

State of Florida



# Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD  
TALLAHASSEE, FLORIDA 32399-0850

**-M-E-M-O-R-A-N-D-U-M-**

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**DATE:** August 5, 2019  
**TO:** Adam J. Teitzman, Commission Clerk, Office of Commission Clerk  
**FROM:** Samantha Cibula, Office of the General Counsel *S.M.L.*  
**RE:** Docket No. 19961379-EG

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Please file the attached materials in the docket file listed above.

Thank you.

Attachment

COMMISSION  
CLERK

2019 AUG -5 PM 1:20

RECEIVED-FPSC

MACFARLANE AUSLEY FERGUSON & McMULLEN

ATTORNEYS AND COUNSELORS AT LAW

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May 6, 1996

HAND DELIVERY

RECEIVED  
96 MAY 14 PM 12:12  
FLORIDA PUBLIC SERVICE COMM.  
DIVISION OF APPEALS

400 CLEVELAND STREET  
P. O. BOX 1669 (ZIP 34617)  
CLEARWATER, FLORIDA 34615  
(813) 441-8966 FAX (813) 442-8470

IN REPLY REFER TO:

Mr. Sid Matlock  
Division of Electric & Gas  
Florida Public Service Commission  
Room 280J - Gerald L. Gunter Building  
2540 Shumard Oak Boulevard  
Tallahassee, FL 32399-0850



Re: Review of Rules 25-6.022 and 25-6.052  
through 6.058, Florida Administrative Code

Dear Sid:

Enclosed for Staff's consideration are five copies of Tampa Electric Company's Post Workshop Comments concerning the Commission rules involving meter testing. This submission includes two pages of comments along with a Tampa Electric Company report on Acceptance Testing of New Polyphase Meters.

Thank you for your assistance in connection with this matter.

Sincerely,

  
James D. Beasley

JDB/pp  
Enclosures

cc: Angela Llewellyn (w/enc.)  
Kevin Frye (w/enc.)  
Mark Laux (w/enc.)

**Tampa Electric Company  
Post Workshop Comments**

**IN RE: Review of Rules 25-6.022 and 25-6.052 Through 6.058, F.A.C.**

**Introduction:**

In June, 1995 a team made up of representatives of FPC, FPL, Gulf Power, and TECO metering departments was formed to promote rule changes to the Florida Administrative Code that would reflect improved metering test and manufacturing technologies. This group jointly developed a proposal that would both enhance and streamline the FAC regarding meter and instrument transformer testing.

The joint proposal asserted that ANSI C12.1 was developed for meter testing and was a proper vehicle for rules governing meter testing. The ANSI specification had been developed by representatives from utilities, vendors, and state PSC's. The specification is dynamic in that it is updated every 5 years and will continuously reflect changes in both technology and the business environment. The specification allows the application of Military Standard 414 to all in-service meter testing. It allows use of manufacturers test data for acceptance of new meters. The intent of the team was to apply these (and other) features of ANSI C12.1 to the FAC and at the same time streamline both the FAC and the process for accomplishing rule changes by placing ANSI C12.1 as the governing test document.

After initial presentation to PSC staff in September of 1995, the PSC staff stated their agreement that the concept of positioning ANSI C12.1 as a governing test document did, indeed, accomplish this streamlining of government. That meeting concluded with the PSC staff stating their intention to study the implementation of our ideas.

In March of 1996 Tampa Electric saw the PSC staff's issued proposal for rule changes. Under the proposed rule ANSI C12.1 was applied to certain areas of meter testing, however the overall intent of using the specification as a vehicle for meter testing and future rule changes was abandoned. Additionally, the staff proposal contained overly burdensome "How To" rules for testing, burdensome and unnecessary proofs of Military Standard 414, and no provision for using manufacturers test data for acceptance of new meters.

The "FPL Proposal" is a proposal that was developed by Ed Malemezian of FPL after a meeting with PSC staff the week of April 8, 1996. This proposal is a joint proposal of the four utilities. Although it does not accomplish the desired streamlining of the process of government in future rule changes as initially discussed in September of 1995, it does put in place the current ANSI C12.1 meter test framework.

In general, Tampa Electric believes that meter and instrument transformer testing rules should comply with ANSI C12.1. The ANSI specification marries new technology considerations, assures meter accuracy for our customer, assures detection of failing meter populations, and allows for utility decision making that balances costs and benefits.

