**BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION**

**DOCKET NO. 030623-EI
FLORIDA POWER & LIGHT COMPANY**

IN RE: COMPLAINTS BY SOUTHEASTERN UTILITY SERVICES, INC. (SUSI) ON BEHALF OF VARIOUS CUSTOMERS, AGAINST FLORIDA POWER AND LIGHT COMPANY CONCERNING THERMAL DEMAND METER ERROR

DIRECT TESTIMONY & EXHIBIT OF:

DAVID BROMLEY

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF DAVID BROMLEY

DOCKET NO. 030623-EI

JULY 12, 2004

Q. Please state your name and address.

A. My name is David Bromley and my business address is 9250 West Flagler Street, Miami, Florida 33174.

Q. By whom are you employed and what position do you hold?

A. I am employed by Florida Power and Light Company (FPL) as Manager, Power Systems Regulatory.

Q. Please describe your duties and responsibilities in that position.

A. I manage the Power Systems Regulatory Department which is responsible for coordinating Power Systems' (transmission and distribution) regulatory activities, primarily associated with the Florida Public Service Commission (FPSC), the Federal Communications Commission, the Florida Department of Transportation, as well as issues that arise at the local government level.

Q. Please describe your education and professional experience.

A. I graduated from Otterbein College in 1976 with a Bachelor of Arts degree in Business Administration with Concentration in Accounting. From 1976 until 1978, I was a staff accountant for Borden, Inc. In 1978, I joined Aristar, Inc., where I was employed as a staff accountant until 1980. In 1980, I was employed by the Deltona Corporation, where I was a Senior Accountant for two years and then became the Comptroller for their Utility Division until 1983.

In 1983, I joined FPL's Analytical Accounting Department and prepared accounting schedules for various FPSC and Federal Energy Regulatory Commission (FERC) dockets. Later in 1983, I joined FPL's Regulatory Affairs Department where I was responsible for coordinating financial and accounting matters before the FPSC and the FERC. From 1983 to 1997, I remained in Regulatory Affairs eventually becoming a Supervisor and finally Manager, primarily overseeing financial and accounting matters before the FPSC and FERC. In 1997, I attended an executive program for utility managers at the University of Michigan. In mid-1997, I then became the Manager of Cost of Service in FPL's Rate Department. In December 1997, I was appointed to my current position.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide an overview of the 1V thermal demand meter issues, describe the testing process and method for determining the accuracy of the 1V thermal demand meters, describe a modification that was recently implemented for testing thermal demand meters, describe FPL's method of determining the meter error used for calculating refunds for those meters that tested outside of prescribed tolerance levels, and to provide the time period to which refunds should apply.

Q. Are you sponsoring an exhibit in this proceeding?

A. Yes. I am sponsoring a Composite Exhibit consisting of 5 documents attached to my direct testimony. Those 5 documents are:

- Document No. DB-1, 1V meter removal authorization letter from the FPSC's General Counsel
- Document No. DB-2, front view picture of a 1V meter
- Document No. DB-3, FPL's approved test procedures (4 pages)
- Document No. DB-4, meter test results (14 accounts)

I. Overview

Q. What is a thermal demand meter?

A. A thermal demand meter looks similar to many meters found on homes and commercial establishments. It has a device that measures watthour usage (in kWh) and another device that measures demand (in kWd). The watthour/kWh measuring device is similar to what is seen on many other meters – dials that measure and record the revolutions of a spinning disc. What distinguishes a thermal demand meter from other types of demand meters is the way it measures demand/kWd. In a thermal demand meter, the demand/kWd measuring device uses the heat generated by the voltage and the current flowing through the meter in order to display the measured demand/kWd.

Q. Please provide an overview of the 1V thermal demand meter issue.

A. In early 2002, a customer and its consultant brought to FPL's attention a 1V thermal meter that allegedly was over-registering demand. Additionally, it was alleged that the sun was contributing to the over-registration. FPL personnel responsible for metering issues investigated this allegation and observed something that they had never seen before – the heating and cooling of the meter from being in and out of the sun appeared to be affecting the demand reading. The registration appeared to decrease in the direct sunlight and then increase when the meter was in the shade.

Q. Was FPL concerned with this phenomenon?

A. Yes, FPL metering representatives had not previously observed such a phenomenon and were concerned with the potential impact on customers' bills.

