
13 Finally, Seminole’s staff performed risk analysis on both individual
14 alternatives and each of the remaining portfolios. Seminole produced
15 scorecards for each portfolio which not only took into account a weighted risk
16 rating but also a strategic rating, operational flexibility ratings for fuel, real
17 time operational flexibility, and an economic rating for a short-term (10 year)
18 and long-term (30 year) net present value revenue requirement. These
19 portfolio scorecard assessments are reflected in Exhibit No. ___ (JD-4).

20
21 **Q. What were the results of your detailed economic evaluation?**

22 A. Ultimately, the net present value (“NPV”) of the revenue requirements is the
23 basis for comparing different portfolios in the economic evaluation. The
24 CPP/CC Portfolio, which includes the SCCF and the SHCCF along with the
25 removal from service of one of the two existing 664 MW SGS coal units, was

1 the least cost portfolio. The next portfolio in NPV revenue requirement terms
2 was approximately \$355 million more expensive over the thirty-three year
3 study period from 2018-2051. Exhibit No.__(JD-3) reflects the differential
4 between the portfolios.

5

6 **Q. Did Seminole evaluate the cost-effectiveness of taking the second SGS coal**
7 **unit out of service?**

8 A. No, Seminole believes that continuing operation of one SGS coal unit will
9 enable us to continue the utilization of a valuable, high-performing asset within
10 our portfolio and preserve fuel diversity.

11

12 **Q. What additional analyses did Seminole perform to evaluate the cost-**
13 **effectiveness of the various alternatives?**

14 A. Seminole also performed multiple sensitivity analyses outlined below:

- 15 • **Optimistic** (High load growth with low gas prices)
- 16 • **Pessimistic** (Low load growth with high gas prices)
- 17 • **Flat Backfill** (No escalation of generic unit capacity costs)
- 18 • **Solar PPA 400 MW** (400 MW of additional solar PPA)
- 19 • **Various Carbon Tax** (based on Minnesota PSC Carbon tax assumptions)
 - 20 ○ Low – starting at \$9.00/ton in 2019 and escalating
 - 21 ○ Mid – starting at \$21.50/ton in 2019 and escalating
 - 22 ○ High – starting at \$34.00/ton in 2019 and escalating

1 The results of these analyses are shown in Exhibit __ (JD-5) and they support
2 the conclusion that the SCCF and SHCCF together with PPAs (CPP/CC
3 Portfolio) provide the most cost effective solution for Seminole's need.

4
5 **Q. Did Seminole consider the utilization of additional solar resources?**

6 Seminole also considered the utilization of solar in its sensitivity analysis,
7 Seminole evaluated two different solar alternatives as reflected in
8 Exhibit __ (JD-5). Both sensitivity analyses show that the SCCF and SHCCF
9 together with PPA's (CPP/CC Portfolio) is the most cost effective solution.
10 Because Seminole is a winter peaking system, solar is not a viable capacity
11 source to offset our need, but Seminole does acknowledge the energy value of
12 solar and therefore has included 40 MW (summer rating) of new solar in our
13 final recommendation. Seminole does account for the summer capacity benefit
14 in the portfolios.

15
16 **Q. Did Seminole consider any other factors in its evaluation?**

17 A. In addition to cost-effectiveness and risk impacts, Seminole considered the
18 value of having optionality. One of the new PPAs in this portfolio provides
19 Seminole with the advantage of optionality, giving Seminole the flexibility to
20 modify its commitment up or down with one year's notice. Given the
21 uncertainty of load forecasts, having the ability to modify resource
22 commitments will give Seminole an advantage against economic
23 accelerations/downturns or faster/slower load growth rates.

