

State of Florida

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**Public Service Commission**

April 21, 1997

Mr. Carroll Webb  
Joint Administrative Procedures  
Committee  
120 Holland Building  
Tallahassee, Florida 32399

Re: Docket No. **961379-EG** - Proposed Amendment of Rules 25-6.022, 25-6.052, 25-6.054, 25-6.055, 25-6.056, 25-6.058 and Repeal of Rules 25-6.053 and 25-6.057, F.A.C.

Dear Mr. Webb:

The Commission has approved the amendment of Rules 25-6.022, 25-6.052, 25-6.054, 25-6.055, 25-6.056, 25-6.058 and the repeal of Rules 25-6.053 and 25-6.057 without changes.

We plan to file the rule for adoption on April 28, 1997.

Sincerely,

Richard C. Bellak  
Associate General Counsel

- ACK \_\_\_\_\_
- AFA \_\_\_\_\_
- APP \_\_\_\_\_
- CAF \_\_\_\_\_
- CMU \_\_\_\_\_
- CTR \_\_\_\_\_
- EAG \_\_\_\_\_
- LEG \_\_\_\_\_
- LIN \_\_\_\_\_
- OPC \_\_\_\_\_
- RCH \_\_\_\_\_
- SEC \_\_\_\_\_
- WAS \_\_\_\_\_
- OTH \_\_\_\_\_

Enclosure

cc: Division of Records & Reporting

DOCUMENT NUMBER-DATE

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FLORIDA PUBLIC SERVICE COMMISSION

1           25-6.022 Record of Metering Devices and Metering Device  
2 Tests Meters and Meter Tests.

3           (1) For all types of utility-performed tests, a test  
4 record shall be made whenever a unit of metering equipment is  
5 tested, but need not be retained after the equipment is again  
6 tested. The record shall show information to identify the unit  
7 and its location; equipment with which the unit is associated;  
8 the date of the test; reason for the test; readings before and  
9 after the test; if the meter creeps, a statement as to the rate  
10 of creeping; a statement of the "as found" accuracy; indications  
11 showing that all required checks have been made; a statement of  
12 repairs made, if any; and identification of the person making the  
13 test. The completion of each test will signify the "as left"  
14 accuracy falls within the required limits specified in Rule  
15 25-6.052, unless the meter is to be retired.

16           (2) Each utility shall keep a record for each unit of  
17 metering equipment showing the date the unit was purchased, if  
18 available; the utility's identification; associated equipment;  
19 essential name plate data; date of test; results of "as found"  
20 test; and location where installed with date of installation.

21           (3) Records of Test for Incoming Purchases. Regardless  
22 whether the newly purchased metering equipment is tested under a  
23 Random Sampling Plan, each utility shall maintain and make  
24 available to the Commission for each purchase of new meters and  
25 associated devices made during the calendar or fiscal year, the

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1 ~~following information: Each utility shall maintain its meter test~~  
2 ~~records in such a manner that the following information is~~  
3 ~~readily available to the Commission on request.~~

4 (a) Type of equipment, including manufacturer, model  
5 number, and any features which will subsequently be used to  
6 classify the units purchased into a population of units for in-  
7 service tests; The time elapsed between meter tests.

8 (b) The number of units purchased; The type of meter, such  
9 as single phase or polyphase watt hour meter.

10 (c) The total number of units tested; The number of meters  
11 which the full load "as found" tests indicate falls within each  
12 of the following accuracy classifications:

13 ~~1. Under 98.0%~~

14 ~~2. 98.0% to 102.0%~~

15 ~~3. Over 102.0%~~

16 (d) The number of units tested measuring each percent  
17 registration recorded; For those meters tested under an approved  
18 statistical sampling plan, provision (c) shall be maintained by  
19 type or age groups.

20 (e) Average percent registration;

21 (f) Standard deviation about the average percent  
22 registration (population or sample standard deviation);

23 (g) Results regarding whether the units tested meet the  
24 utility's acceptance criteria; and

25 (h) If a utility does not perform its tests for incoming

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1 purchases, the data provided by equipment manufacturers  
2 concerning units tested on a 100 percent basis by the  
3 manufacturer, with the manufacturer's test results used as a  
4 basis for acceptance testing, shall also be retained.

5 (4) Records of Periodic and Annual In-Service Meters Tests.