Q. What did FPL do?

A. FPL removed this customer's meter in order to perform testing at FPL's meter test facility. FPL decided to perform a test on this meter that would simulate the heating and cooling effects experienced in the field. In order to simulate the heat generated from the sun, three 500-watt halogen lights were used to generate a temperature of 110 – 115 degrees around the meter. To simulate the cooling effect, FPL turned the lights off, and allowed the meter to return to room temperature. Three different tests were performed. The first test was performed at room temperature, the second test was performed after applying heat from the halogen lights for one hour, and the third test was performed after the meter had cooled off to room temperature.

Q. What were the results of these tests?

A. The test results on the one meter described above essentially duplicated what FPL employees had observed in the field. When heat was applied to the meter, the demand registration decreased below the point where it was tested at room temperature. When the meter was allowed to cool to room temperature, the registration was greater than when it was originally tested at room temperature, i.e., after the meter cooled to room temperature it registered higher than it should.

Q. What did FPL then decide to do?

A. After resolving this one customer's issue, FPL needed to determine whether this phenomenon was a widespread problem within its thermal demand meter population. FPL determined that two statistically valid random samples needed to be taken. The first sample would include 50 1V meters, the same type of thermal demand meter that showed sensitivity to the heating and cooling. The second sample would include 100 meters taken from FPL's eight other thermal demand classification types. Once these samples were drawn, FPL would then test these meters in the same manner that it tested the original 1V meter that was affected by the heating and cooling tests.

Q. What were the results of the two samples?

A. Similar to the first 1V meter tested, all but a few of the test results indicated the meters under-registered when heat was applied. However, not one single meter, of the 150 meters sampled, registered higher than it should when the meter was allowed to cool to room temperature. This provided FPL with some assurance that we did not have a widespread over-registration problem with the heating/cooling condition. However, the results of the first statistically valid sample, the 50 1V meter sample, indicated that the demand portion of this sample exceeded the allowed level of percent defective. This was the first time that anyone at FPL could recall a population of meters failing a sampling test. The second statistically valid sample, the 100 meter sample for the eight other thermal demand meter classification types, did not register higher due to the heating/cooling condition and registered within the allowed level of percent defective.

Q. What actions did FPL take as a result of the 1V meter sample failing?

A. First, we notified the FPSC Staff of the results of our sample tests and informed them that we would be meeting with them in the near future once we had developed our plan to address this situation. We then began to formulate our plan.

Q. Were you involved in the development of FPL's plan to remove, test and address potential refunds for the 1V meter customers?

A. Yes. Meter product issues and meter testing fall under the responsibility of FPL's Power Systems Distribution business unit. Because of the unique nature and evolution of the 1V meter issue, I have been involved in this issue since its inception. I have participated in the development of FPL's plans to address this issue, including the removal and testing of meters, customer communications, as well as keeping the FPSC Staff informed of FPL's plans and actions.

Q. Please describe the plan developed by FPL to address this situation?

A. During the fall of 2002, FPL met with the FPSC Staff to discuss its plan. First, FPL proposed to remove and replace all of its approximately 3900 1V meters still in service. Next, FPL would test all of these meters, using FPL's approved meter test procedures, to determine each meter's accuracy and if refunds were due to customers as a result of meters over-registering above the four percent tolerance level outlined in Rule 25-6.052(2)(a). While Rule 25-6.103(2) allows for up to one year of back-billing for meters under-registering out of tolerance, FPL decided that any customer with a 1V meter that under-registered below the four percent tolerance level stated in Rule 25-6.052(2)(a) would not be back-billed. However, customers with multiple accounts that had meters that over-registered and under-registered out of tolerance would be "netted". For example, if a single customer had two accounts and one account over-registered requiring a refund of $1000 and the other account under-registered requiring back-billing for $500, the customer would receive a "net" refund of $500. Under no condition would a customer with multiple accounts be "net" back-billed. Our communication plan called for all customers with 1V meters to be notified that we were replacing these meters, that their 1V meter would be tested and that they would be informed of the test results.

Q. Did FPL execute this plan?

A. Yes. By letter dated October 21, 2002, the Commission's General Counsel approved FPL's request to remove the approximate 3900 1V meters. A copy of that letter is attached to my testimony as Document No. DB-1. FPL provided written notice to all affected 1V meter customers, as I described above. FPL began removing its 1V thermal demand meters in November 2002 and completed removal of all 1V meters by January 2003. By the end of March 2003, all 1V meters had been tested. However, as FPL was finishing its testing of all 1V meters, an issue was raised regarding FPL testing some meters at 40% of full scale and others at 80% of full scale. As a result, FPL retested some of the meters that were originally tested at 40 % of full scale at 80% of full scale. This is discussed in more detail later in my testimony.