Tampa Electric's comments regarding specific workshop issues are as follows:

- Attached is the "Tampa Electric New Meter Acceptance Report". Our conclusion is that the quality of new meters purchased by Tampa Electric is very good. The company's **business decision** is to continue 100% testing because most variances that we do find and correct are to our benefit. However, based on analysis of our data, it would be equally valid for a utility to conclude that test data from the manufacturer is sufficient for new meter acceptance.
- "How to" wording should be excluded from the FAC. Tampa Electric will conform to ANSI C12.1 to the maximum degree permitted by the FAC. Tampa Electric is willing to submit, for administrative review, its test procedures for new and in-service meter testing. We believe that the submission of the test procedures should be timed to occur after rule changes so that the submitted procedures will reflect our adherence to the updated FAC and ANSI C12.1.
- Only one laboratory standard should be required by the FAC. Our experience is that both the laboratory standards and the portable standards are extremely accurate and reliable. The economic impact of requiring more than one is approximately \$110,000 per additional required standard.
- Periodic testing should be performed at the frequency specified by ANSI C12.1. Increasing the frequency will have a negative economic impact. It should be a **business decision**, for each utility, to determine if more frequent periodic testing or Random Sample has a cost/savings benefit. Tampa Electric believes it is unnecessary to impose rules for more frequent periodic testing on >1000KW customers, since we (like other Florida IOU's) already have a program of annual or bi-annual inspection on these large customers.
- Wording regarding the requirements for approved random sampling plans should simply state that these plans be in adherence to ANSI C12.1 This will explicitly allow and endorse the use of Military Standard 414 for random sample testing. The need to prove the statistical validity of Military Standard 414 with each utility plan submittal is excessive and unnecessary.