24

1 **Q. What was the recommendation of Seminole's Staff to the Board regarding**
2 **SCCF and SHCCF, and what was the result?**

3 A. At the September 27, 2017 meeting of the Board of Trustees, staff provided an
4 overview of the planning activities and a review of the objectives along with
5 portfolio economics, sensitivity results and risk assessments. Staff also
6 reviewed the components of the portfolio being recommended. Staff then
7 recommended, and the Board unanimously approved, proceeding with the
8 planning, permitting and construction of the SCCF along with the SHCCF
9 tolling agreement with GE and additional PPAs to round out the portfolio.
10

11 **UPDATED ECONOMIC ANALYSIS**

12 **Q. Has Seminole updated its assessment since the September 27, 2017 Board**
13 **of Trustees approval?**

14 A. Yes. At the October meeting of the Board of Trustees, the 2018 Budget was
15 presented and approved. Staff has updated the economics to incorporate the
16 2018 Budget assumptions. These assumptions include a new load forecast that
17 was approved by Seminole's Board in September 2017 and a new fuel price
18 forecast updated in June 2017.
19

20 **Q. Please describe Seminole's updated economic assessment.**

21 A. Seminole conducted a present worth revenue requirements comparison for all
22 four portfolios with the 2018 Budget assumptions. While the total dollar values
23 changed, the rankings between the portfolios did not. The CPP/CC Portfolio,
24 which includes the SCCF and the SHCCF along with the removal from service
25 of one of the two existing 664 MW SGS coal units, remained the least cost

1 portfolio. The next portfolio in NPV revenue requirement terms was
2 approximately \$530 million more expensive over the study period. Exhibit
3 No.__(JD-6) reflects the differential between the portfolios.

4

5

ADVERSE CONSEQUENCES OF DENIAL

6

7 **Q. What will be the projected impact on the reliability of service to**
8 **Seminole's Members and their member/consumers if the SCCF and GE**
9 **SHCCF projects are not constructed to meet the identified capacity need**
10 **in 2021 and beyond?**

11 A. In combination, the SCCF and SHCCF projects would provide a total capacity
12 of 1,623 MW and make up approximately 40% of Seminole's generation
13 capacity requirement. If both projects were to be denied, , Seminole would not
14 be able to take an SGS coal unit out of service (664 MW). Moreover,
15 Seminole would still be short by up to 680 MW of capacity, leaving us at the
16 mercy of the market for finding replacement capacity at a higher cost and
17 possibly leaving our Members and their member-consumers at high risk of
18 service interruptions.

19

20 If only the SCCF was denied, then again Seminole would utilize the
21 optionality available via our PPAs (350 MW) to offset some of the lost
22 capacity. Here again, however, Seminole would not be able to take an SGS
23 coal unit out of service (664 MW). While these actions would mitigate the
24 capacity need so our Members and their member-consumers would not be at

1 risk of service interruptions, they would increase costs compared to the
2 resource plan with SCCF.

3

4 If the SHCCF was denied, then again Seminole could pursue one of two
5 options. One option would be to leave the SGS coal unit in service which
6 would cover our Members and their member-consumers' needs but at a higher
7 cost. The second option would be to utilize the optionality available via our
8 PPAs (350 MW) leaving Seminole with a need for capacity of approximately
9 220 MW. Seminole would be forced to go to the market to find replacement
10 capacity at a higher cost, possible leaving our Members and their member-
11 consumers at risk of service interruptions.

12

13 **Q. What will be the projected economic impact on Seminole's Members and**
14 **their member/consumers if the SCCF and SHCCF projects are not**
15 **constructed to meet the identified capacity need in 2021 and beyond?**

16 A. The projected economic impact to Seminole's Members and their member-
17 consumers would have the following NPV revenue requirement impacts:

- 18 • If both projects were to be denied the adverse impact would not only be
19 the remaining in service of a coal unit but approximately \$530 million
20 of additional NPV revenue requirements without consideration of any
21 potential transmission impacts.
- 22 • If only the SCCF is denied, the adverse impact would be the
23 continuation of service of the coal unit and approximately \$502 million
24 of additional NPV revenue requirements.

