

March 10, 2006

BY HAND DELIVERY

Ms. Blanca S. Bayó, Director
Division of the Commission Clerk and
Administrative Services
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, Florida 32399-0850

060220-EL

Re: Docket No. 06 _____ -EU
In re: Petition To Determine Need For an Electrical Power Plant in
Putnam County by Seminole Electric Cooperative, Inc.

DNs 02089-06 thru 02097-06
& 02115-06

Dear Ms. Bayó:

By means of this transmittal, Seminole Electric Cooperative, Inc. ("Seminole") is initiating a determination of need proceeding pursuant to Section 403.519, Florida Statutes. Seminole seeks a determination of need for a 750 MW supercritical pulverized coal unit, Seminole Generating Station Unit 3 ("SGS Unit 3"). During the last two years, Seminole's extensive analyses have quantified a significant capacity need on Seminole's system, have considered numerous self-build and market based alternatives that could meet that need and have determined that SGS Unit 3 is the most cost-effective alternative available to meet Seminole's base load capacity need in 2012 and beyond.

Therefore, enclosed for filing on behalf of Seminole are the original and seven (7) copies of: (a) Petition For Determination of Need For an Electrical Power Plant; (b) Need Study; (c) Need Study Appendices A-L; (d) direct testimony of Timothy S. Woodbury; (e) direct testimony of Michael Opalinski; (f) direct testimony of Richard Klover; (g) direct testimony of Wm. Jack Reid; (h) direct testimony of William (Bill) Lawton; (i) direct testimony of Trudy Novak; and (j) direct testimony of Lane Mahaffey.

Also being filed is a diskette containing the electronic version of the Petition For Determination of Need For an Electrical Power Plant. The enclosed diskette is HD density; the operating system is Windows XP; and the word processing software in which the document appears is Word 2003.

Ms. Blanca S. Bayo, Director
March 10, 2006
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SQUIRE, SANDERS & DEMPSEY L.L.P.
Including
STEEL HECTOR & DAVIS LLP

If you or your staff has any questions regarding this transmittal, please contact me at 222-2300.

Sincerely,

SQUIRE, SANDERS & DEMPSEY L.L.P.



Charles A. Guyton

CAG/gcm
Enclosures

cc: Jennifer A. Rodan, Esq. (w/enclosures)
Harold A. McLean, Esq. (w/enclosures)

TALLAHASSEE/54629.1

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition To Determine Need For
an Electrical Power Plant in Putnam County
by Seminole Electric Cooperative, Inc.

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Docket No. 060220-EC
Dated: March 10, 2006

PETITION FOR DETERMINATION OF NEED
FOR AN ELECTRICAL POWER PLANT

Pursuant to Section 403.519, Florida Statutes, and Rules 25-22.080 and 25-22.081, Florida Administrative Code ("FAC"), Seminole Electric Cooperative, Inc. ("Seminole") respectfully petitions the Florida Public Service Commission ("PSC" or the "Commission") for an affirmative determination of need for the construction of a new coal-fired unit at Seminole's existing Seminole Generating Station ("SGS") site, which will be referred to as SGS Unit 3. In support thereof, Seminole states:

1. SGS Unit 3 will be a pulverized coal unit using a supercritical boiler design and incorporating state of the art emission controls. SGS Unit 3 will have a net nominal rating of 750 MW.¹
2. Seminole proposes to place SGS Unit 3 into commercial service by May 2012. To this end, Seminole filed its Site Certification application with the Florida Department of Environmental Protection on March 8, 2006.
3. In conjunction with this Petition, Seminole is submitting a detailed need study document and appendices which develop more fully the information required by Rule 25-22.081, FAC, and which are hereby incorporated by reference (collectively, the "Need Study"). In

¹ Throughout this Petition and the Need Study accompanying the Petition, SGS Unit 3 will be shown as having a rating of 750 MW. This is a net rather than gross measure of output. It is also nominal in the sense that final equipment has not been ordered or tested.

addition, Seminole is submitting the pre-filed testimony of seven witnesses in support of this Petition and the Need Study. As demonstrated below and in the Need Study and Seminole's supporting testimony, SGS Unit 3 will improve electric system reliability and integrity, provide adequate power at reasonable cost, and serve as the most cost-effective option for providing the generation capacity needed to meet the needs of Seminole, its member cooperatives ("Members") and their member/consumers. SGS Unit 3 will also help Seminole avoid an over-reliance on natural gas for its system energy requirements in the future. There is no reasonably available conservation or demand side management ("DSM") that would mitigate the need for SGS Unit 3.