6 Each utility shall maintain test records for each periodic and  
7 annual in-service test of electric meters and associated devices  
8 in such a manner that the information listed in paragraphs (4) (a)  
9 through (h) is readily available to the Commission on request.

10 These data shall be maintained for units of metering equipment  
11 tested under approved Random Sampling Plans and for units tested  
12 under periodic testing programs, and shall be summarized on an  
13 annual basis.

14 (a) Type of equipment, including manufacturer, model  
15 number, and any features which are currently used to classify the  
16 units tested into a population of units for in-service tests:

17 (b) The number of units in the population;

18 (c) The total number of units tested;

19 (d) The number of units tested measuring each percent  
20 registration recorded;

21 (e) Average percent registration;

22 (f) Standard deviation about the average percent  
23 registration (population or sample standard deviation);

24 (g) Results showing whether the units tested under an  
25 approved random sampling program meet the utility's acceptance

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1 criteria; and

2 (h) A statement of the action to be taken to make further  
3 tests or replace inaccurate units, when the units tested under an  
4 approved random sampling program do not meet the acceptance  
5 criteria.

6 (i) The information regarding units tested during the year  
7 but not tested under a Random Sampling Plan or a periodic testing  
8 program need not be maintained as listed in paragraphs (4) (a)  
9 through (h) or be summarized on an annual basis.

10 Specific Authority: 366.05(1), F.S.

11 Law Implemented: 366.05(1), F.S.

12 History: New 7/29/69, Formerly 25-6.22, Amended \_\_\_\_\_.

13 25-6.052 Test Procedures and Accuracies of Consumption  
14 Metering Devices Meters.

15 (1) Watt-hour ~~Watt-hour~~ Meters. The performance of an in-  
16 service watt-hour ~~watt-hour~~ meter shall ~~is considered to be~~  
17 acceptable when the meter ~~disk~~ does not creep and when the  
18 average percentage registration is not more than 102 percent †  
19 nor less than 98 percent †, calculated in accordance with Rule  
20 25-6.058 ~~UGAS-C12~~.

21 (2) Demand Meters and Registers. ~~Watt-hour Meter Test~~  
22 ~~Procedures. The following procedures shall apply to the testing~~  
23 ~~and adjusting of meters and/or associated devices.~~

24 (a) The performance of a mechanical or lagged demand meter  
25 or register shall be acceptable when the error of registration

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1 does not exceed four percent in terms of full-scale value, when  
2 tested at any point between 25 percent and 100 percent of full-  
3 scale value. The test of any unit of metering equipment shall  
4 consist of a comparison of its accuracy with the accuracy of a  
5 standard.

6 (b) The performance of an electronic demand meter or  
7 register shall be acceptable when the error of registration does  
8 not exceed two percent of reading, when tested at any point  
9 between 10 percent and 100 percent of full-scale value.

10 ~~Adjustment limits. When a test of a singlephase watt hour meter~~  
11 ~~indicates that the error in registration exceeds 1% at either~~  
12 ~~light load or heavy load, at unity power factor, the percentage~~  
13 ~~registration shall be adjusted to within these limits of error as~~  
14 ~~closely as practicable to the condition of zero error. When a~~  
15 ~~test of a polyphase watt hour meter indicates that the error in~~  
16 ~~registration exceeds 1% at either light load or heavy load, at~~  
17 ~~unity power factor, or exceeds 2% at heavy load at approximately~~  
18 ~~0.5 power factor lag, the percentage registration of the meter~~  
19 ~~shall be adjusted to within these limits of error as closely as~~  
20 ~~practicable to the condition of zero error.~~

21 (c) Demand meters shall indicate zero under no-load  
22 conditions. Meters shall not "creep", i.e., there shall be no  
23 continuous rotation of the moving element of a meter at a speed  
24 in excess of one revolution in ten minutes when the meter load  
25 has been removed and voltage is applied to the potential elements

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1 ~~of the meter.~~

2 (3) Meter Equipment Test Procedures. ~~Demand Meters and~~  
3 ~~Registers.~~

4 (a) The test of any unit of metering equipment shall  
5 consist of a comparison of its accuracy with the accuracy of a  
6 standard. ~~The performance of a demand meter or register shall be~~  
7 ~~acceptable when the error of registration does not exceed 4% in~~  
8 ~~terms of full scale value when tested at any point between 25%~~  
9 ~~and 100% of full scale value.~~

