ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Complaint and petition by Lee County Electric Cooperative, Inc. for an investigation of the rate structure of Seminole Electric Cooperative, Inc.
_____/

Docket No. 981827

Filed: July 17, 2000

REBUTTAL TESTIMONY

of

WILLIAM STEVEN SEELYE

on behalf of

LEE COUNTY ELECTRIC COOPERATIVE, INC.

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is William Steven Seelye and my business address is The Prime Group, LLC, 6711 Fallen Leaf, Louisville, Kentucky, 40241.

Q. Are you the same William Steven Seelye that submitted Testimony on Behalf of Lee County Electric Cooperative ("LCEC") which was filed with the Florida Public Service Commission ("Commission") on May 30, 2000?

A. Yes.

II. PURPOSE AND SUMMARY OF REBUTTAL TESTIMONY

Q. What is the purpose of your testimony?

A. The purpose of the my testimony is to rebut the testimony filed by Seminole's witnesses David E. Christianson, Timothy S. Woodbury, and Trudy S. Novak on June 26, 2000.

Q. Please summarize your rebuttal testimony.

A. The testimony of the Seminole witnesses reinforces my opinion that Seminole is using rate design to buttress its own plans to build and purchase generation capacity by discouraging its members from pursuing alternatives such as load management, conservation and distributed generation. By using a three-year ratchet with a one-

year lag, using an incomplete and one-sided view of marginal cost, and sending an inaccurate and inappropriate price signal, Seminole is discouraging customers from pursuing viable and more efficient alternatives to purchasing capacity from Seminole.

III. THE USE OF A RATCHET DISCOURAGES CUSTOMERS FROM PURSUING ALTERNATIVES TO PURCHASING CAPACITY FROM SEMINOLE

Q. What is significant about the three-year ratchet in Seminole's development of the rate design reflected in Rate SECI-7 and Rate SECI-7b?

A. First of all, use of a three year energy ratchet to recover a significant portion of Seminole's fixed production costs runs counter to the position Seminole was taking as recently as February 19, 1998, which was about the same time that Seminole was developing Rate SECI-7. At that time, Seminole was insisting that fixed production costs should be recovered through the demand charge. In a presentation before LCEC's Board of Directors on February 19, 1998, Seminole's General Manager, Mr. Richard J. Midulla, explained why it was important that a utility's fixed costs be recovered through the demand charge:

> Now, why is demand important? As Curtis [the Chairman of LCEC's Board] alluded to, demand is the maximum amount that a supplier has to have available for your use at any point in time. Whether this is the coldest day in the winter or the hottest day

> in the summer, your peak demand has to be met by your supplier, which means it has to be met even if we had a line down; it has to be met even if we have one of our units down. So you have to have reserves, and you have to have contingencies available to meet that peak demand. And in order to do that, you have to have the resources, investments made to meet those resources.
>
> Historically, Seminole has put between 85 and 95 percent of our fixed costs that are associated with our overall revenue requirement into the demand charge. Why are fixed costs associated with demand and recovered through the demand charges? Because they are those costs which are incurred to secure those resources to meet that peak demand. It is investment in plant. It is a contract for reserves that you buy from someone else. So it is the investment that you are making to meet those peaks, and those are included in the demand charges, or at least partially included. You see, I said between 85 and 95. Some utilities have 60 percent. Some have 100 percent of the fixed costs in the demand charge. It could vary. (Transcript of LCEC Board Meeting, February 19, 1998) (emphasis added).

A copy of the slides used by Mr. Midulla to explain why fixed costs should be recovered through the demand charge is attached as Exhibit __ - (WSS – 6).

Q. Did Seminole's position as communicated by Mr. Midulla to the LCEC Board change?

A. Yes. On March 13, 1998, less than a month after Mr. Midulla's comments, Seminole was arguing in a presentation before Seminole's Rate Committee that a larger portion of fixed production costs should be removed from the demand charge and recovered

through a three-year energy ratchet. (See Woodbury testimony, p. 17 and Exhibit ___(TSW-5).)