I. Preliminary Information

4. The agency affected by this Petition is the Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850.

5. The Petitioner's name, address and telephone number are:

Seminole Electric Cooperative, Inc.
16313 North Dale Mabry Highway
Tampa, Florida 33688-2000
(813) 739-1253

6. The names, addresses and telephone numbers of Seminole's representatives to receive communications regarding this docket are:

Charles A. Guyton, Esq.
Squire, Sanders & Dempsey LLP
215 South Monroe Street
Suite 601
Tallahassee, Florida 32301
(850) 222-2300
(850) 222-8410 (facsimile)

Mr. Lane Mahaffey
Director of Corporate Planning
Seminole Electric Cooperative, Inc.
16313 North Dale Mabry Highway
Tampa, Florida 33688-2000
(813) 739-1253
(813) 264-7906 (facsimile)

II. The Primarily Affected Utilities

7. Seminole is a not for profit rural electric cooperative organized under Chapter 425, Florida Statutes, with its headquarters at 16313 North Dale Mabry Highway in Tampa, Florida. Seminole is an “electric utility” as defined in Section 403.503(13) and is an “applicant,” as defined in Section 403.503(4), for purposes of Section 403.519, Florida Statutes.

8. Seminole is a generation and transmission cooperative that makes only wholesale, not retail, sales. It presently has ten Members, each of which is also a rural electric cooperative organized under Chapter 425, Florida Statutes. Each Member is a distribution cooperative serving retail end use member/consumers in Florida (“consumers”), and each has a long term Wholesale Power Contract with Seminole. Those Wholesale Power Contracts require the Members to purchase from Seminole all of their power requirements for distribution within the State of Florida, except for a small amount of power (26 MW) that is supplied to the Members under pre-existing contracts.²

9. Seminole and its Members are the “primarily affected utilities” within the meaning of Rule 25-22.081, FAC.

² The Wholesale Power Contracts had an initial term of forty-five years, until 2020. In April 2004, the Wholesale Power Contracts between Seminole and seven of Seminole’s ten Members, representing approximately 55% of Seminole’s current load, were amended to extend the initial term of the Wholesale Power Contract by 25 years, through 2045. Discussions continue between Seminole and its three remaining Members which could result in similar contract term extensions for some or all of those Members. Indeed, two of those three Members (representing 23% of Seminole’s current load) have committed to extend their Wholesale Power Contracts through 2045. Given the uncertainty of whether all Members would extend the term of their Wholesale Power Contracts, however, Seminole has based its capacity need and economic assessments for this determination of need on serving only the seven Members that have already signed contract extensions.

10. In 2004, the Members had 805,085 consumers who used 15,348 GWh of energy and who placed a coincident system peak demand on Seminole of 3,365 MW. Seminole's highest peak demand on record occurred in February 2006 at 4,113 MW (estimated). Members must serve both their existing consumers and new consumers that locate in their service territories. The Members' systems have experienced, and are forecasted to continue experiencing, some of the fastest growth in the State of Florida. Over the last five years, the collective number of consumers served by the Members has grown by 3.4% and is projected to grow by 2.8% over the next ten years. The energy consumption of those consumers grew by 5.2% over the last five years and is projected to grow by 4.1% over the next ten years. The coincident winter peak demand imposed on Seminole's system by the Members has grown by 3.9% over the last five years and is projected to grow by 4.1% over the next ten years.

11. Seminole is part of an interconnected power network. As detailed in the Need Study, Seminole's owned and leased generating facilities are interconnected to the Florida grid at fifteen 230 kV transmission interconnections with five other utilities. Seminole's transmission facilities consist of 278 circuit miles of 230 kV transmission lines and fourteen 69 kV lines totaling 140 miles in length. In addition, Seminole receives firm transmission service from Florida Power & Light Company ("FPL") and Progress Energy Florida, Inc. ("PEF").

12. Seminole serves its Members' system load with a combination of owned generation and power purchase contracts, as briefly described below and discussed in greater detail in the Need Study.

13. Seminole's existing generating resources are located at three generating sites. SGS Units 1 & 2 are 650 MW class pulverized coal units located at the SGS site in Putnam County, Florida. Payne Creek Generating Station (PCGS) Unit 1 is a 500 MW class gas combined cycle

unit located in Hardee County, Florida. Finally, Seminole owns an approximate 15 MW share of PEF's Crystal River 3 nuclear generating unit, located in Citrus County, Florida.

14. Seminole's power purchases currently serve approximately 60% of its Members' load. Seminole has power purchase contracts with one investor owned electric utility and five other wholesale power suppliers, as well as arrangements to purchase excess capacity from "load management" generation owned by its Members. In addition, Seminole purchases capacity and energy from three renewable resources in Florida, currently totaling 54 MW. A substantial portion of Seminole's power purchase contracts will expire by 2012 (when SGS Unit 3 is scheduled for commercial operation) or shortly thereafter.