1 • If only the SHCCF is denied, the impact would be approximately \$363
2 million along with the continuation of service of the coal unit.

3

4 **Q. Does this conclude your testimony?**

5 A. Yes

6

JULIA A. DIAZGRANADOS

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JDiazgranados@seminole-electric.com • Work 813-739-1538 • cell 813-789-8203

CAREER EXPERIENCE

SEMINOLE ELECTRIC COOPERATIVE INC.

16313 North Dale Mabry Highway, Tampa, Florida 33618

Director of Planning (2017-Present)

Leads budget and financial forecasting processes along with the planning and related analysis of Seminole's long range generating capacity needs including the evaluation of generation alternatives. Provides supervision and work direction to budget, financial forecast and generation planning personnel. Responsible for the application of production costing and corporate financial models in the performance of generation studies budgeting and financial forecasting. Enables integration of Seminole load forecasting into budget, financial and resource planning

Planning Manager (2013-2017)

Directs generation planning staff and cross-functional teams in order to develop studies used in establishing long-term rate projections; financial forecasts; and generation plans to meet future energy needs. Conducts risk assessment of power supply alternatives. Presents study results and recommendations to Executive Staff and Board of Directors. Seminole representative on the Florida Reliability Coordinating Council's Resource Subcommittee and the Generation & Transmission Resource Planning Association.

Generation Planning Supervisor (2010-2013)

Oversees the planning and related analysis of Seminole's long range generating capacity needs including the evaluation of generation alternatives. Provides supervision and work direction to generation planning personnel. Responsible for the application of production costing and corporate financial models in the performance of generation studies.

Lead Strategic Planning Analyst (2007-2009)

Coordinates and participates in the planning and related analysis of the long range generating capacity needs including evaluation of generation alternatives. Responsible for the application of production costing and system optimization models in the performance of generation planning studies.

Senior Strategic Planning Analyst (2005-2007)

Participates in the planning and related analysis of long range generation capacity needs including the evaluation of generation alternatives. Strategic plans included, but not limited to, the evaluation of proposed self-build generation units verses power purchase agreements, development of options for meeting renewable targets, and establishing financial strategies.

FUTURE SCOPE, INC.

400 WEST LAKE STREET, SUITE 306, ROSELLE, IL 60172

Principal – Utility Advisory (1999 – 2004)

Provided various utilities in the mid-west and east coast with situational assessments; resolution proposals; application design; project management including budgeting and resource requirements; implementation of systems; and development of user documentation. Created and conducted training courses of developed systems. Oversight of marketing campaigns; sales presentations; and implementation process of company's Capital Management and Cost of Service applications.

ALLEGHENY ENERGY SERVICE CORPORATION

800 CABIN HILL DRIVE, GREENSBURG, PA 15601

Financial Analyst 1996 -1999

Prepared assumptions and model runs to support operational decision-making, long-term forecasting, budgeting and strategic planning. Performed capital project evaluations/analysis on proposed investments to assist in the prioritizing/allocating of funds. Managed and coordinated the replacement of the Corporate Financial and Capital Management Systems with outside consultants.