**TAMPA ELECTRIC COMPANY'S REPORT ON  
ACCEPTANCE TESTING OF NEW  
POLYPHASE METERS**

**Prepared by: Randy Pisetzky**

**April 18, 1996**

# Adjustments to New Meters

Full Load

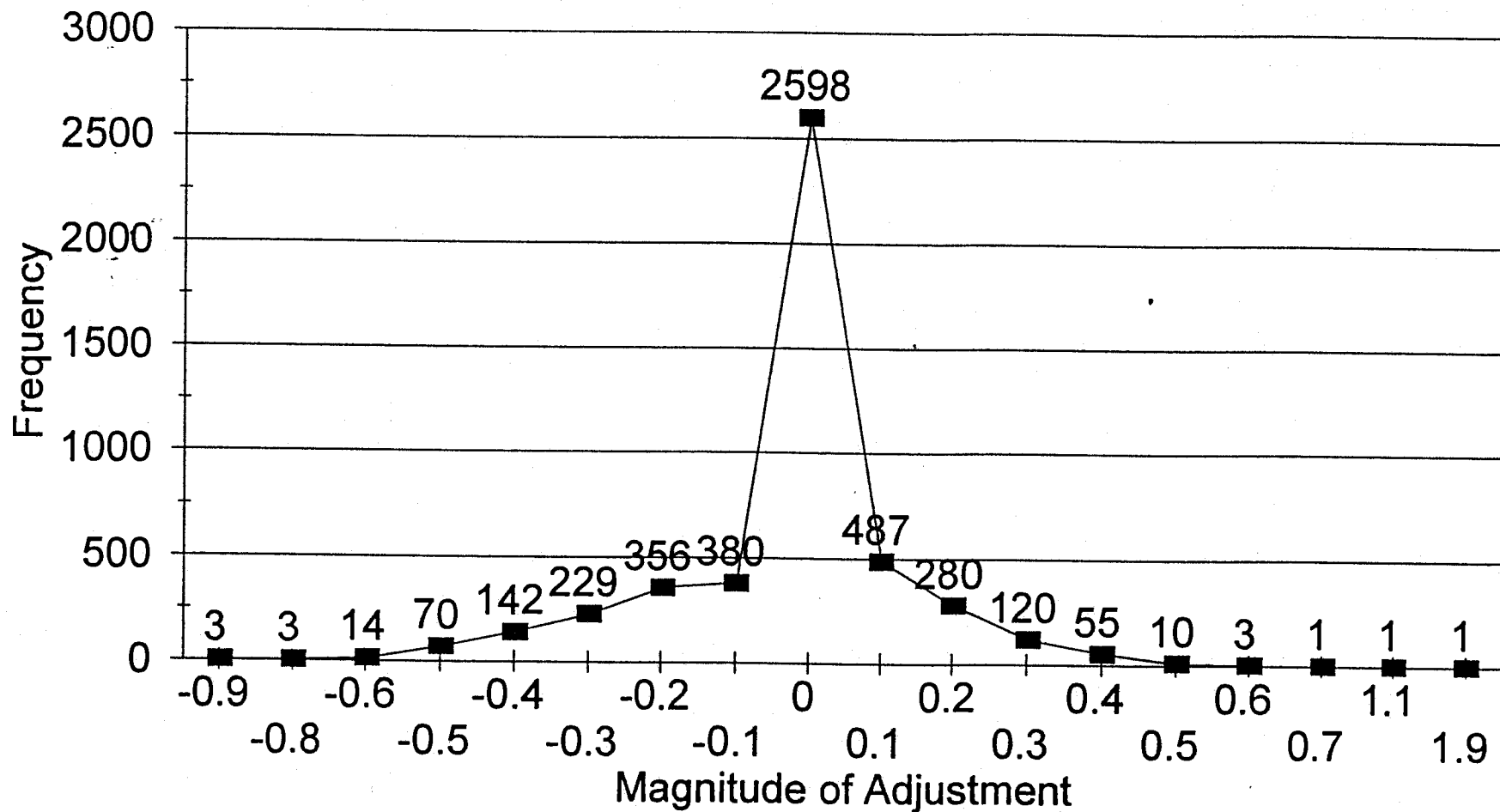


FIG 1

Negative value indicates meter found over 100%

# Adjustments to New Meters

## Light Load

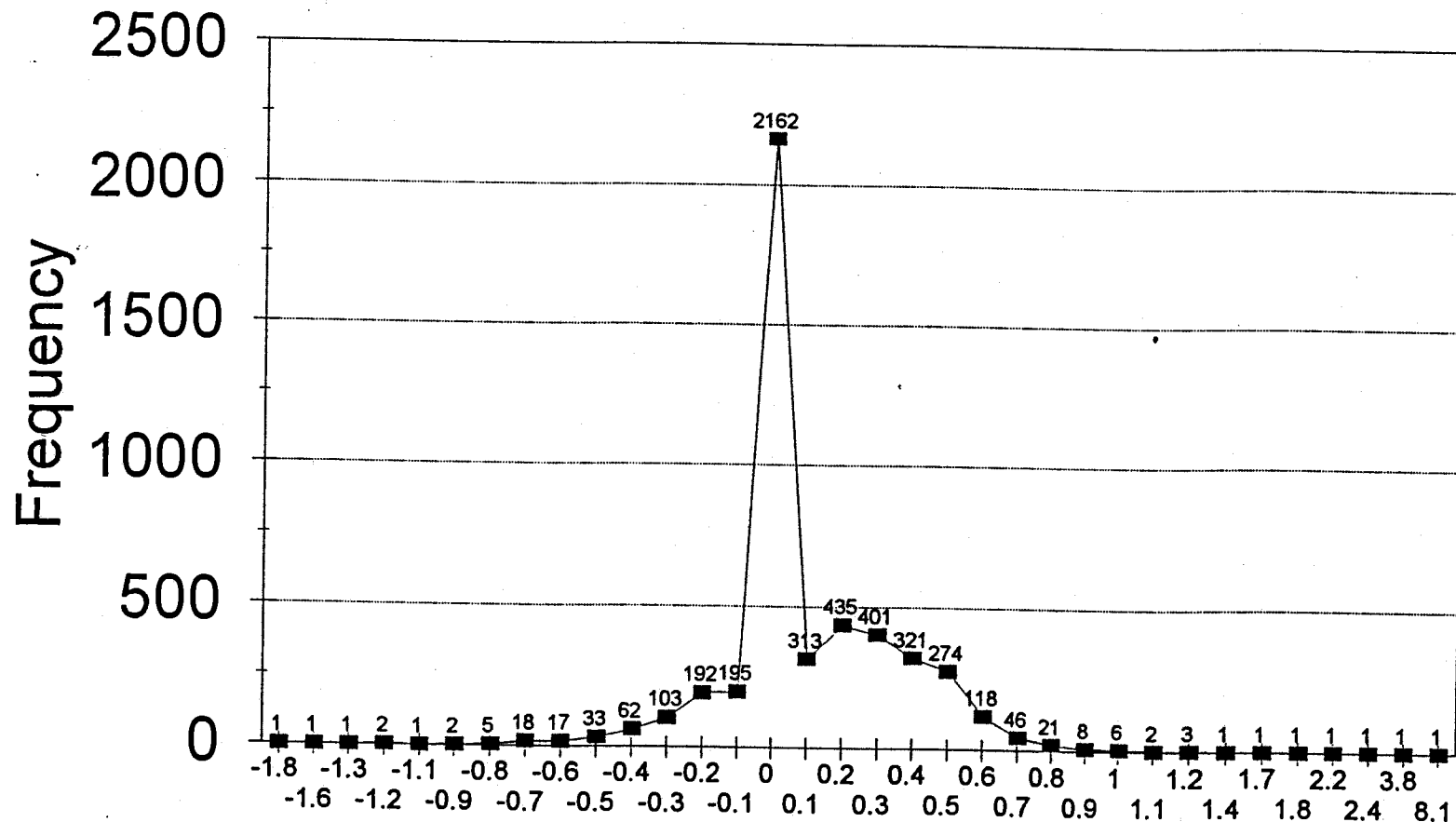


Fig 2

Magnitude of Adjustment

Negative Value indicates meter found over 100%



RECEIVED  
96 MAY -7 AM 10:37  
FLORIDA PUBLIC SERVICE COMM.  
DIVISION OF APPEALS

May 6, 1996

Ms. Mary Anne Helton, Esquire  
Florida Public Service Commission  
Division of Appeals  
2540 Shumard Oak Blvd.  
Tallahassee, Florida 32399-0850

**RE: Undocketed Review of Rules 25-6.022 and 25-6.052 through 25-6.058, F.A.C.**

Dear Ms. Helton:

Please find enclosed Florida Power and Light Company's post-workshop comments regarding proposed changes to the above rules.

If you have any questions, please do not hesitate to contact me at (305) 552-3643.

Sincerely,

A handwritten signature in black ink, appearing to read 'Samuel S. Waters', written in a cursive style.

Samuel S. Waters  
Director, Regulatory Affairs

Enclosure



FLORIDA POWER & LIGHT COMPANY  
POST WORKSHOP COMMENTS  
REVIEW OF RULES 25-6.022 AND 25-6.052 THROUGH 25-6.058, F.A.C.