15. Based on established reliability criteria discussed below and in greater detail in the Need Study, Seminole projects that it will need more than 1,200 MW of additional capacity to meet its reliability needs and provide adequate reserves by the summer of 2012.

16. Seminole's and its Members' substantial interests will be affected by the Commission's decision on this Petition. As discussed in greater detail in Section VII below and the Need Study, if the Commission did not make an affirmative determination of need for SGS Unit 3, there would be adverse impacts on Seminole system reliability, Seminole's cost of generating electricity, and the fuel diversity of Seminole's generation mix. Because the Members are dependent upon Seminole for essentially all of their wholesale power requirements and are obligated under their Wholesale Power Contracts to pay rates that fully recover Seminole's costs, they would also suffer directly from these adverse impacts on Seminole.

III. The Proposed Electrical Power Plant

17. SGS Unit 3 is a pulverized coal unit designed to burn 100% bituminous coal as well as a blend of bituminous coal and petroleum coke (petcoke) with a blend ratio of approximately

70% coal to 30% petcoke. SGS Unit 3 will be a brownfield project, because it will be located at the existing SGS site that presently supports two coal units (SGS Units 1 and 2). The site consists of 1,966 acres in northeast Putnam County approximately five miles north of the City of Palatka. The site presently contains all the facilities needed for operation of the existing units, including but not limited to all coal unloading and storage facilities, pollution control equipment and solid waste disposal areas for flyash and other solid waste materials. The design of SGS Unit 3 will maximize the co-use of those existing site facilities. Siting SGS Unit 3 at an existing site avoids both the cost and uncertainty associated with securing another site and the need to devote additional valuable Florida land resources to electrical generating sites and transmission lines.

18. The SGS Unit 3 boiler will be designed to operate at supercritical steam conditions. In the supercritical pressure-temperature region, water converts directly to steam without two phase fluid existing. The primary advantages of a supercritical steam cycle over a subcritical steam cycle are improved plant efficiency due to higher operating pressures and temperatures, lower emissions, and lower fuel consumption. An additional advantage of the sliding pressure supercritical boiler design planned for SGS Unit 3 is that it simplifies cycling the unit and thus better accommodates fluctuations in Seminole's system demand. SGS Unit 3, at average annual ambient conditions (71° F dry bulb and 67° wet bulb outside air temperature) and base load operating conditions, will have an expected net plant output of 750 MW and a net plant heat rate of approximately 9,000 Btu/kWh. Additional detail on SGS Unit 3's steam cycle and operating parameters is provided in the Need Study.

19. SGS Unit 3 will have the following state of the art air emissions control equipment: Low NO_x Burners and Staged Combustion/Overfire Air for NO_x control; Selective Catalytic

Reduction for NO_x control; Electrostatic Precipitator for particulate control; Wet Flue Gas Desulfurization for SO₂ control; Wet ESP for sulfuric acid mist control; and mercury removal through application of the above technologies. In addition to these emission controls, the higher efficiency of the unit's supercritical design will result in fewer air emissions per unit of output than would be the case for an equivalent subcritical unit. SGS Unit 3's low-emission design, together with emission-reduction measures that Seminole plans to take at SGS Units 1 and 2 for independent reasons, will result in combined NO_x, SO₂, and mercury emissions from all three units that will be less than the current emissions from Units 1 and 2.

20. As previously noted, the primary fuel for SGS Unit 3 will be a blend of coal and petcoke. Seminole has negotiated a new long term agreement with Alliance Coal, LLC to supply 2,750,000 tons of coal a year to the SGS site through the year 2012, with an option to extend the agreement for four years (through 2016). Alliance provides coal from multiple mines in Kentucky and Illinois. The Alliance contract is a physical hedge to mitigate fuel availability and price risk, providing reliable supply and stable pricing with known and measurable quarterly price adjustments. The remaining annual requirements for coal and petcoke to supply SGS Units 1, 2 and 3 (to the extent not committed under firm term contracts in the future) will be secured through spot market agreements for specified quantities for periods ranging from 1 to 18 months. Pace Global Energy Services has independently reviewed the long term availability of coal and petcoke for the SGS units and concluded that "[t]he supply of solid fuel from domestic and foreign sources will be adequate over the study period (present through the year 2040)."

21. Seminole currently has a rail transportation contract with CSX Transportation, Inc. ("CSXT") to transport coal and pet coke from various origin mines or import terminals to the SGS site. This contract expires at the end of 2008, but Seminole can extend it or enter into a new

contract with CSXT for a term that will meet Seminole's long term fuel transportation objectives. Seminole is also researching potential competitive access to international coal sources and other domestic coal mines via east coast shipping terminals that are served by the Norfolk Southern Railroad.