Financial Services Analyst 1991 -1996

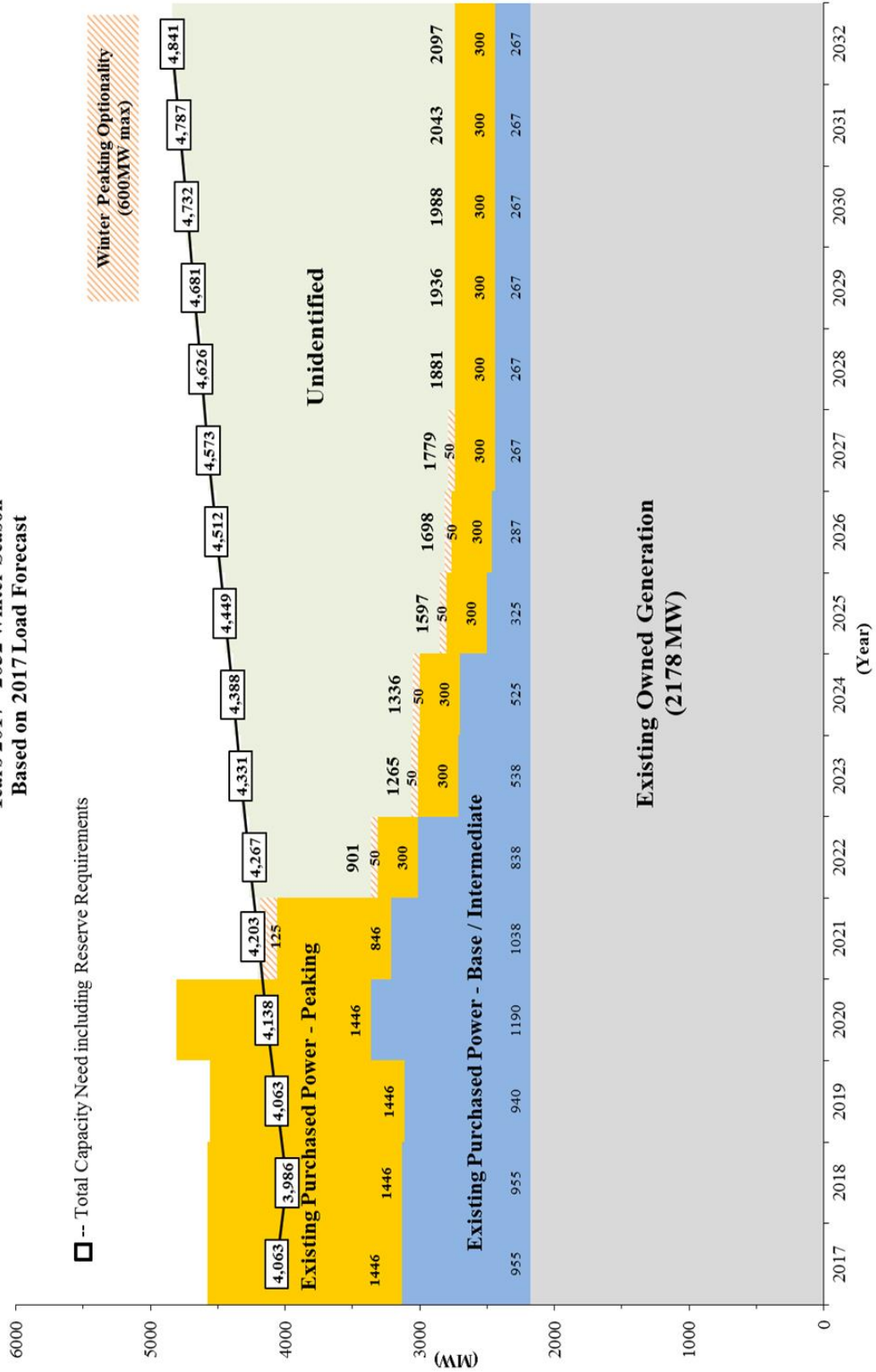
Maintained and ran Corporate Financial Models. Responsible for the administrative duties of the Local Area Network (LAN) - setup servers, created backup/restore procedures, established user access rights, configured user workstations, and provided technical support for seven departments within Financial Service's area.