10 (b) Watthour meters and associated devices shall be tested  
11 for accuracy and adjusted in accordance with ANSI C12.1 - 1995.  
12 ~~When a test of a demand meter or register indicates that the~~  
13 ~~error in registration exceeds plus or minus 4% in terms of~~  
14 ~~full scale value, the demand meter or register shall be adjusted~~  
15 ~~to within plus or minus 2% of full scale value. When a timing~~  
16 ~~element also serves to keep a record of the time of day at which~~  
17 ~~the demand occurs, it shall be adjusted if it is found to be in~~  
18 ~~error by more than plus or minus two minutes per day.~~

19 (c) Totally solid-state meters that compute demand from  
20 watthour meter registration and programmed demand algorithms  
21 shall be tested and adjusted in accordance with ANSI C12.1 -  
22 1995. Demand registration need not be tested, provided the meter  
23 has been inspected to contain the correct demand algorithm  
24 whenever watthour registration is tested. ~~Demand meters which are~~  
25 ~~direct driven shall be tested at a load point no less than 50% of~~

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1 full scale. However, they may be tested at a lower scale point  
2 if conditions warrant.

3 Tests shall be continuous for at least one demand interval  
4 unless results over a portion of an interval can be accurately  
5 determined.

6 (d) Demand meters which are actuated by pulses shall be  
7 tested by transmitting enough pulses to cause the meter to  
8 register at a load point no less than 50% of full scale. If a  
9 pulse actuated demand meter is equipped with a device which  
10 records the number of pulses received by the meter, and if there  
11 is frequent and accurate comparison of such record with the  
12 number of kilo watt hours registered on the associated watt hour  
13 meter, then it is not necessary to make a periodic field test of  
14 the demand meter.

15 (e) Demand meters shall be adjusted to indicate zero under  
16 no load conditions, and shall be checked to ascertain that the  
17 meter resets to zero.

18 (f) Impulse devices associated with demand meters must be  
19 checked for proper operation.

20 (g) The total time interval, including reset time, must be  
21 accurate within 0.5%, except that when a timing element also  
22 serves to keep a record of the time of day at which the demand  
23 occurs, it shall be adjusted if it is found to be in error by  
24 more than plus or minus two minutes per day.

25 (4) Test Procedures. Lagged Demand Meters. Lagged demand

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1 ~~meters shall be tested and adjusted as prescribed in USAG C12.~~

2 (a) Each utility shall submit its test procedures for  
3 review and approval for all types of metering equipment.

4 including:

5 1. Single-phase watthour meters;

6 2. Polyphase watthour meters;

7 3. Demand meters;

8 4. Pulse initiating meters;

9 5. Pulse recorders;

10 6. Time-of-use meters; and

11 7. Instrument Transformers.

12 (b) Test procedures shall contain the following for each  
13 type of metering device covered:

14 1. Adjustment limits;

15 2. Test points;

16 3. Test duration;

17 4. Type of test - single-phase test, polyphase test,

18 etc.; and

19 5. Description of the general steps involved.

20 (c) Any changes to a previously approved test procedure  
21 must be submitted to the Commission's Division of Electric and  
22 Gas for approval. Adding a meter type to a previously approved  
23 test procedure is a change which requires approval.

24 (d) Review of Proposed Test Procedures. Except where a  
25 utility has requested a formal ruling by the Commission, within

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1 90 days after submission, the Division of Electric and Gas shall  
2 review each utility's proposed test procedures to determine  
3 whether they satisfy the criteria set forth in subsections (4) (a)  
4 and (b) above and shall notify the utility in writing of its  
5 decision accepting or rejecting the proposed procedures. If a  
6 proposed procedure is rejected, the written notice of rejection  
7 shall state clearly the reasons for rejecting the proposed  
8 procedure. If a utility's proposed procedure is rejected, the  
9 utility shall submit a revised procedure to the Commission within  
10 60 days after receiving the notice of rejection. Where a utility  
11 has requested staff review of its procedures and a procedure has  
12 been rejected, the utility may petition the Commission for  
13 approval of the procedure. If a utility has not submitted a  
14 satisfactory procedure within six months following the submission  
15 of the initially proposed procedure, the Commission may prescribe  
16 by order a procedure for the utility.