22. Seminole receives firm transmission service from FPL under FPL's Open Access Transmission Tariff and from PEF under a "1983 Agreement" between Seminole and PEF. The transmission service agreements give Seminole the contractual right to serve Member load in the FPL and PEF transmission control areas from Seminole's designated generating resources, but when transmission service from new capacity resources is requested, Seminole must receive approval from FPL and PEF. As a prerequisite for approval, Seminole performed a Transmission System Impact Study for SGS Unit 3. The Study showed that, while no new transmission lines are required in order to interconnect SGS Unit 3 to the Florida grid, certain existing transmission equipment on Seminole's transmission system will need to be upgraded to integrate the additional output. Seminole has received written notification from FPL and PEF confirming that SGS Unit 3 will be designated as a Seminole Network Resource to serve Seminole Member load.

23. SGS Unit 3 will be a highly reliable source of capacity and energy for Seminole, its Members, and their consumers. Seminole has substantial, favorable experience in operating its existing coal units, SGS Units 1 and 2. Seminole will bring this experience to bear in the operation of SGS Unit 3 and expects that it likewise will be highly reliable. In turn, this will improve system reliability and integrity for Seminole and its Members, as well as for Peninsular Florida in general.

24. The estimated total capital cost for SGS Unit 3 is \$1.43 billion (2012 dollars). This estimate includes all plant facilities, transmission system upgrades, spare parts, testing, sales tax, interest during construction, risk insurance, and Seminole labor and overhead.

25. The expected construction duration for SGS Unit 3 is approximately 42 months, which is in the range of other coal fired power plants of similar size and design. In order to achieve the planned commercial operation date of May 2012, construction must commence by October 2008.

IV. Seminole's Need for SGS Unit 3

26. Seminole primarily relies upon its reliability criteria to determine the amount of generating capacity needed in future years to meet forecast load. Those reliability criteria have two principal components: (1) a minimum reserve margin of 15% during the peak season, and (2) a 1% Equivalent Unserved Energy ("EUE") limitation. Both components help ensure that Seminole has adequate generating capacity to provide reliable service to its Members and to limit Seminole's reliance on interconnected neighboring systems for emergency reserve purchases. Seminole routinely assesses its generation portfolio against its load forecast and reliability criteria to determine when and how much capacity must be added for reliability purposes.

27. Seminole's historical and forecast Member consumers, peak demand, and energy requirements for the period 2000 through 2020 are shown in the following table:

| Year | Total Consumers Avg. Annual | Winter Peak (MW) | Summer Peak (MW) | Energy purchased from Seminole (GWh) |
|-------------|------------------------------------|-------------------------|-------------------------|---|
| 2000 | 689,758 | 3,137 | 2,566 | 12,722 |
| 2001 | 710,920 | 3,517 | 2,662 | 12,948 |
| 2002 | 734,264 | 3,435 | 2,880 | 14,144 |
| 2003 | 761,639 | 3,982 | 2,876 | 14,793 |
| 2004 | 793,112 | 3,365 | 3,089 | 15,348 |
| 2005* | 827,037 | 3,776 | 3,448 | 16,080 |
| | | | | |

| | | | | |
|------|-----------|-------|-------|--------|
| 2006 | 858,479 | 4,277 | 3,444 | 16,924 |
| 2007 | 886,957 | 4,474 | 3,591 | 17,674 |
| 2008 | 914,006 | 4,668 | 3,737 | 18,476 |
| 2009 | 940,980 | 4,864 | 3,886 | 19,201 |
| 2010 | 967,986 | 5,067 | 4,040 | 19,993 |
| 2011 | 991,904 | 5,263 | 4,183 | 20,751 |
| 2012 | 1,015,876 | 5,461 | 4,333 | 21,593 |
| 2013 | 1,039,763 | 5,666 | 4,487 | 22,351 |
| 2014 | 1,063,561 | 5,877 | 4,644 | 23,184 |
| 2015 | 1,087,362 | 6,089 | 4,802 | 24,021 |
| 2016 | 1,110,035 | 6,301 | 4,957 | 24,913 |
| 2017 | 1,132,577 | 6,514 | 5,115 | 25,694 |
| 2018 | 1,154,924 | 6,728 | 5,274 | 26,551 |
| 2019 | 1,177,275 | 6,948 | 5,437 | 27,427 |
| 2020 | 1,199,628 | 7,173 | 5,603 | 28,390 |

* Total consumers and energy are estimated actual.