**GENERAL COMMENTS**

FPL believes that meter accuracy is very important to the company and its customers. FPL has always and continues to strive to have the most accurate meters and most cost effective meter testing possible. Revisions and updates in ANSI C12.1-1995, were made "... with the intent to bring it up to date in an industry that is changing dramatically .... and .... to allow more flexibility .... while maintaining current effectiveness. Proven reliability of today's equipment as well as the consistency of new metering equipment was used as the basis to redefine how, where, and when testing can be accomplished ...." FPL actively participated in this updating of ANSI C12.1. It is for the above reasons, that the five Florida Investor Owned Utilities asked the FPSC to consider rulemaking changes in the F.A.C. rules on meter testing. Adopting the meter testing standards established by the revised ANSI C12.1 will allow the utilities to reduce the cost of meter testing and at the same time maintain, or even improve the quality of the meter testing. This will continue to assure FPL, the Commission and our Customers that the meters installed are accurate.

**MAJOR OPPORTUNITIES**

FPL's objectives for rules more closely aligned with ANSI C12.1 are to assure the accuracy of the meters and to do so in a cost effective way. The Rule changes which will have the greatest impact on accomplishing these objectives are as follows:

- **Sample Testing** should be allowed for all metering devices, both new and in-service - The staff proposal incorporates this. The Commission staff and utilities have recognized that properly managed sample test data provides better information and trending patterns than does 100% testing.
  