Q. Can you summarize the results of all the 1V thermal meter tests once all the tests were completed?

A. Out of the approximate 3900 1V thermal meters removed and tested, approximately 83% tested within tolerance, 11% under-registered out of tolerance and 6% over-registered out of tolerance.

Q. Have all accounts with a 1V meter that over-registered out of tolerance and qualified for a refund received a refund?

A. Yes, except for those accounts associated with this docket or that still have pending complaints, all qualifying customers have been provided a refund.

II. Testing Process / Meter Accuracy

Q. Explain the method of testing used by FPL to test the 1V thermal demand meters including the meters at issue in this docket.

A FPL utilized its test procedures filed with and approved by the FPSC as required by Rule 25-6.052 for testing the watthour and the demand portions of the 1V meters.

Q. How was the watthour portion of the 1V meter tested?

A. FPL's watthour test boards are located in its meter test facility. To test the 1V watthour meter, FPL ran three different tests – one at light load (approximately 10% rated test amperes), one at heavy load (approximately 100%

rated test amperes) with a 100% power factor, and a third at heavy load with a 50% lagging power factor. A weighted average of the errors for the light load test (weight of 1), the heavy load at 100% power factor (weight of 4) and the heavy load test with a 50% lagging power factor (weight of 2) determines the average meter error.

Q. Does FPL's watthour testing methodology comply with applicable FPSC rules?

A. Yes. FPL's watthour testing methodology is consistent with the requirements described in Rules 25-6.052 and 25-6.058.

Q. How was the demand portion of the 1V meter tested?

A. Demand testing for the 1V meters was performed on FPL's two thermal demand test boards located in FPL's meter test facility. Each of these test boards can test up to 18 meters at one time. The 1V meters were originally tested at 40% or 80% of full scale value, depending on whether the 1V meter had a low scale or high scale.

Q. What do you mean by low scale and high scale?

A. Every thermal meter has a reversible demand registration scale plate with two needles that move along this scale plate. One needle indicates the current demand reading and the other needle indicates the maximum demand reached by that customer. A 1V meter's demand registration scale has on one side of this scale plate measurement markings that range from 0 - 3.5 (low scale) and on the other side, measurement markings that range from 0-7 (high scale). See my Document No. DB-2 to view a 1V high scale demand registration scale plate.

Q. Why does the 1V meter have two scales?

A. Two scales are provided to allow for optimal operating as well as billing purposes. Which scale to is used depends on the customer's usage. FPL tries to ensure that a customer's actual demand readings fall into the 40% - 80% of full scale range. For a low scale (0-3.5) 1V meter, that means actual demand readings in the 1.4 – 2.8 range. For a high scale (0-7) 1V meter, the optimal range for demand readings is in the 2.8 – 5.6 range. Customers with relatively smaller demands are usually on the low scale and customers with relatively larger demands are usually on the high scale.

Q. What percentage of full scale was used to test the 1V meters in question?

A. Originally, all low scale meters were tested at 80% of full scale and all high scale meters were tested at 40%.

Q. Why were the tests performed at two different levels of full scale?

A. As mentioned earlier, FPL's two thermal meter test boards are equipped with the ability to test 18 meters at a time. It takes approximately two hours to test the demand component of a thermal meter. In order to be more efficient and productive when testing large quantities of thermal meters FPL tests its low and high scale meters at the same time. This procedure was utilized in testing the approximate 3900 1V meters, as it has been utilized for years to conduct FPL's annual sampling plan.

Q. What is the effect on the percentage of full scale when you place a certain load on high scale and low scale meters at the same time?

A. An example using the 1V meter's two scales is helpful in understanding the effect. As mentioned earlier, 1V meters have a low scale range of 0-3.5 and a high scale range of 0-7. Let's assume a load is placed on these meters such that the reading is 2.8. The reading of 2.8 is then divided by the full scale, either 3.5 or 7, to arrive at the percentage of full scale. In this example, the low scale meter would be at 80% of full scale (2.8 / 3.5) and the high scale meter would be at 40% of full scale (2.8 / 7).

Q. Did FPL re-test any 1V meters that were originally tested at 40% of full scale?

A. Yes. FPL re-tested all high scale 1V meters that originally over-registered when tested at 40% of full scale. These meters were subsequently tested at 80%.

Q. Why were these meters re-tested?

A. An issue was raised that FPL may be unfairly treating those customers whose meters were tested at 40% of full scale instead of at 80% of full scale. While FPL did not agree with this assertion, we wanted to erase any such doubt or perception from our customers. Therefore, high scale 1V meters that were originally tested at 40 % of full scale, and over-registered, were re-tested at 80% of full scale. This second test was performed even though the original test at 40% of full scale complied with Rule 25-6.052.