28. Based on Seminole's forecasted load growth and the scheduled expiration of purchased power contracts (i.e., 546 MW Southern Oleander combustion turbine purchase, 350 MW Calpine combined cycle purchase, 50 MW Lee County Resource Recovery purchase, and planned annual adjustments in Seminole's PEF Partial Requirements contract), Seminole anticipates a total capacity shortfall by summer 2012 exceeding 1,200 MW. SGS Unit 3 will provide some, but not all, of the additional generating capacity needed to satisfy this capacity shortfall.

29. In addition to determining the *amount* of capacity needed to maintain reliability, Seminole also performs scenario studies to determine the *type* of capacity (i.e., base, intermediate, peaking) that should be added to provide the most cost-effective generation mix. Of the 1200 MW that are needed by 2012 for reliability purposes, Seminole determined that up to 750 MW should be a base load resource. SGS Unit 3 is well suited to operation as a base load resource, and it will thus satisfy Seminole's 2012 need for additional base load capacity.

30. The same system optimization analyses that showed a need to add base load capacity also show that this capacity should be coal fired. Gas combined cycle technology has

for a number of years served as the technology of choice for base load capacity. However, sustained gas price increases over the last several years, as well as forecasts of a continuing significant differential between the cost of gas and coal, indicate that coal would be a preferable base load technology. As a coal unit, SGS Unit 3 is thus the proper choice of fuel type for Seminole's base load capacity need.

31. Finally, SGS Unit 3 will also help meet the needs of Peninsular Florida. The utilities in Peninsular Florida report that, in aggregate, they will require over 18,000 MW of new generating capacity by the year 2014.³ The addition of SGS Unit 3 will contribute to meeting this statewide need for power. Moreover, the aggregate reliance of Peninsular Florida on natural gas for electric energy is projected to increase from 32% in 2005 to 46% in 2011. The addition of SGS Unit 3 and other currently announced coal projects will decrease this reliance on natural gas by approximately 2% in 2013.

V. Seminole's Analysis of Generating Alternatives

32. As discussed in more detail in the Need Study, Seminole identified for potential evaluation five alternative self-build generating technologies to address its base load need: advanced nuclear, circulating fluidized bed ("CFB") coal, integrated gasification combined cycle ("IGCC"), gas combined cycle, and pulverized coal. Advanced nuclear was screened out because Seminole would only be able to utilize this technology as part of a consortium, and the earliest target date for commercial operation being considered by any consortium is in the 2015/2016 time frame. Seminole also screened out CFB coal because it would be more costly than pulverized coal for large projects, would not provide any modularity benefits or significant

³ See FRCC Regional Load and Resource Plan, July 2005.

environmental emission advantages, and would present a greater waste disposal problem than pulverized coal.

33. Having screened out advanced nuclear and CFB coal technologies, Seminole then asked Burns & McDonnell, its plant evaluation and design consultant, to assess the feasibility and economics of the remaining three alternatives: IGCC, gas combined cycle, and pulverized coal. The resulting August 2004 Feasibility Study concluded that a 600 MW pulverized coal unit (either supercritical or subcritical design) was feasible on Seminole's existing SGS site and would be more economical than a gas combined cycle alternative of equivalent output. The Study also concluded that IGCC was not adequately proven in commercial scale applications and should not be considered to meet Seminole's 2012 capacity need. Seminole accepted Burns & McDonnell's assessment of IGCC technology and determined to proceed into its competitive bidding process with three self-build alternatives that would be evaluated against the bid responses: a pulverized coal unit utilizing either supercritical or subcritical design, a joint coal unit participation alternative⁴ and a gas combined cycle option.

34. An "all-source" Request For Proposals ("RFP") for purchased power alternatives was issued to the wholesale market on April 19, 2004, with a deadline of September 1, 2004 for responses. The RFP solicited proposals for up to 600 MW of firm base load capacity beginning as early as Summer 2009, and the RFP was structured to allow bidders a great deal of flexibility for meeting Seminole's needs in regard to type of capacity and contract term. Notice of the RFP was widely distributed: it was announced directly to over forty business contacts who had expressed interest to Seminole; a news release was electronically distributed to various industry and general news publications; and notice was posted on Seminole's website. Potential bidders

⁴ Seminole had joined with four municipal utilities to study the feasibility of building a joint coal unit. Seminole's potential share of that unit was 150 MW.

were invited to raise questions or ask for additional information about the RFP. In response to inputs it received from potential bidders, Seminole developed clarifying RFP addenda that were posted on Seminole’s website and directly e-mailed to the list of known potential bidders.