Q. How can this change in direction be explained?

A. Assuming that Mr. Midulla was being forthright with the LCEC Board and that Seminole did suddenly change its position between the time Mr. Midulla addressed the LCEC Board on February 19, 1998 and the Seminole Rate Committee meeting on March 13, 1998, the only possible reasonable explanation for this sudden reversal in direction is that Seminole wanted to use rate design to prevent its members from pursuing alternatives which might hinder its own plans to install new generation facilities. Indeed, recovering fixed production costs through a three-year energy ratchet discourages customers from pursuing other alternatives such as load management, conservation and distributed generation, and has the practical effect of locking customers in to purchasing from Seminole.

Q. **How does the use of a three-year ratchet discourage load management, conservation and distributed generation?**

A. Seminole's three-year ratchet, along with the one-year lag effectively establishes a minimum power bill for its customers based on a customer's historical energy purchases during a period that extends back almost five years. Because this minimum bill is based on energy used in a prior period, the bill is "ratcheted" in

place and cannot be lowered by a customer reducing its energy or demand requirements. Thus, by introducing the ratchet, Seminole seriously dampens any incentive for its customers to use load management, conservation, and distributed resources to operate more efficiently. Although all ratchets dampen efficiency incentives, Seminole's ratchet is particularly troublesome because it locks a customer's minimum bill to almost five years of past energy purchases thus significantly reducing the impact of any changes in its customers' usage patterns. With Seminole's energy ratchet, it will take several years before either an increase or a decrease in demand will have a full impact on the power cost to Seminole's individual members. Even then, a member system that encourages its customers to shift usage from the peak period to the off-peak period is penalized through the application of the ratchet, which is applied to off-peak as well as on-peak energy purchases. Consequently, the three-year energy ratchet stymies any effort on the part of Seminole's members to make better or more efficient use of generation capacity.

I would also point out that the ratchet structure also encourages peak load growth since the full cost impact is not realized by member systems for several years. The resulting peak load growth increases Seminole's need to build more generation, a need that could be avoided or mitigated by a more properly designed rate.

Q. Ms. Novak claims on page 23 of her testimony that the ratchet promotes revenue stability. Do you agree ?

A. Yes, all ratchets generally serve to guarantee the utility a certain amount of revenue for a period of time. However, revenue stability is not a sufficient reason to justify the ratchet in SECI-7b. Ratchets establish minimum bills based on a customer's consumption from a prior period. During the time period for which the ratchet is applicable, these minimum bills are unaffected by efforts on the part of the customer to lower consumption. As Dr. Blake points out in his prefiled direct and rebuttal testimony, the Commission has historically disallowed ratchets in utility rate structures because ratchets are a disincentive to conservation. Seminole's ratchet is particularly problematic and unusual because: (1) it is based on extremely antiquated energy usage data (extending back almost five years), and (2) it is tied to the customer's energy usage instead of the capacity required to meet the load (which is inconsistent with Mr. Midulla's comments at LCEC's Board Meeting on February 19, 1998).

Q. On page 17 of his testimony, Mr. Christianson refers to LCEC's cost of service study as "looking in the rear view mirror." Do you agree?

A. No. LCEC's cost of service study is based on current year costs and current year billing units. Therefore, LCEC's cost of service study is not backward looking at all. In fact, I find Mr. Christianson's

remarks disingenuous considering that Seminole's own rate structure includes a ratchet going back five years, and thus is hardly "forward looking."

Q. Considering the three-year ratchet, how would you characterize Seminole's Rate SECI-7b?

A. Seminole's Rate SECI-7b is a precarious mixture of backward looking elements with so-called forward looking incremental costs. In an effort to thwart load management, conservation and other alternatives to building generation facilities, Rate SECI-7b mixes a backward-looking three-year year ratchet with a single component of incremental (or marginal) cost, while selectively ignoring other important components of marginal cost. Additionally, because Seminole moved from a rate that recovered a larger percentage of production capacity costs through a peak demand charge to one that recovers a significant portion of capacity costs through a three-year energy ratchet, it penalizes its members for adding kWh sales during off-peak periods when there is no additional capacity needed to serve the load.