Q. Have the 1V meter demand tests performed by FPL been conducted in compliance with FPSC Rules?

A. Yes. FPL's testing was performed consistent with Rule 25-6.052 as well as FPL's approved meter test procedures. This includes the requirement that testing of the demand be performed at any point between 25% - 100% of full scale. See my Document No. DB-3.

III. Testing Modification

Q. Has FPL recently modified its process for testing customer requests for thermal demand meter tests?

A. Yes. In late 2003, FPL decided to perform customer requested meter tests at or very near to the customer's actual historical percentage of full scale rather than the 40% or 80% used by FPL to perform its annual sampling tests as well the testing performed on all 1V meters.

Q. What do you mean by the customer's actual historical percentage of full scale?

A. FPL is now using the specific customer's percentage of full scale reading as determined by the average of the customer's actual previous 24 months percentage of full scale readings. If there are multiple meter tests requested or there is an opportunity to test more than one meter at a time, FPL will group those meters that have 24 month average percentage of full scale loads within 5% of each other. In every case where meters are grouped for testing, no meter would be tested below its 24 month average. Additionally, no meter test would be performed at less than 40% of full scale.

Q. Can you provide an example of how this testing procedure would work?

A. Yes. Assume a customer with 6 different thermal demand meter accounts requests that the demand on each account be tested. The 24 month average percentage of full scale for the 6 accounts are 29%, 39%, 44%, 52%, 56%, and 72%. FPL would perform the meter tests using the following % of full scale:

1 test at 44% (3 meters – the 29%, 39% and 44% meters would be tested together)

1 test at 56% (2 meters – the 52% and 56% meters would be tested together)

1 test at 72%

Q. Why did FPL institute this change?

A. FPL believes that by placing a test load on the meter that more closely resembles the percentage of full scale actually experienced by that customer, the meter test results will more likely replicate and represent what the meter has actually experienced in the field. In the event that a meter tested out of tolerance, the registration error, whether it be under-registering or over-registering, would be more likely to represent the registration error actually experienced in the field and reflected in the customer's billings.

Q. Is the change in FPL's testing methodology consistent with FPL's approved test procedures and Rule 25-6.052?

A. Yes. Both, FPL's approved test procedures and Rule 25-6.052 state that testing demand at any point between 25% and 100% of full scale is appropriate.

IV. Meter Error for Calculating Refunds

Q. How did FPL determine refunds for those customers whose meters tested outside of allowed tolerance levels?

A. Consistent with Rule 26-6.103(1) and (3), refund amounts associated with meters over-registering out of tolerance are based on the meter error and the time period over which the meter error is applied. For the 14 accounts at issue in this docket, 12 had refunds due as a result of over-registration outside of the allowed tolerance levels. One account has a refund due attributable to the watthour/kWh portion of the meter and eleven accounts have refunds due associated with the demand/kWd portion of the meters. All refunds associated with accounts in this docket were based on a one year time period. Actual refund calculations and the refund amounts for each of the accounts in this docket are contained in Rosemary Morley's direct testimony. Two accounts in this docket did not register out of tolerance for either kWh or kWd.

Q. How did FPL determine the error percentage for the watthour portion of the 1V meters?

A. For the watthour/kWh portion of each meter, FPL utilized the test results derived from the weighted average of the three meter tests described above, i.e., the one light load test (weight of 1) and the two heavy load tests (one with a weight of 4 and the other with a weight of 2). The weighted average of these test results was then compared to the standard meter in order to obtain the error value. Meter test results with readings greater than 102% (meters over-registering by more than 2%) were then eligible for refunds.

Q. Is the method used by FPL to calculate the error for the watthour/kWh portion of the meter consistent with FPSC rules?

A. Yes. Rule 25-6.052 (1) states that a watthour meter is acceptable when the average percentage registration is not more than 102% or less than 98%, when calculated in accordance with Rule 25-6.058. Rule 25-6.058 provides the methodology for calculating the average meter error for watthour meters.

Specifically, Rule 25-6.058(3)(a) provides the manner for calculating the average watthour meter error for polyphase metering installations with a varying load. 1V meters fall into this type of metering installation.

Q. Is the error calculated by FPL for the watthour/kWh portions of the meter also the appropriate error to be utilized for refund calculation purposes?

A. Yes. Rule 25-6.103(1) states that for fast meters (meters over-registering) the utility should refund the amount billed in error as determined by 25-6.058. For those meters that had watthour/kWh over-registering out of tolerance, FPL utilized the error percentage calculated consistent with Rule 25-6.058(3)(a). Additionally, Rule 25-6.103(3) states that the figure to be used for calculating the refund should be the error percentage as determined by the meter test.