17 Specific Authority: 366.05(1), F.S.

18 Law Implemented: 366.05(3), F.S.

19 History: Amended 7/29/69, formerly 25-6.52, Amended \_\_\_\_\_.

20 ~~25-6.053 Requirements as to Use of Instrument Transformers.~~

21 ~~(1) All current and potential transformers shall be tested~~  
22 ~~for accuracy in accordance with the procedures prescribed in~~  
23 ~~American Standards Institute Code USAS C57.13.~~

24 ~~(2) Any utility unable to perform the above test due to~~  
25 ~~lack of proper equipment may have its instrument transformers~~

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1 ~~tested by another utility whose testing equipment conforms to the~~  
2 ~~requirements of the Commission.~~

3 ~~(3) In lieu of utility testing of instrument transformers,~~  
4 ~~the Commission will accept the certificate of test as furnished~~  
5 ~~by the manufacturer.~~

6 ~~(4) Current or potential transformers shall not be~~  
7 ~~installed if their accuracy does not fall within the 0.6 accuracy~~  
8 ~~class as described in USAS C57.13.~~

9 ~~(5) The results of the last test of instrument transformers~~  
10 ~~shall be kept on record.~~

11 Specific Authority: 366.05(1), F.S.

12 Law Implemented: 366.05(1), F.S.

13 History: Amended 7/29/69, formerly 25-6.53, Repealed.

14 25-6.054 Laboratory Standards Testing Equipment.

15 (1) Each utility shall have available one or more watthour  
16 meters to be used as basic reference standards. The watthour  
17 meters must have an adequate capacity and voltage range to test  
18 all portable standards used by the utility and must meet the  
19 requirements laboratory working standard watt hour meters to  
20 check each of the portable standard watt hour meters (shop  
21 standards) described in Rule 25-6.055(1).

22 (a) Watthour meters used as basic reference standards  
23 laboratory working standard watt hour meters shall not be in  
24 error by more than plus or minus 0.05 percent at 1.00 power  
25 factor or by more than 0.10 percent at 0.50 power factor. 0.34 at

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1 ~~loads and voltages at which they are to be used, and~~ Watthour  
2 meters shall not be used to check or calibrate portable standard  
3 ~~watthour watt-hour meters (shop standards)~~ unless the basic  
4 reference standard watthour laboratory working standard watt-hour  
5 meter has been checked and adjusted, if necessary, to the  
6 prescribed ~~such~~ accuracy within the preceding twelve months.

7 (b) The percent registration of each basic reference  
8 standard watthour meter shall be compared with the percent  
9 registration of all other basic reference standard watthour  
10 meters used by the utility at frequent intervals. Each laboratory  
11 ~~working standard watt-hour meter shall have a calibration history~~  
12 ~~record available.~~

13 (2) Each utility shall establish traceability of its  
14 watthour standard to the national standards at least annually  
15 using one of the following methods: Each utility shall have  
16 ~~available laboratory indicating working standards to check each~~  
17 ~~of the portable indicating standards described in Rule~~  
18 ~~25-6.055(2).~~

19 (a) Through the Measurement Assurance Program (MAP) in  
20 which the National Institute of Standards and Technology (NIST)  
21 has provided a transport standard; or laboratory indicating  
22 ~~working standards shall not be in error by more than plus or~~  
23 ~~minus 0.25% of scale indication at commonly used scale~~  
24 ~~deflection, and shall not be used to check or calibrate portable~~  
25 ~~indicating shop instruments unless the laboratory indicating~~

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1 ~~working standard has been checked and adjusted, if necessary,~~  
2 ~~within the preceding twelve months.~~

3 (b) Through a transport standard which is of the same  
4 nominal value and of quality equal to the basic reference  
5 standards that are sent to NIST or to an independent laboratory  
6 approved by the Commission. Each laboratory indicating working  
7 standard shall have a calibration record available.

8 (3) If excessive variation in the percent registration of a  
9 watthour meter used as a basic reference standard is observed in  
10 the comparisons in Section 25-6.054(1b) and Section 25-6.054  
11 (2b), the utility shall investigate the source of the variation.  
12 If the cause of the excessive variation cannot be corrected, use  
13 of the watthour meter as a basic reference standard shall be  
14 discontinued. Once each year, one laboratory working standard  
15 watt-hour meter and one laboratory indicating working standard  
16 shall be submitted to a testing agency as approved by the  
17 Commission for a check for accuracy.

18 (4) Each utility shall maintain historical performance  
19 records for each watthour meter used as a basic reference  
20 standard for the following types of comparisons:

21 (a) Comparisons of basic reference standards with national  
22 standards; and

23 (b) Intercomparisons made with other basic reference  
24 standards.