IV. SECI-7b DOES NOT APPROPRIATELY RECOGNIZE MARGINAL COSTS

Q. Seminole's witnesses claim that Rate SECI-7b recognizes marginal or incremental costs. (Woodbury testimony, p. 33; Novak testimony, pp. 17-18.) Do you agree?

A. No. In designing Rate SECI-7b, Seminole chose to look at a single element of marginal cost – namely, generation capacity cost – but simply ignored other important elements of marginal cost – specifically energy and transmission costs.

Q. What does the term "marginal cost" mean?

A. Marginal cost is the change in total cost due to a change in the quantity supplied. For an electric utility, marginal cost includes *both* the cost of adding new facilities (capacity costs) *and* the variable or energy cost (e.g., fuel cost) of generating electric energy. Both the marginal capacity cost and marginal energy cost vary by the time of the day and by the time of the year. For example during the middle of the night, when customers are purchasing less power, Seminole would have sufficient capacity to serve its customers. Therefore, a change in demand during those off-peak periods would not result in a change in capacity cost. In fact, at those times, Seminole's marginal capacity cost would be zero. Marginal energy cost also varies dramatically from hour to hour, particularly for utilities like Seminole that have coal-fired base load units and also rely on gas-fired peaking generation or purchase power from other companies that rely on gas-fired peaking resources. Again, during off-peak periods, Seminole can generate power from its base load generating units which use lower priced fuel and consequently have lower marginal energy costs than do gas-fired combustion turbine peaking plants.

Q. Did Seminole take into consideration the higher marginal energy cost during peak conditions in the design of Rate SECI-7b?

A. No. In the design of SECI-7b, Seminole focused on marginal capacity cost but completely ignored the fact that marginal energy costs are higher during the peak than they are during off-peak peak periods. Seminole claims that the demand charge included in Rate SECI-7b was designed to reflect the incremental cost of its new plant. According to Ms. Novak's Exhibit ___ (TSN-5), the incremental capacity cost of its new combined-cycle plant (Payne Creek Unit 1 and Unit 2) is $8.49 per kW of the eight-month billing demand. Seminole is therefore arguing that the demand charge reflects the carrying costs of these new units. But Seminole has failed to consider the higher marginal cost of generating energy at the time of the peak.

Q. Please explain how Seminole's marginal energy cost will vary depending on the hour of the day or the season.

A. Seminole's load will vary significantly from hour to hour and from month to month. During daytime hours when residential customers are using air-conditioners or heating equipment and commercial and industrial customers are operating, Seminole's load will increase. Seminole's load will be lower during the middle of the

night and during the months of March, April, October and November.

At any given hour a utility will utilize power resources (generating units, purchased power, etc.) that have the lowest marginal operating costs. In other words, the resources with the lowest operating costs are dispatched first. In the case of Seminole, the lowest cost resources are its Seminole Plant (two nominally rated 650 MW coal-fired generating units) and its 15 MW share of Crystal River 3 (a nuclear unit operated by Florida Power Corporation). These base load resources have very low operating costs. The Seminole Plant has an energy cost of approximately 1.8 ¢/kWh, and Crystal River 3 has an energy cost of approximately 0.5 ¢/kWh. With a total capacity of over 1,300 MW, these low-cost resources can meet Seminole's energy requirements from 30 to 50% of the time.

Q. What happens when Seminole's demand exceeds the output of these low-cost base load units?

A. When Seminole's demand exceeds the output of the Seminole Plant and its share of Crystal River 3, it must rely on generating units with a higher operating cost. When Seminole's 500 MW Payne Creek Station is placed in service in the year 2002, this facility will be the next large block of capacity which can be dispatched. Last year, Seminole estimated that the energy cost of these two gas-fired combined-cycle combustion turbines would be 2.4 ¢/kWh.

However, since last year natural gas prices into Florida have increased by almost 50%! (Assuming that Seminole's energy cost estimate included only the cost of fuel, a 50% increase in gas prices would raise the energy cost of the Payne Creek Station from 2.4 ¢/kWh to 3.60 ¢/kWh.) Seminole has estimated that Payne Creek Unit 1 will operate 5,895 hours and Payne Creek Unit 2 will operate for 4,301 hours.