Q. How did FPL determine the error percentage for the demand/kWd portion of the 1V meters?

A. For the demand/kWD portion of each meter, FPL utilized the test results for each meter. As described earlier, all tests were performed at either 40% or 80% of full scale. The test reading for each meter was then compared to the standard meter in order to obtain a difference. This difference was then stated in terms of full scale. For example, a test reading of 5.8 is compared to the standard reading of 5.6. The difference of .2 is then divided by the full scale value of the meter that is the subject of the test, in this example, 7. This would result in an error registration of +2.86%, in other words, this meter is over-registering by 2.86%.

Q. What about those instances where FPL performed two tests on the demand portion of the meter, i.e., meters that were originally tested at 40% of full scale that over-registered and were retested at 80% of full scale?

A. While the test performed at 40% of full scale meets the requirements of 25-6.052 (2)(a) as well as FPL's approved test plan, FPL utilized the test result that provided the customer with the greatest benefit. For some customers this meant they now qualified for a refund (as opposed to no refund) or a higher refund amount than they had before. By using the test result that provided for the best refund amount, FPL was attempting to resolve any possible customer concerns with this regard.

Q. Is the method used by FPL to calculate the error for the demand/kWh portion of the meter consistent with FPSC rules?

A. Yes. Rule 25-6.052 (2)(a) states that a "lagged demand meter" (like a 1V meter) is acceptable when the error of registration does not exceed 4% in terms of full scale value. This methodology is also consistent with FPL's approved meter test procedures.

Q. Is the error calculated by FPL for the demand/kWh portions of the meter also the appropriate error to be utilized for refund calculation purposes?

A. Yes. Since 25-6.103(1), which applies to fast (over-registering) meters, only addresses the watthour/kWh portion of the meter, we then look to Rule 25-6.103(3). This rule makes it clear that when a meter is found to be in error in excess of described limits, the refund or the charge is to be based on the error as determined by the meter test. Therefore, the error of registration, calculated consistent with 25-6.052, is the appropriate error to use for both back-billing and refunds.

Q. Did FPL utilize a different error percentage than that obtained from the meter test in order to calculate refunds?

A. In some cases, yes. Again, FPL was attempting to remove any perceptions from affected customers that they were not being treated fairly. Therefore, to calculate refunds, FPL utilized the higher of: (1) the meter test error as determined and described above or (2) the actual percentage difference of the monthly demand readings of the newly installed meter, i.e., the one replacing the 1V, compared to the same months of the previous year's 1V meter readings. For example, a customer with a 1V meter demand test error of +4.3% and a difference in demand readings of +4.7% (new electronic meter vs. 1V meter) would have a refund calculated with a 4.7% error.

Q. For the customers in this docket who have meters over-registering out of tolerance, are you using the higher of the meter test error or the actual percentage difference, old vs. new meter, in order to calculate their refunds?

A. No. Since these customers have elected to utilize the Commission's process to resolve their complaints, FPL has utilized the meter test error as required by 25-6.058 and 26-6.103 to calculate their refunds.

Q. Do you have a document that provides the meter test results for the 14 meters in this proceeding?

A. Yes, the results are reflected in Document No. DB-4.

V. Refund Time Period

Q. What is the appropriate refund time period to be used for the 12 accounts over-registering out of tolerance in this proceeding?

A. One year.

Q. How did FPL determine that a one year refund period was appropriate for these meters?

A. FPL reviewed each account's historical demand readings, comparing the month to month readings as well as the year to year readings. As a result of this review, FPL was not able to distinguish, for any of these accounts, a point in time, when an over-registering error might have occurred. A significant factor in this determination is that other factors such as weather, seasonal trends, and the customer's equipment tend to have a greater impact on demand than the 4-5% error determined by the meter test. Additionally, there was no information brought to us by any customers or their representatives in this docket that demonstrated to us when a meter error might have occurred.

Q. Is the one year refund consistent with FPSC rules?

A. Yes. Rule 25-6.103(1) states that the refund period should be for one half the period since the last test and that the refund period should not exceed 12 months – unless it can be shown that the error was due to some cause, the date of which can be fixed. As mentioned before, FPL could not determine a fixed date for the meters that over-registered out of tolerance in this docket.