25 Specific Authority: 366.05(1), F.S.

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1 Law Implemented: 366.05(1), F.S.

2 History: New 7/29/69, Amended 4/13/80, 5/13/85, formerly

3 25-6.54, Amended .

4 25-6.055 Portable Standards.

5 (1) Each utility shall have one or more watthour meters to  
6 be used as portable standards, which shall have adequate portable  
7 standard watt hour meters (shop standard) of capacity and voltage  
8 range adequate to test all watthour watt-hour meters used by the  
9 utility for billing purposes.

10 (a) All portable standard watthour ~~watt-hour~~ meters, ~~(shop~~  
11 ~~standard) when regularly used,~~ shall be compared with a basic  
12 reference standard laboratory working standard once a year, week,  
13 ~~or at such intervals as approved by this Commission, on a~~  
14 ~~commonly used current and voltage range. A complete check should~~  
15 ~~be made every three months. Such equipment infrequently used~~  
16 ~~shall be compared before use.~~

17 (b) Each portable standard watthour ~~watt-hour~~ meter ~~(shop~~  
18 ~~standard)~~ shall be adjusted, if necessary, so that its accuracy  
19 will be within plus or minus 0.10 percent at 1.00 power factor  
20 and within plus or minus 0.20 percent at 0.50 power factor 0.34  
21 ~~at all voltages and loads at which the standard may be used.~~

22 (2) If excessive variation in the percent registration of a  
23 watthour meter used as a portable standard is observed in the  
24 comparisons in Section 25-6.055(1), the utility shall investigate  
25 the source of the variation. If the cause of the excessive

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1 variation cannot be corrected, use of the watthour meter as a  
2 basic reference standard shall be discontinued. Each utility  
3 ~~shall have one or more portable indicating shop standards of~~  
4 ~~various types as required to determine the quality of service~~  
5 ~~being rendered to customers, and to calibrate instruments used in~~  
6 ~~field work.~~

7 ~~(a) Portable indicating shop standards shall not be in~~  
8 ~~error by more than plus or minus 0.5% of indication at full scale~~  
9 ~~deflection.~~

10 ~~(b) Each portable indicating shop standard shall be~~  
11 ~~adjusted, if necessary, at quarterly intervals, and those in~~  
12 ~~constant use should be checked at least every two weeks.~~

13 (3) The calibration history of each standard shall be made  
14 available to the Commission upon request. Each portable standard  
15 ~~shall be accompanied at all times by a certificate or calibration~~  
16 ~~card, duly signed and dated, on which are recorded the~~  
17 ~~corrections required to compensate for errors found at the~~  
18 ~~customary test points at the time of the last previous test.~~

19 ~~(4) For standards used in survey work and for routine or~~  
20 ~~general operating information, the limits of accuracy as~~  
21 ~~specified above need not prevail, but such instruments shall be~~  
22 ~~within the range of accuracy necessary to obtain reliable data.~~

23 Specific Authority: 366.05(1), F.S.

24 Law Implemented: 366.05(1), (3), F.S.

25 History: New 7/29/69, Amended 5/13/85, formerly 25-6.55, Amended

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1 \_\_\_\_\_  
2 25-6.056 Metering Device Test Plans ~~Periodic Meter Tests~~.

3 (1) The test of any unit of metering equipment shall  
4 consist of a comparison of its accuracy with a standard of known  
5 accuracy. Units not meeting the accuracy or other requirements  
6 of Rule 25-6.052 at the time of the test shall be corrected to  
7 meet such requirements and adjusted to within the required  
8 accuracy ~~and~~ as close to 100 percent  ~~&~~ accurate as practicable or  
9 their use discontinued.

10 (2) All metering device tests shall be retained by the  
11 utility and made available to the Commission pursuant to Rule 25-  
12 6.022.

13 (3)~~(2)~~ New instrument transformers shall be tested before  
14 initial installation. Instrument transformers which have been  
15 removed from service shall be tested prior to reinstallation if  
16 the reason for removal, ~~or~~ physical appearance, or record of  
17 performance gives cause to doubt its reliability.