EDUCATION

Bachelors of Science Degree, Business Administration
Associate of Science Degree, Electronic Data Processing
FAIRMONT STATE UNIVERSITY
FAIRMONT, WV

- Awarded the Outstanding Electronic Data Processing Student Award

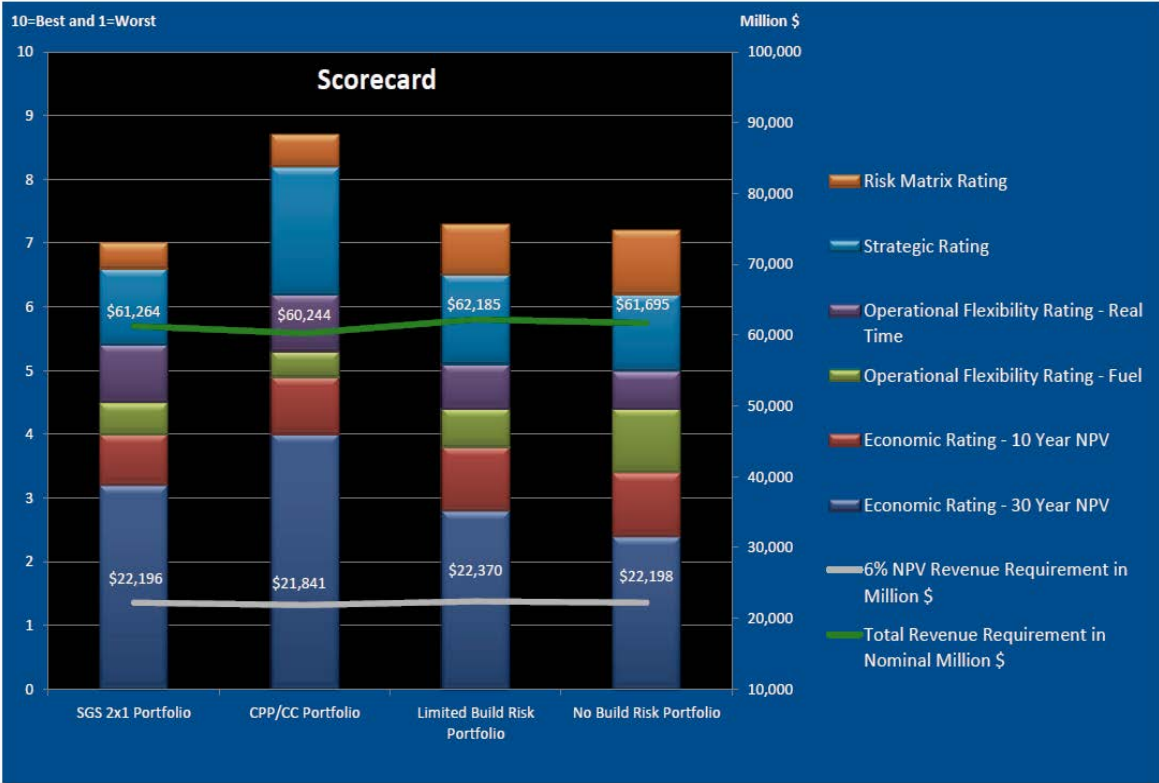
Seminole Gap Chart
 Years 2017 - 2032 Winter Season
 Based on 2017 Load Forecast