Q. Does this conclude your testimony?

A. Yes.

STATE OF FLORIDA

GENERAL COUNSEL
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(850) 413-6248

Public Service Commission

October 21, 2002

Bill Feaster
Manager, Regulatory Affairs
Florida Power & Light Company
215 S. Monroe Street, Suite 810
Tallahassee, FL 32301

Dear Mr. Feaster:

I am writing in response to your recent request for authority to remove 1V demand meters for testing pursuant to Commission Rule 25-6.060, Meter Test - Referee.

As a result of FPL's letter dated October 11, 2002, from Mr. Dave Bromley of FPL to Mr. Roland Floyd of the Commission Staff, we are aware of FPL's plan to replace approximately 3,900 1V thermal demand meters and, after testing, issue refunds to ratepayers as appropriate. Our Staff will monitor certain aspects of this process.

You have advised that FPL's desire is to replace the 1V meters expeditiously and we certainly agree with this goal. In order to improve the efficiency and expediency of the replacement process you have requested that the Commission grant FPL the authority in writing, to remove 1V meters, for which the Commission has received a meter referee test request pursuant to Rule 25-6.060(2), outside the presence of a Commission employee.

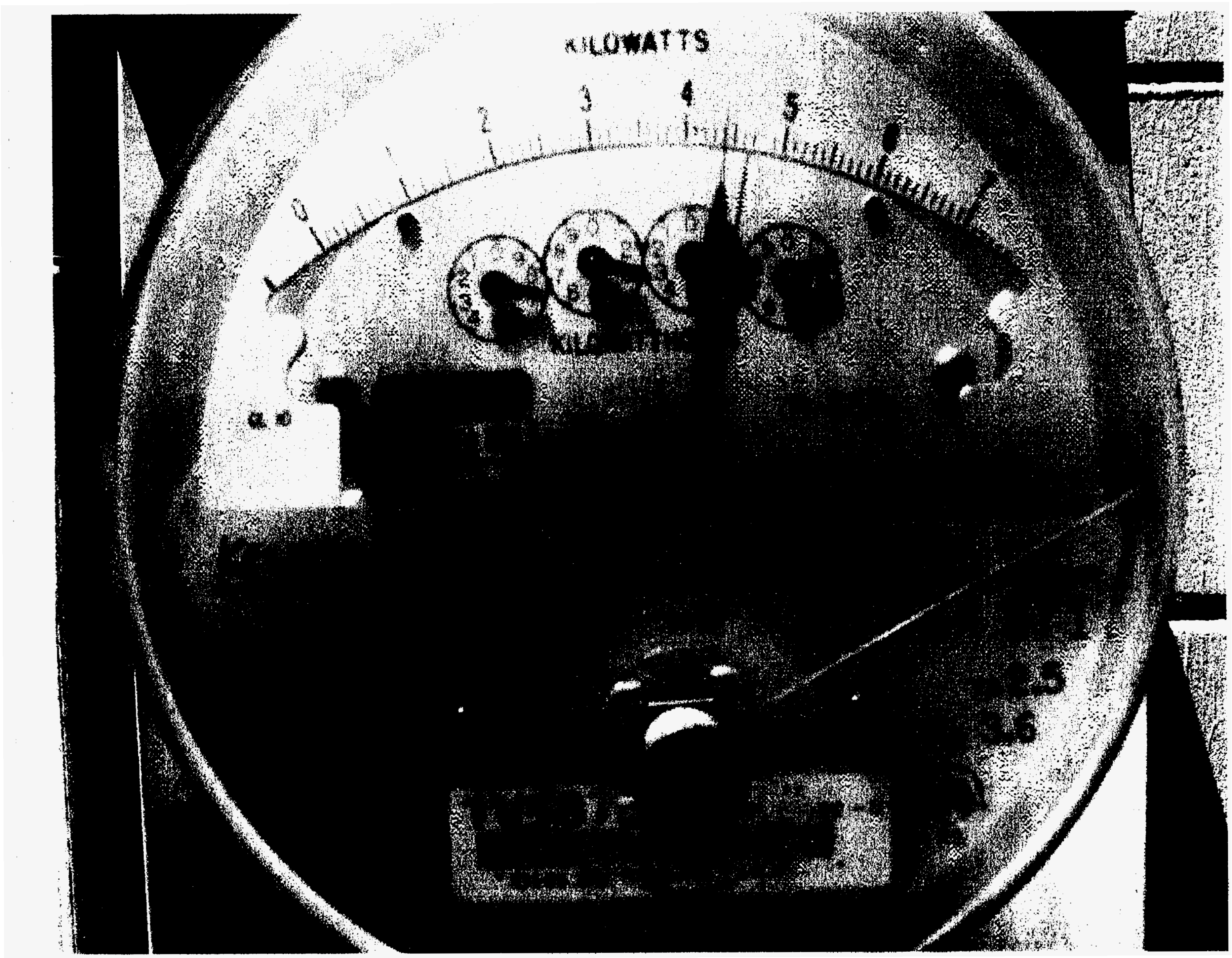
I find your request reasonable and consistent with the intent of Rule 25-6.060. Therefore, this letter will serve as staff's grant of administrative authority for FPL to remove 1V meters, for which a referee test has been requested, outside the presence of a Commission employee subject to the following two conditions. First, this authority applies only to referee test requests for 1V meters received by the Commission on or after October 22, 2002. Second, with regard to referee test meters, FPL is expected to maintain and document a continuous chain of custody for such meters which may be reviewed by the Commission.