- Use of **Manufacturer's Test Data** for acceptance of new meters - This was not incorporated in the staff proposal, but is included in FPL's proposal (see Rule 25-6.056 (4)(c)). As was discussed at the workshop, manufacturers must comply with all ANSI requirements. In fact, manufacturers must perform tests far in excess of those imposed on utilities. Meters manufactured today provide excellent service and are highly accurate. Utility testing of new meters does not add any accuracy to those meters nor does it indicate how those meters will perform over time, in service. Utility testing of new meters does nothing more than verify the manufacturer's final, highly automated, calibration. Attachment #1 summarizes FPL's recent experience with manufacturer provided test data. Looking back over the past six months, the "Manufacturer" columns report the factory's sample test data and the "FPL" columns report FPL sample test data for each shipment received. Differences are listed in the last columns. Notice that overall, for the approximately 62,000 meters covered by this comparison, the average difference in X-Bar for Full Load was 0.05%, and for Light Load was 0.03%. This is excellent, and is typical of what has been seen in the past. The results obtained indicate that the manufacturers are producing high quality

meters.

Manufacturer test data needs to be retained by utilities on the same basis as utility test data. It needs to be identified with the name of the manufacturer. Adding the underlined clause to 25-6.022 (1) will accomplish the desired result:

... a statement of the "as found" accuracy; indications showing that all required checks have been made; a statement of repairs made, if any; and identification of the person making the test for tests performed by the utility or the name of the manufacturer for tests performed by a manufacturer. The completion of each test will signify the "as left" accuracy ....

- **Streamlining the F.A.C.** to allow for more flexibility and quicker response to rapidly changing equipment and environment - FPL strongly believes that streamlining the F.A.C. benefits everyone. Metering technology is rapidly changing, and the F.A.C. rules should be amended to reflect this. Staff's original proposal included a considerable amount of detail on "how to" perform meter tests. This level of detail would not provide more accurate meters but would add cost to utility operations by restricting our ability to best take advantage of technological change. As was discussed at the workshop, FPL believes a more appropriate alternative would be to require the utilities to file testing procedures for administrative review and approval by the Staff. This would enable the Commission to ensure that the Company has adequate procedures in place. The sections that follow contain suggested rule additions to outline the test procedure filing requirements. FPL has reviewed the present F.A.C. rules, the Staff proposal, and FPL's internal procedures in order to determine what amendments should be made to the F.A.C.. We believe this level of detail to be appropriate, properly describing all the issues involved.

#### **25-6.052 Test Procedures and Accuracies of Meters**

Add the following section to the end of 25-6.052.

- (4) **Test Procedures.** Each utility shall submit its Test Procedures for Commission Staff administrative review and approval.
  - (a) Test procedures shall contain the following for each type of metering device covered:
    1. Adjustment limits
    2. Test points
    3. Test duration
    4. Type of test - Single phase series test, Polyphase test, etc.
    5. Description of the general steps involved
  - (b) Metering devices include the following:
    1. Single phase watthour meters.
    2. Polyphase watthour meters.

3. Demand meters.
  4. Pulse initiating meters.
  5. Pulse recorders.
  6. Time of Use meters.
  7. Instrument transformers.
- (c) Changes to previously approved Test Procedures shall be submitted to Staff for approval.

With regard to the Staff's Proposal on approval of Random Sampling Plans, FPL believes that appropriate reference to the Military Standards 414 and 105 are proper to fully define the statistical design and criteria of a statistical sampling plan. These military standards are used worldwide in all industries, and have been the basis for statistical sampling for 40 years. It is unnecessary and unreasonable to prove the statistical validity of the MIL-STD tables each time a utility submits a sampling plan. Utilities should only be required to properly apply and use the U.S. government published tables. If a utility desires to use a sampling plan which does not reference the military standards, the information requested in the Staff's proposal would be appropriate. (See Staff Proposed Rule 25-6.056(4)(j-l))

To accomplish this, the following section should be added to the end of FPL'S proposed rule 25-6.056:

**25-6.056 Metering Device Test Plans ~~Periodic Meter Tests~~ .**

(FPL suggests new wording for the title of this rule.)

- (6) Each utility shall submit its Test Plans for Commission Staff administrative review and approval.
- (a) Random Sampling Plans. Each utility's previously approved Random Sampling Plans may continue to be utilized by the utility, until such time changes in the plan's statistical design are requested by the utility. Any new plans or changes to previously approved Random Sampling Plans shall be submitted to Staff for approval.
  - (b) Random Sampling Plans which reference Military Standards shall contain the following:
    1. A statement of the statistical design.
    2. Variables sampling plans shall reference the appropriate sections of Military Standard, MIL-STD-414, and state whether they are known variability or unknown variability.
    3. Attributes sampling plans shall reference the appropriate sections of Military Standard, MIL-STD-105.
    4. A stated course of action for those populations in which the acceptance criteria are not met.