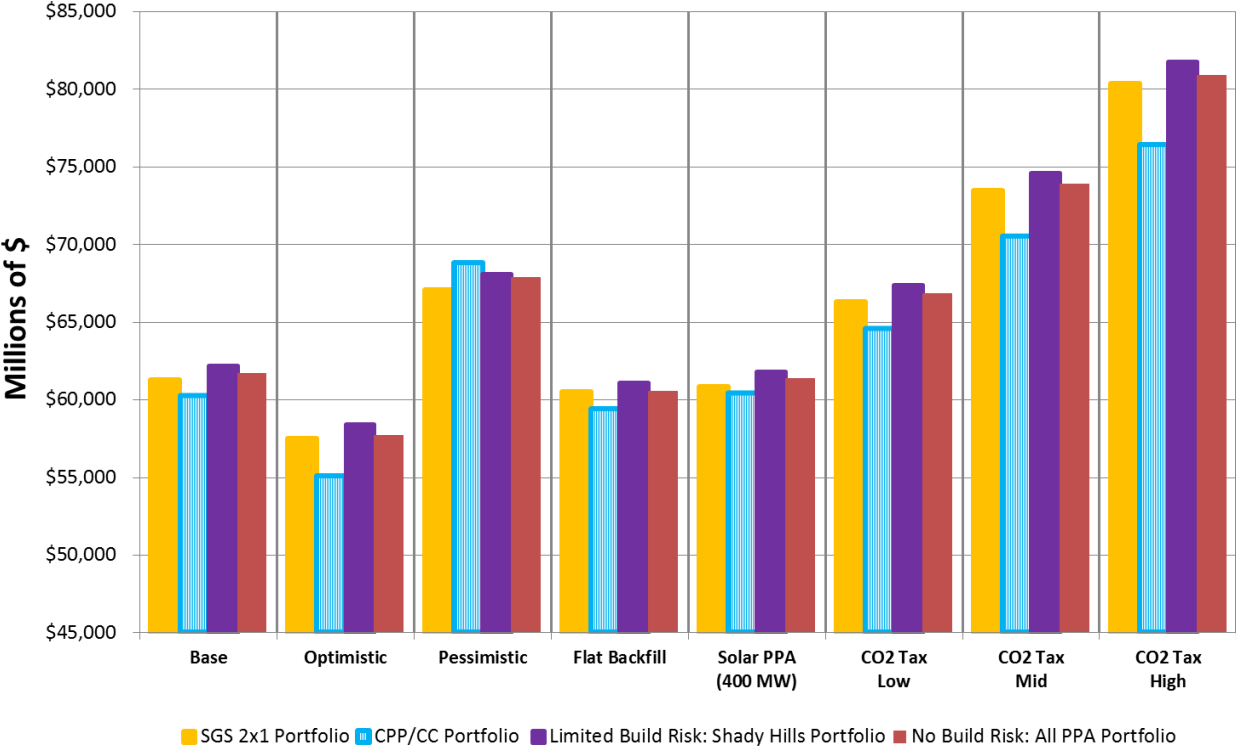
Summary of Initial Economic Analyses

Portfolio Summaries Initial Economic Analysis Results (millions of \$)				
	SGS 2x1 Portfolio	CPP/CC Portfolio	Limited Build Risk: Shady Hills Portfolio	No Build Risk: All PPA Portfolio
Resources	-SGS 2x1 -Multiple PPA	-SGS 2x1 -Shady Hills 1x1 -Multiple PPA	-Shady Hills 1x1 -Multiple PPA	-Multiple PPA
Total Member Revenue Requirements - Years 2018-2027 (millions of \$)				
Nominal	12,381	12,266	12,196	12,096
NPV @ 6.0%	9,008	8,936	8,885	8,797
Total Member Revenue Requirements - Years 2018-2051 (millions of \$)				
Nominal	61,264	60,244	62,185	61,695
NPV @ 6.0%	22,196	21,841	22,370	22,198

Portfolio Scorecard Assessment



Total Member Revenue Requirements (Nominal \$)



<h2 style="text-align: center;">Portfolio Summaries</h2> <h3 style="text-align: center;">Revised Economic Analysis Results</h3> <p style="text-align: center;">(millions of \$)</p>				
	SGS 2x1 Portfolio	CPP/CC Portfolio	Limited Build Risk: Shady Hills Portfolio	No Build Risk: All PPA Portfolio
Resources	-SGS 2x1 -Multiple PPA	-SGS 2x1 -Shady Hills 1x1 -Multiple PPA	-Shady Hills 1x1 -Multiple PPA	-Multiple PPA
Total Member Revenue Requirements - Years 2018-2027 (millions of \$)				
Nominal	11,859	11,754	11,735	11,666
NPV @ 6.0%	8,641	8,568	8,549	8,499
Total Member Revenue Requirements - Years 2018-2051 (millions of \$)				
Nominal	57,539	56,465	58,312	58,616
NPV @ 6.0%	20,981	20,618	21,120	21,148