Sincerely,

Harold A. McLean
General Counsel

HM

Exhibit No.______
Document No. DB-2



Test Procedures and Test Plans For Metering Devices

Florida Power & Light Co.

April 3, 1997

FPL Metering Device Test Procedures & Test Plans

TABLE OF CONTENTS

RECORD OF REVISIONS 1

TABLE OF CONTENTS 2

I. Laboratory Standards 5
  A. General 5
  B. Accuracy 5
  C. Traceability 5
    1. NIST MAP 5
    2. Independent Laboratory 5
  D. Intercomparison Of Standards 5
  E. Excessive Variation 5
  F. Records 6

II. Portable Standards 7
  A. General 7
  B. Accuracy 7
  C. Comparison with Reference Standards 7
  D. Excessive Variation 7

III. Meter Testing - Shop 8
  A. General 8
  B. Test Board Accuracy 8
  C. Comparison with Portable Standards 8
  D. Watthour Meter Tests 8
    1. Single Phase Electro-Mechanical Watthour Meters 8
    2. Polyphase Electro-Mechanical Watthour Meters 8
    3. Lagged Demand Registers Associated with Electro-Mechanical Watthour Meters 9
    4. Electronic Demand Registers Associated with Electro-Mechanical Watthour Meters 9
    5. Totally Solid State Watthour Meters with or without Demand 9
    6. Pulse Initiating Watthour Meters 9
    7. Time Of Use (TOU) Watthour Meters 9
  E. Pulse Recorders 10
  F. Instrument Transformers 10

IV. Meter Testing - Field 11

FPL Metering Device Test Procedures & Test Plans

III. Meter Testing - Shop

A. General - FPL utilizes one or more computer controlled, automatic watthour meter test comparators (test boards) to test watthour meters in a meter shop production environment. These test boards are of capacity and voltage range adequate to test all watthour meters used by FPL for billing purposes.

B. Test Board Accuracy - Watthour meter test boards will not be in error by more than ± 0.5% at 1.00 power factor or by more than ± 1.0% at 0.5 lagging power factor, after the application of standard correction factors.

C. Comparison with Portable Standards - Each FPL watthour meter test board is compared with a portable standard at least once a month.

D. Watthour Meter Tests - Watthour meters are tested as follows:

1. Single Phase Electro-Mechanical Watthour Meters

   a. Visual inspection.
   b. Creep.
   c. Full Load (FL) - Test Amps at 1.00 power factor.
   d. Light Load (LL) - 10% of Test Amps at 1.00 power factor.
   e. All tests are single revolution, series (single phase) tests, conducted on an automatic, computer controlled test board.
   f. Test sequence is: Creep, FL, LL.
   g. Adjustment limits - Meters are adjusted as close to zero error as practical whenever found to be in error by more than ± 0.5% FL or LL.

2. Polyphase Electro-Mechanical Watthour Meters

   a. Visual inspection.
   b. Creep.
   c. Series Full Load (FL) - Test Amps at 1.00 power factor.
   d. Series Light Load (LL) - 10% of Test Amps at 1.00 power factor.
   e. Series Power Factor (PF) - Test Amps at 0.50 lagging power factor.
   f. Individual Element (A, B, C) - Test Amps at 1.00 power factor on each element, one at a time.
   g. All tests are single revolution, series (single phase) tests, conducted on an automatic, computer controlled test board.
   h. Test sequence is: Creep, FL, PF, LL, A, B, C for three element meters or Creep, FL, PF, LL, A, C for two element meters.
   i. Adjustment limits - Meters are adjusted as close to zero error as practical whenever found to be in error by more than ± 0.5% FL, LL, A, B, or C or by more than ± 1.0% PF.