The next large block of capacity that will be dispatched in the year 2002 is power from Reliant Unit 1 and Unit 2 (a unit power agreement for 300 MW of capacity from Reliant Energy). In July 1999, Seminole estimated that the cost of these gas-fired combustion turbines would be approximately 3.9 ¢/kWh. Again, natural gas prices into Florida have gone up almost 50% since last year. (Assuming that Seminole's estimate included only the cost of fuel, a 50% increase in gas prices would raise the energy cost of unit power from Reliant Energy from 3.9 ¢/kWh to 5.85 ¢/kWh.) Seminole has estimated that, during the year 2002, Reliant Unit 1 will operate for 1,119 hours and Reliant Unit 2 will operate for 883 hours.

Q. What will happen during extreme peak conditions?

A. Seminole will have to rely on resources that have an even higher operating cost, such as power purchased from the Orlando Utility Commission, Jacksonville Electric Authority, or power purchased in the marketplace. Last year Seminole estimated that the cost of

these resources would range from 5 ¢/kWh to 10 ¢/kWh. Seminole estimated that it would purchase energy at 10 ¢/kWh for 84 hours during the year 2002. Therefore, the estimated marginal energy cost for 84 hours during the extreme peak period is 10 ¢/kWh. It is important to keep in mind, however, that the dramatic increase in natural gas prices since last year will likely have an impact on these estimates.

Q. Based on this information, what can you conclude about Seminole's marginal energy cost?

A. Seminole's marginal energy cost varies significantly from period to period. In the following table, I have estimated the marginal cost during the off-peak, intermediate peak, peak and extreme peak periods based on Seminole's 2002 resource mix and energy cost estimates:

Seelye Table 1

Off-Peak	1.8 ¢/kWh
Intermediate Peak	2.4 ¢/kWh
Peak	3.9 ¢/kWh
Extreme Peak	10.0 ¢/kWh

As can be seen from this table, Seminole's marginal energy cost in the year 2002 will likely vary from 1.8 ¢/kWh during the off-peak period to as much as 10.0 ¢/kWh during the extreme peak – nearly a 6 to 1 difference. It should be noted that this table ignores: (1) the fact that line losses are much higher during peak periods than they

are during off-peak periods , which increases the marginal cost of peak and extreme peak energy, and (2) that natural gas prices delivered into Florida have increased by almost 50% since last year when these energy costs were estimated, which would increase the cost of intermediate, peak and extreme peak marginal energy. Therefore, the marginal cost estimates for intermediate, peak and extreme peak energy in Seelye Table 1 are conservative.

Q. Does Rate SECI-7b reflect this variation in marginal energy cost?

A. No. As I have stated, Seminole chose to focus only on its marginal capacity cost, but ignored the fact that its marginal energy cost is significantly higher during the peak. By ignoring marginal energy cost, SECI-7b significantly understates the cost of power at the time of the peak and overstates (through the application of the energy ratchet) the cost of power during off-peak periods. During the peak period, Seminole will be charging a marginal energy rate of 2.24 ¢/kWh (which includes the Fuel Charge and Non-Fuel Energy Charge of the rate). This marginal energy charge of 2.24 ¢/kWh exceeds the marginal cost of off-peak energy, but significantly understates the marginal cost of energy during the peak and extreme peak periods experienced by Seminole.

Q. In calculating the marginal energy charge of 2.24 ¢/kWh, you didn't include the Production Fixed Energy Charge (i.e., the

three-year energy ratchet) set forth in SECI-7b. Why is that?

A. The Production Fixed Energy Charge is a fixed charge based on a three-year ratchet that is lagged one year. Changes in a customer's demand and energy do not have an immediate impact on this charge. Therefore, the Production Fixed Energy Charge cannot be considered a marginal energy charge. In addition, the Production Fixed Energy Charge has nothing whatsoever to do with marginal production energy costs. Rather, the Production Fixed Energy Charge is solely related to production capacity costs.