35. Seminole received fourteen proposals from five different entities in response to the RFP. The bidders were independent power producers and investor-owned utilities. Base load and intermediate capacity was offered in amounts ranging from 100 MW to 750 MW, for terms from ten to forty years. The offers included capacity from one existing gas combined cycle unit and from several new pulverized coal units and gas combined cycle units. The following table summarizes the responses received.

| Bidder | Type | No. of Offers | MW | Term (Years) |
|-------------|------|---------------|---------|--------------|
| Invenergy | IPP | 2 | 520-650 | 20 or 30 |
| LS Power | IPP | 1 | 400-600 | 20 or 30 |
| Pasco Cogen | IPP | 2 | 104-115 | 20 |
| Peabody | IPP | 1 | 100-750 | 10-40 |
| Southern | IOU | 8 | 493-655 | 20 |

36. Following receipt of the bids, Seminole staff performed an initial screening for completeness and responsiveness. Seminole also reviewed the bids involving construction of new capacity to determine if they were technically and environmentally viable and if the unit performance data was reasonable. None of the bids was excluded from further consideration as a result of either administrative or technical screening. All of the bidders were contacted on September 16, 2004 for clarification of specific terms and conditions of their offers including pricing and unit characteristics.

37. After completion of the bid qualification and clarification process, Seminole used a comparison of “bus bar costs” as an economic screening tool to rank and compare the purchased

power proposals and the self-build alternatives.⁵ This analysis showed that the self-build coal alternatives had a significantly lower cost than any of the purchased power alternatives and also were less costly than Seminole's gas combined cycle alternative. On the basis of those findings, Seminole invited the lowest cost purchased power bidders to re-submit pricing to improve their proposals. Although one bidder improved its proposal marginally, the proposal's relative economics were unaffected.

38. The RFP stated that Seminole favored proposals and/or technologies that would yield stable energy costs. Seminole contemplated that bidders of gas-based technologies might bid a hedged gas price from gas reserves or liquefied natural gas, but none of the gas plant bidders offered any hedging. Had the costs between coal and gas alternatives been closer, the historical cost stability of coal over gas would have provided an additional benefit to coal alternatives, but because the economics were significantly favorable to coal, this issue did not come into play.

39. The economic advantage of a coal unit over any of the purchased power alternatives was so significant that Seminole's staff determined that further negotiations would not change the ranking of options. Therefore, in December 2004 Seminole's Board approved discontinuing negotiations with the RFP bidders. However, the RFP reserved to Seminole the right to conduct separate negotiations for small power resources not exceeding a cap of 50 MW. Consistent with this provision, Seminole conducted parallel discussions that resulted in two contracts for base load capacity from renewable resource facilities: DG Telogia Power, LLC (approximately 12

⁵ "Bus bar cost" is a representation of all of the costs of a generation alternative in terms of \$ per MWh. Bus bar costs are formulated by dividing the total fixed and variable costs by the MWh of energy generated. The bus bar cost calculation is performed at one or more specified capacity factors representing the expected range of operation of the generation resource being evaluated. In Seminole's analysis, bus bar costs were levelized over 20 years.

MW from biomass fueled steam generation) and Bio-Energy Partners (approximately 7 MW from a landfill gas facility).

40. While Seminole had determined that a 600 MW coal generating unit at the SGS site was far more cost-effective than the RFP proposals, Seminole reevaluated the portion of its 2012 reliability need that should operate in a base load fashion by 2012. Seminole's updated evaluation showed that up to 750 MW could operate economically in a base load fashion. Seminole had two principal options to provide 750 MW of base load capacity. It could continue to plan for a 600 MW self-build coal unit and participate in the joint coal unit project for 150 MW. Alternatively, Seminole could increase the size of the self-build coal unit from 600 MW to 750 MW. In February 2005, Burns & McDonnell updated its August 2004 Feasibility Study to determine if a 750 MW unit could be constructed and permitted at the SGS site. The updated study concluded that a 750 MW self-build coal unit was feasible and, due to economies of scale, would be the economically preferred alternative. As a result of these findings, Seminole withdrew from the joint project and scaled SGS Unit 3 up to 750 MW.

41. Shortly after the decision to scale SGS Unit 3 up to 750 MW, Seminole also determined to proceed with a supercritical boiler design for the unit. Seminole relied upon Burns & McDonnell to identify the relative merits of using a subcritical or supercritical boiler design. Burns & McDonnell advised that supercritical design is inherently more efficient and, therefore, has lower air emissions for a given level of electric output. There were operational and reliability concerns with the early generations of supercritical design, but Burns & McDonnell reported that those concerns have been addressed in current supercritical designs. Burns & McDonnell found that most of the more-recent coal-fired units in Japan and Europe use supercritical design. Burns & McDonnell expressed a potential reliability concern resulting from

burning high-sulfur coal and pet coke in supercritical boilers, but noted that it has been advised by the boiler manufacturer for one of its projects that this reliability concern can be effectively addressed with proper boiler tube material and preventive maintenance practices and inspections. Using this information, Seminole ultimately selected the more efficient, lower emission option of supercritical design. Burns & McDonnell endorsed this decision.