- (c) Random Sampling Plans which do not reference Military Standards shall contain the following:
1. A statement of its statistical design and the rationale for using the plan in lieu of testing one-hundred percent (100%) of the meters in the population.
  2. A precise statement of its null hypothesis, its alternative hypothesis, the probability of committing Type I error, the probability of committing Type II error, and the criteria for accepting or rejecting the null hypothesis.
  3. Random Sampling Plans submitted for approval which are categorized as "variables" sampling plans may use either the "known variability" or the "unknown variability" acceptance criteria. The acceptance criteria shall be appropriately modeled.
  4. Variables sampling plans shall use the population standard deviation of measure variability unless the proposed plan is accompanied by adequate justification for using another parameter.
  5. A stated course of action for those populations in which the acceptance criteria are not met.
- (d) Each utility shall designate which plans will be utilized for:
1. Each type of new metering device.
  2. Each type of in-service metering device. Those metering devices tested on a periodic basis shall include the number of years between tests.
- (e) The addition of new metering devices to be tested under a given plan need only describe the justification for the use of that plan for the additional device. Detailed evaluation of the plan's underlying statistical, or other, basis is not required in these circumstances.

### **ECONOMIC IMPACT**

FPL is concerned with cost, and is interested in implementing the most cost effective meter testing possible. Rapidly changing metering technologies and improved techniques provide opportunities to reduce cost without compromising meter accuracy. FPL seeks to take advantage of these opportunities, and in the process eliminate unnecessary expense. ANSI C12.1, developed based on a collaborative effort of meter manufacturers, utilities, and regulatory bodies, provides us with a number of potential areas for savings. The major opportunities for cost savings and/or increases in the Staff and FPL proposals are discussed below:

**SAMPLE TESTING ALL IN SERVICE METERS** would save FPL several hundred thousand dollars annually.

**USE OF MANUFACTURERS DATA FOR NEW METERS** would save FPL several hundred thousand dollars annually.

**STREAMLINING F.A.C.** has the potential to save significant amounts. As new technologies and changes in meter testing procedures become available, the utilities will have a greater degree of flexibility to adopt them.

**RECORDKEEPING** - As written, the Staff Proposal (See Staff Proposal 25-6.022 (3) (g) and (4) (h)) would require that all meters tested have a record maintained of statistical sample type information (i.e. XBar and Sigma). For meters which are tested for specific reasons such as customer requests or current diversion investigations, this data is inappropriate. These meters are not statistical samples and do not represent normal populations. To take these tests, sort the meters tested into populations and analyze and explain the results "as if" they were a statistical sample would be expensive and would not provide meaningful information.

**SOLID STATE METER TESTING** as proposed by FPL and ANSI C12.1 could save \$50,000 - 75,0000 annually - Includes Single Point and no separate Demand test. (See FPL Proposal 25-6.052 (3) (c) and 25-6.058 (2) (c) and (3) (b))

**THERMAL DEMAND** testing changes as specified in the Staff proposal would increase FPL costs by \$100,000 annually. (See Staff Proposal 25-6.052 (4) (c) and (g), (5) (d), and 25-6.056 (4) (h))

**TOU** testing changes as specified in the Staff proposal would increase FPL costs by \$10,000 annually. (See Staff Proposal 25-6.052 (4) (h) and (i))

**PORTABLE STANDARDS** testing annually versus weekly would save FPL \$25,000 annually. (See Staff Proposal 25-6.055 (1) (a))

**SAMPLE TEST PLAN DATA REQUIREMENTS** as specified in the Staff proposal would increase FPL costs by \$20,000 for each plan submittal. (See Staff Proposal 25-6.056 (4) (k) and (l))

**Note** all the above dollar figures are rough estimates. Once the specific details of all the alternatives are known, more precise estimates can be calculated.