Q. **What problems are caused by charging energy rates that are significantly lower than marginal energy costs?**

A. Understating marginal energy costs creates several problems. First, by charging rates that are less than marginal energy costs at the time of the peak, customers will be lead to believe that it is less expensive to add load during the peak than it really is. Consequently, resources will be allocated in an inefficient manner. Second, by understating the cost of power at the time of the peak, the value of load management is understated. The only benefit that a customer receives for load management under SECI-7b is $8.50/kW, which does not correspond to the full avoided cost associated with load management. As Seelye Table 1 shows, the estimated marginal energy cost alone during extreme peak conditions is 10.0 ¢/kWh. This avoided cost is not being reflected in

the savings that would be seen by Seminole's members using load management. Third, understating the cost of power at the time of the peak coupled with the three-year ratchet, encourages customers to buy power from Seminole rather than pursue other alternatives, even though those other alternatives may be less costly and more efficient. Fourth, understating the cost of power at the time of the peak creates an environment where Seminole must build new power plants to meet increases in demand even though there may be less costly options available.

Q. Can you provide an example that illustrates how Rate SECI-7b can discourage a more efficient alternative to purchasing from Seminole?

A. Yes. Suppose that a commercial end-user load management program (including all carrying costs and operating expenses) costs a Seminole member company $9.00/kW/Mo for the eight peak months on Seminole's system (a total annual cost of $72.00 per kW). Now further suppose that for each 1 kW of load management installed, 1 kW of load could be shifted from the extreme peak and peak periods to the off-peak periods for 1100 hours out of the year. This program would result in the following production cost savings on Seminole's system:

Capacity Savings: 8 months x $8.49/Mo = $67.92

Energy Savings: 84 hours x ($0.100 - $0.018) = $6.89

(1100 – 84 hrs) x ($0.039 - $0.018) = $21.34

Total Savings: $96.15

The savings to Seminole from this program is $96.15 per kW. The annual cost of the program is $72.00 per kW. Therefore, this commercial load management program is an economically efficient program. However, Rate SECI-7b would not allow this program to get off the drawing board. Under Rate SECI-7b, the member system would realize savings of only $68.00 per kW ($8.50 x eight months). Therefore, SECI-7b has discouraged an economically efficient program.

Q. **Did the cost of service study sponsored by Mr. Christianson take into account the fact that Seminole has significantly higher marginal energy costs during peak conditions?**

A. No. He ignores this fact, and he entirely avoids the issue in his testimony. The Equivalent Peaker Methodology employed by Mr. Christianson fails to consider the higher operating cost of the peaking capacity that he is imputing. As a result, his application of the Equivalent Peaker Methodology is internally inconsistent and inherently flawed. Mr. Christianson claims that peaking facilities can be installed to meet peak demands in lieu of base-load facilities. (See Christianson testimony, p. 8.) However, he ignores the fact that it costs more to operate combustion turbines than it does base load generation. Because he maintains that a portion of fixed

production costs equivalent to the cost of gas-fired combustion turbines should be assigned to the peak, for sake of consistency, the higher operating cost of combustion-turbine generation should also be assigned to the peak.

Q, Does LCEC's proposed rate more accurately reflect Seminole's marginal cost than Rate SECI-7b?

A. Although LCEC's proposed rate is based on traditional embedded cost principles, I believe that it still better reflects marginal cost than does Rate SECI-7b. Neither Rate SECI-7b nor LCEC's proposed rate includes a time differentiated energy charge which mirrors Seminole's marginal energy costs. However, if we follow Seminole's own logic and calculate the demand charge on the basis of marginal costs, then the charge should include all peak period marginal costs (both capacity and energy) and not just marginal capacity costs. Following Seminole's logic, the demand charge we have proposed provides a much better indication of the cost of power during the peak than SECI-7b.