42. After deciding upon the size and boiler design for SGS Unit 3, Seminole conducted two additional analyses in order to confirm the robustness of its conclusion that a coal alternative represented the most cost-effective alternative.

43. First, Seminole enlisted the assistance of R.W. Beck to conduct a probability based risk assessment between a coal-based scenario and an all-gas scenario based on an equivalent amount of gas combined cycle capacity. This technique involved identifying key input variables, developing a probability distribution representing the range of uncertainty for each key variable, and performing case runs that were impacted by the aggregation of all uncertainties regarding the key variables. The risk assessment confirmed the economic advantage of the coal-based scenario and demonstrated that this advantage persisted over a wide range of reasonable variances in the key input assumptions. Specifically, it predicted that when probability distributions were used for key input assumptions, there was an 80% probability that the coal-based scenario would yield lower costs to Seminole than the gas-based scenario.

44. Second, all of the assumptions used in Seminole's analyses were reviewed and many of the major assumptions were updated during the Summer of 2005, including Seminole's SGS Unit 3 project size and cost, load forecast, and fuel price forecast. These updated results showed that building SGS Unit 3 as a 750 MW supercritical coal unit would provide a

cumulative present worth revenue requirements savings of \$498 million relative to an all-gas scenario.

45. To bridge these results to the December 2004 base case assumptions (which had assumed a 600 MW self built unit), a case study using the December 2004 assumptions was created which compared SGS Unit 3 with (1) Seminole's 600 MW coal unit in combination with the 150 MW participation in the joint coal unit, (2) an all-gas scenario comprised of an equivalent amount of gas combined cycle capacity, and (3) the best RFP alternative (i.e., a 600 MW supercritical pulverized coal unit, in combination with 150 MW from the joint coal unit). This case study showed that SGS Unit 3 would provide a cumulative present worth revenue requirement savings of \$123 million relative to (1), \$600 million relative to (2) and \$684 million relative to (3).

46. Seminole's RFP and economic analyses demonstrate that SGS Unit 3 is the best, most cost-effective supply side resource to meet the base load power supply needs of Seminole, its Members, and their retail consumers. SGS Unit 3 will result in significant economic savings and less economic risk relative to other alternatives available to Seminole. Seminole's election of a coal unit, as opposed to a gas unit, will significantly reduce its reliance on natural gas. The historical supply and price uncertainty associated with natural gas as a fuel supply is a strategic concern for Seminole and its Members. SGS Unit 3 will mitigate the risks associated with potential over-reliance on natural gas in future years.

VI. Seminole's Analysis of Non-Generating Alternatives

47. As a generation and transmission cooperative that does not serve end use consumers, Seminole does not have the opportunity itself to implement conservation or DSM

programs. Moreover, Seminole and its Members are not subject to the Florida Energy Efficiency and Conservation Act (“FEECA”). Thus, unlike investor-owned electric utilities, neither Seminole nor its Members are subject to the Commission’s processes for conservation and DSM goal setting and for program and plan approval.

48. Notwithstanding their exemption from the Commission’s FEECA processes, the Members offer conservation and DSM programs to their retail consumers. These offerings include consumer awareness efforts, energy audits, energy surveys, energy loans, insulation upgrades, lighting conversion, distribution system voltage control, customer-based generator programs, contractually interruptible load, and direct load control programs. A summary of the Members’ conservation and DSM activities is presented in Appendix L to the Need Study.

49. Seminole has developed appropriate price signals that encourage its Members to offer DSM when it is cost-effective to do so. In fact, Seminole’s price signals have contributed to the installation by the Members’ consumers of 237 MW of DSM and peak shaving capability, in the form of load control switches, voltage control, and load management generation. Most of these DSM resources are dispatchable by Seminole and reduce Seminole’s total system requirements for peaking generation.

50. The impact of the conservation efforts of the Members’ consumers are reflected (but not separately quantified) in the individual load forecasts of Members as well as Seminole’s composite load forecast. The 237 MW of DSM peak shaving capability installed by the Members’ consumers is also reflected in the load forecasts. Thus, Seminole’s determination that it will need 1,200 MW of additional capacity by 2012 already takes into account the load-reduction benefits of its Members’ existing conservation and DSM activities.