FLORIDA POWER & LIGHT COMPANY ATTACHMENT #1								
MFGR SAMPLE TEST DATA COMPARED AGAINST FPL SAMPLE TEST DATA								
All New Watthour Meters Sample Tested from October 1, 1995 thru April 9, 1996								
FPL Test Date	Lot Size	Manufacturer		Florida Power & Lt		Difference		
		X-Bar	Sigma	X-Bar	Sigma	X-Bar	Sigma	
<b>FULL LOAD TEST DATA</b>								
<b>SCHLUMBERGER - SINGLE PHASE FORM 2 S</b>								
10/27/95	5,760	100.04	0.100	99.97	0.094	0.07	0.006	
1/5/96	2,880	100.00	0.100	100.00	0.078	0.00	0.022	
1/16/96	2,880	99.98	0.090	100.05	0.102	-0.07	-0.012	
2/16/96	5,760	99.99	0.120	100.02	0.099	-0.03	0.021	
4/2/96	5,760	100.01	0.090	100.04	0.105	-0.03	-0.015	
<b>ABB - SINGLE PHASE FORM 2 S</b>								
10/17/95	5,760	99.98	0.100	100.16	0.066	-0.18	0.034	
11/14/96	5,760	100.06	0.100	100.09	0.085	-0.03	0.015	
1/16/96	5,760	99.98	0.100	99.96	0.089	0.02	0.011	
2/16/96	5,760	99.99	0.100	100.02	0.122	-0.03	-0.022	
2/16/96	5,760	99.99	0.090	100.02	0.080	-0.03	0.010	
4/1/96	5,760	100.02	0.100	100.05	0.080	-0.03	0.020	
<b>SCHLUMBERGER - NETWORK - FORM 12S</b>								
10/10/95	672	99.93	0.100	100.04	0.086	-0.11	0.014	
10/30/96	240	99.90	0.060	100.04	0.059	-0.14	0.001	
11/20/95	576	99.95	0.070	100.06	0.048	-0.11	0.022	
12/8/95	240	100.00	0.080	100.06	0.083	-0.06	-0.003	
12/8/95	192	100.10	0.120	100.13	0.076	-0.03	0.044	
1/16/96	672	100.06	0.100	100.07	0.093	-0.01	0.007	
1/30/96	576	99.97	0.070	100.14	0.059	-0.17	0.011	
3/19/96	480	100.06	0.110	100.08	0.093	-0.02	0.017	
<b>AVERAGE ALL FL TESTS</b>		<b>100.00</b>	<b>0.09</b>	<b>100.05</b>	<b>0.08</b>	<b>-0.05</b>	<b>0.01</b>	
<b>LIGHT LOAD TEST DATA</b>								
<b>SCHLUMBERGER - SINGLE PHASE FORM 2 S</b>								
10/27/95	5,760	100.06	0.170	99.90	0.192	0.16	-0.022	
1/5/96	2,880	100.04	0.150	99.99	0.165	0.05	-0.015	
1/16/96	2,880	100.01	0.160	100.00	0.167	0.01	-0.007	
2/16/96	5,760	99.95	0.170	99.90	0.154	0.05	0.016	
4/2/96	5,760	99.96	0.150	99.97	0.208	-0.01	-0.058	
<b>ABB - SINGLE PHASE FORM 2 S</b>								
10/17/95	5,760	100.01	0.160	100.18	0.169	-0.17	-0.009	
11/14/96	5,760	100.03	0.160	100.12	0.139	-0.09	0.021	
1/16/96	5,760	99.98	0.150	99.98	0.143	0.00	0.007	
2/16/96	5,760	100.01	0.150	100.07	0.162	-0.06	-0.012	
2/16/96	5,760	100.02	0.130	100.16	0.106	-0.14	0.024	
4/1/96	5,760	100.02	0.140	100.12	0.178	-0.10	-0.038	
<b>SCHLUMBERGER - NETWORK - FORM 12S</b>								
10/10/95	672	100.03	0.170	100.16	0.103	-0.13	0.067	
10/30/96	240	99.97	0.150	100.11	0.275	-0.14	-0.125	
11/20/95	576	100.01	0.160	100.00	0.154	0.01	0.006	
12/8/95	240	100.03	0.150	100.00	0.183	0.03	-0.033	
12/8/95	192	100.06	0.160	100.09	0.141	-0.03	0.019	
1/16/96	672	100.15	0.190	100.17	0.163	-0.02	0.027	
1/30/96	576	99.99	0.180	100.13	0.207	-0.14	-0.027	
3/19/96	480	100.16	0.150	100.08	0.190	0.08	-0.040	
<b>AVERAGE ALL LL TESTS</b>		<b>100.03</b>	<b>0.16</b>	<b>100.06</b>	<b>0.17</b>	<b>-0.03</b>	<b>-0.01</b>	