Q. **Please explain why your proposed rate more accurately reflects Seminole's marginal production costs?**

A. As I have said, a reasonable approach for determining the peak period cost of power to Seminole's members is to unitize Seminole's higher marginal energy cost on the basis of the coincident peak demand, because Seminole's higher energy costs are incurred when

Seminole's demand approaches its coincident peak demand. Exhibit __ - (WSS – 7) is a calculation of the excess marginal energy costs during peak and extreme peak conditions above the average energy cost recovered through the Fuel Charge and Non-Fuel Energy Charge of the rate, unitized on the basis of the coincident peak demand. The excess marginal energy cost assigned to the peak is $2.96/kW/Mo. Adding this monthly cost to the incremental production capacity cost calculated by Ms. Novak of $8.49/kW/Mo (Novak testimony, p. 17) results in a peak cost of $11.45/kW/Mo, applicable to the eight peak months. The rate that we propose consists of a Production Demand Charge (applied to 8 peak months) of $10.59/kW/Mo, and an energy charge (i.e., the Fuel Charge and Non-Fuel Energy Charge) that is the same as SECI-7b. By comparison, the peak demand charge in Rate SECI-7b is $8.50/kW/Mo. As can be seen from this analysis, the $10.59/kW/Mo proposed by LCEC is less than the marginal cost calculated in this manner, but LCEC's proposed rate design is much closer to marginal cost than Seminole's peak demand charge that is set at $8.50/kW/Mo.

V. SEMINOLE DID NOT PREPARE A COST OF SERVICE STUDY PRIOR TO THE DEVELOPMENT OF SECI-7b

Q. Does Seminole claim that a cost of service study was prepared prior to the development of SECI-7b?

A. Yes. Ms. Novak states on page 26 of her testimony that SECI-7b was based on a cost of service study.

Q. Do you agree that the study provided to you by Ms. Novak and summarized as Exhibit ___ (TSN-7) is a cost of service study?

A. The workpapers that were provided to me on July 19, 1999, and summarized as Exhibit ___(TSN-7) of Ms. Novak's testimony, are essentially the same as the workpapers included in her Exhibit ___(TSN-8), except that the workpapers provided to me were based on 1999 budgeted costs instead of 2000 budgeted costs. Ms. Novak's workpapers are certainly not what I would consider a cost of service study. In my opinion, a cost of service study should functionally assign and classify a utility's costs on an account-by-account basis. I would refer to Ms. Novak's workpapers as a "revenue requirement calculation."

Q. Does this conclude your rebuttal testimony?

A. Yes.

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Exhibit ___ - (WSS – 6)

Slides From Mr. Midulla's

Presentation to

LCEC's Board of Directors

SEMINOLE ELECTRIC COOPERATIVE, INC.
RATE PRESENTATION
LEE COUNTY BOARD OF TRUSTEES

RATE BASICS

SEMINOLE RATES HAVE HISTORICALLY

BEEN DESIGNED TO RECOVER 85% to 95% OF

FIXED COSTS THROUGH THE DEMAND CHARGE

•

WHY ARE FIXED COSTS ASSOCIATED WITH DEMAND

AND RECOVERED THROUGH DEMAND CHARGES?

FIXED COSTS ARE THOSE WHICH ARE INCURRED

TO SECURE RESOURCES TO MEET THE PEAK DEMAND

SEMINOLE ELECTRIC COOPERATIVE, INC.
RATE PRESENTATION
LEE COUNTY BOARD OF TRUSTEES

FIXED CHARGES INCLUDE:

DEPRECIATION FOR SEMINOLE OWNED RESOURCES

LEASE COSTS

INTEREST NET OF INTEREST INCOME

TAXES

MARGIN

LABOR AND OTHER O&M COSTS

DEMAND CHARGES OF PURCHASED POWER

OFFSET BY CHARGES OF OFF-SYSTEM SALES

Exhibit ___ - (WSS – 7)

Effective Demand Charge

Based on Marginal

Capacity and Peak Energy Cost

Seminole Electric Cooperative, Inc

Effective Demand Charge
Based on Marginal
Capacity and Peak Energy Cost

Peak Capacity Cost

Marginal Capacity Cost per kW **(Testimony of Trudy S. Novak, Exhibit ___(TSN-5))**	**$ 8.49**

Peak Energy Cost

Extreme Peak Cost in Excess of Energy Charge **($0.1000/kWh - $0.0224/kWh) x 84 hours ÷ 8 Months**	**$ 0.81**
Peak Cost in Excess of Energy Charge **($0.039/kWh - $0.0224/kWh) x (1,119 hrs – 84 hrs) ÷ 8 Months**	**$ 2.15**
Total Peak Cost	**$11.45**