51. Seminole and its Members do not have available to them enough incremental, reasonably achievable and cost-effective conservation or DSM to meet Seminole's 2012 need for additional capacity. The incremental capacity need is so large and load growth is so robust that it would be unreasonable to expect that enough additional demand reduction could be identified and implemented in order to make a significant contribution toward that need. Even a retail utility that is comparable to Seminole's size and has the centralized staff and resources necessary to offer an aggressive, integrated DSM and conservation plan could not add 1,200 MW of cost-effective conservation and DSM over the course of six years. As a generation and transmission cooperative that has limited staff and resources and no direct interaction with, or control over, end-use consumers, the challenge would be even more insurmountable for Seminole. Moreover, DSM primarily affects the need for peaking capacity, so even if a large amount of incremental DSM could be identified and implemented, it would not be an effective substitute for the base load capacity that SGS Unit 3 will provide.

VII. Adverse Consequences If SGS Unit 3 Is Not Built

52. Adverse Impact on Seminole System Reliability. Over half of Seminole's generation portfolio consists of purchased power contracts. Contracts expiring in the time frame of the proposed unit addition combined with strong projected growth in Member service areas leave a deficiency of over 1,200 MW in total capacity need by 2012. SGS Unit 3 will satisfy a significant portion of that total need. In the event SGS Unit 3 is not constructed timely, Seminole will not meet its reliability criteria, and Seminole's Members and their member/consumers will be left without reliable wholesale service. After an exhaustive search, Seminole has identified no other alternative that would be as feasible and cost-effective as SGS Unit 3.

53. Adverse Impact on Seminole's Cost of Electricity. Seminole's election to build a 750 MW coal unit, as opposed to a purchased power contract or building another type of unit (e.g., gas combined cycle, combustion turbine, etc.), was based on economic studies which demonstrated that the recommended unit will provide the lowest cost of wholesale power for the benefit of the Members and their member/consumers. In the event SGS Unit 3 is not constructed timely, the economic studies which support this need application show that the cumulative present worth revenue requirements for an alternative, all-gas scenario would be approximately \$500 million higher. The Members and their member/consumers would be significantly harmed through higher wholesale rates if Seminole were required to incur these higher costs.

54. Adverse Impact on Seminole's Fuel Diversity. If SGS Unit 3 is not completed by 2012, Seminole will have to rely on natural gas for approximately 50% of its total system energy requirements. This level of reliance on natural gas will put Seminole, its Members and their member/consumers at undue risk of natural gas supply and price fluctuations.

55. Adverse Economic Impact on Putnam County. The construction of SGS Unit 3 will add some 1,500 construction positions through 2012 and approximately 50 permanent positions in Putnam County, Florida. There will be secondary and tertiary economic benefits in and around Putnam County with the addition of these positions. The tax base for the County and local governments would increase as well. All these significant economic benefits to Putnam County will be lost if SGS Unit 3 is not built as proposed.

VIII. Disputed Issues of Material Fact

56. At the time of this Petition, no other interested persons have advised Seminole that they intend to dispute issues of material fact concerning the determination of need for SGS

Unit 3. Therefore, Seminole presently does not know whether there will be any disputed issues of material fact. Moreover, this petition is not in response to a Commission decision, so Seminole cannot state when and how it received notice of an agency decision, use such a decision to identify disputed issues of material fact, or identify rules or statutes that require reversal or modification of a Commission decision.

57. In any event, Seminole intends to prove in this proceeding that SGS Unit 3 is needed to maintain electric system reliability and integrity and to provide adequate power at reasonable cost, and that SGS Unit 3 is the most cost-effective option for meeting Seminole's need for base load capacity in 2012. Seminole will also prove that there is no reasonably available conservation, DSM or other non-generation alternative that would mitigate the need for SGS Unit 3.

IX. Statutes and Rules That Warrant Requested Relief

57. Seminole is entitled to the determination of need for SGS Unit 3 requested in this Petition pursuant to §403.519, Florida Statutes, and Rule 25-22.080, Florida Administrative Code.

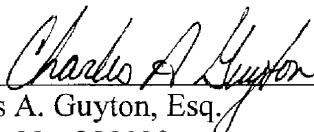
CONCLUSION AND STATEMENT OF RELIEF REQUESTED

SGS Unit 3 is a highly cost-effective option for meeting Seminole's base load capacity need in 2012. SGS Unit 3 is critically needed to meet reliability needs in 2012: it increases electric system reliability and integrity in Seminole's system and throughout Peninsular Florida; it provides Seminole with adequate power at reasonable cost; and it is the most cost-effective alternative to meet Seminole's need for additional base load capacity. In so doing, SGS Unit 3 also will serve the needs of the Members and their member/consumers.

Based upon the foregoing and the more detailed information in the Need Study and pre-filed testimony submitted contemporaneously with this Petition, Seminole requests that the Commission grant a favorable determination of need for SGS Unit 3 within the time limitations set forth in Rule 25-22.080, FAC.

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Petition for Determination of Need for An Electrical Power Plant was served upon the following by hand delivery (*) or U.S. Mail on this 10th day of March, 2006:

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