3. Lagged Demand Registers Associated with Electro-Mechanical Watthour

Meters

a. Watthour tests above, appropriate for the type of meter.
b. No-Load demand test.
c. Demand is tested between 25 and 100% of full scale.
d. Adjustment limits - Demand is adjusted as close to zero error as practical whenever found to be in error by more than ± 2.0% in terms of full scale registration.

4. Electronic Demand Registers Associated with Electro-Mechanical Watthour Meters

a. Watthour tests above, appropriate for the type of meter.
b. No-Load demand test.
c. Demand is tested between 10 and 100% of full scale.
d. Adjustment limits - Demand is adjusted as close to zero error as practical whenever found to be in error by more than ± 1.0% of reading.

5. Totally Solid State Watthour Meters with or without Demand

a. Visual inspection.
b. Creep.
c. Series Full Load - Test Amps at 1.00 power factor.
d. All tests are single revolution equivalent, series (single phase) tests, conducted on an automatic, computer controlled test board.
e. Test sequence is: Creep, FL
f. Adjustment limits - Meters are adjusted as close to zero error as practical whenever found to be in error by more than ± 0.5% at any point tested.
g. Verification that the meter contains the correct program.

6. Pulse Initiating Watthour Meters

a. Watthour tests above, appropriate for the type of meter.
b. Watthour meter running at Series Full Load current and 1.00 power factor.
c. KYZ pulse initiator output electrically connected to automatic, computer controlled test board.
d. Test duration to be a minimum of one full revolution (or equivalent).
e. Adjustment limits - Pulse output registration is adjusted as close to zero error as practical whenever found to be in error by more than ± 0.5%

7. Time Of Use (TOU) Watthour Meters

a. Watthour and demand tests above, appropriate for the type of meter.
b. Verification that the meter contains the correct TOU program.

E. Pulse Recorders are tested by connecting pulse recorders to external pulse

Exhibit No.___
Document No. DB-4

Meter Test Results - Docket No. 030623-EI

Customer	Account #	Location	Scale	% of Full Scale	Test Results kWh Meter Error	Test Results kWd Meter Error
[redacted]			7	40%		5.78%
				80%	0.26	6.00%
			3.5	80%	-0.32%	4.31%
			7	40%	0.23%	3.01%
				80%		4.12%
			7	40%	-0.08%	2.44%
				80%		4.84%
			3.5	80%	2.08%	0.31%
			3.5	80%	-0.06%	4.60%
			7	40%	0.17%	2.68%
				80%		4.36%
			7	40%	-0.05%	1.73%
				80%		4.12%
			3.5	80%	0.77%	4.21%
			7	40%	0.11%	2.01%
				80%		4.84%
			7	40%	-0.38%	3.25%
				80%		4.36%
			3.5	61%	-0.54%	3.14%, 3.20%, 3.32%, 3.37% 3.57%
			7	40%	0.05%	3.10%
				80%		4.36%
				40%	-0.48%	-0.03%

Red denotes outside of allowed tolerance -
Allowed kWh tolerance +/- 2%
Allowed kWd tolerance +/- 4%

Meter Test Results - Docket No. 030623-EI

Customer	Account #	Location	Scale	% of Full Scale	Test Results kWh Meter Error	Test Results kWd Meter Error
Ocean Properties	70876-34924	Bradenton	7	40%		5.78%
				80%	0.26	6.00%
J C Penney	07064-37886	Bradenton	3.5	80%	-0.32%	4.31%
	90964-37216	Naples	7	40%	0.23%	3.01%
				80%		4.12%
Dillards	28011-72467	Coral Springs	7	40%	-0.08%	2.44%
				80%		4.84%
	51180-46985	Port Charlotte	3.5	80%	2.08%	0.31%
Target	39242-15316	Boynton Beach	3.5	80%	-0.06%	4.60%
	36908-36659	Bradenton	7	40%	0.17%	2.68%
				80%		4.36%
	13854-10566	Delray	7	40%	-0.05%	1.73%
				80%		4.12%
	42298-19083	Fort Myers	3.5	80%	0.77%	4.21%
	07710-59334	Hollywood	7	40%	0.11%	2.01%
				80%		4.84%
	10054-45984	Port Charlotte	7	40%	-0.38%	3.25%
				80%		4.36%
	49909-58540	Sarasota	3.5	61%	-0.54%	3.14%, 3.20%, 3.32%, 3.37% 3.57%
	59543-43371	Venice	7	40%	0.05%	3.10%
				80%		4.36%
	44977-00023	Bonita Springs		40%	-0.48%	-0.03%

Red denotes outside of allowed tolerance -
Allowed kWh tolerance +/- 2%
Allowed kWd tolerance +/- 4%