18 (4)~~(3)~~ All metering equipment listed in Rule 6.052(4)(a)  
19 ~~watt hour meters and demand meters associated with them~~ shall be  
20 tested:

21 (a) Before initial and each successive installation, either  
22 by the utility or the manufacturer, with the exception of units  
23 of metering equipment ~~watt-hour meters~~ which are statistically  
24 sample tested by the utility under an approved Random Sampling  
25 Plan; and ~~τ~~

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1 (b) When they are suspected by the utility of being  
2 inaccurate or damaged.

3 ~~(c) New single phase and polyphase, self contained~~  
4 ~~watt hour meters shall be tested, either on a one hundred percent~~  
5 ~~(100%) basis or a statistically sampled basis under an approved~~  
6 ~~Random Sampling Plan, upon receipt from the manufacturer.~~

7 ~~(d) In service, single phase and polyphase, self contained~~  
8 ~~watt hour meters may be sample tested under an approved Random~~  
9 ~~Sampling Plan.~~

10 ~~(e) In service, single phase and polyphase self contained~~  
11 ~~watt hour meters which are not included in an approved Random~~  
12 ~~Sampling Plan, and single phase and polyphase meters used with~~  
13 ~~instrument transformers shall be tested periodically, according~~  
14 ~~to the following schedule:~~

15 ~~1. meters with surge proof magnets at least once in~~  
16 ~~sixteen (16) years.~~

17 ~~2. meters without surge proof magnets at least once~~  
18 ~~in eight (8) years.~~

19 ~~(f) In service block interval demand register equipped~~  
20 ~~watt hour meters shall be tested periodically according to the~~  
21 ~~following schedule:~~

22 ~~1. Meters with surge proof magnets at least once in~~  
23 ~~twelve (12) years.~~

24 ~~2. Meters without surge proof magnets at least once~~  
25 ~~in eight (8) years.~~

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1 ~~(g) Block interval graphic watt hour demand meters shall be~~  
2 ~~tested at least once in two (2) years.~~

3 ~~(h) Lagged demand meters shall be tested at least once in~~  
4 ~~eight (8) years.~~

5 ~~(i) Pulse recorders and pulse operated demand meters used~~  
6 ~~for billing in combination with pulse initiator equipped~~  
7 ~~watt hour meters shall be tested at least once in two (2) years.~~

8 ~~If a comparison is made between the watt hour meter registration~~  
9 ~~and the recording registration each billing period, and the~~  
10 ~~recorder registration agrees within one percent (1%) of that~~  
11 ~~registered by the associated watt hour meter, the schedule for~~  
12 ~~pulse recorders and pulse operated demand meters should be as~~  
13 ~~follows:~~

14 ~~1. Meters with surge proof magnets at least once in~~  
15 ~~sixteen (16) years.~~

16 ~~2. Meters without surge proof magnets at least once~~  
17 ~~in eight (8) years.~~

18 ~~If the recorder meter registration checks do not agree~~  
19 ~~within one percent (1%), the demand metering equipment should be~~  
20 ~~tested.~~

21 (5) Acceptance Testing. Tests for all new units of  
22 metering equipment may be performed according to one of three  
23 plans:

24 (a) On a 100 percent basis, with testing performed by the  
25 utility:

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1 (b) On a statistically sampled basis under an approved  
2 Random Sampling Plan, with testing performed by the utility;

3 or

4 (c) On a 100 percent basis, with testing performed by the  
5 manufacturer and the test results for each unit provided by  
6 the manufacturer and maintained by the utility.

7 (6) In-Service Testing.

8 (a) In-service metering devices may be sample tested under  
9 an approved Random Sampling Plan.

10 (b) In-service metering devices which are not included in  
11 an approved Random Sampling Plan shall be tested periodically.  
12 The periodic testing schedule for equipment not included in an  
13 approved Random Sampling Plan must be approved by the Commission.

14 (7) Random Sampling Plans and Periodic In-Service Testing  
15 Schedules Submitted for Approval.

16 (a) Commission approved Random Sampling Plans may be used  
17 to accept or reject shipments of newly purchased equipment and to  
18 estimate the average accuracy of equipment in service.

19 (b) Random Sampling Plans published by the United States  
20 Department of Defense or by The American Society for Quality  
21 Control, or any other sampling plans which have been approved by  
22 the Commission prior to the effective date of this rule need not  
23 be re-approved for the types of equipment for which they were  
24 approved.

25 (c) Each Random Sampling Plan submitted for approval shall

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1 include, at a minimum, the following information:

2       1. Plans to more closely monitor populations of  
3 equipment in service for which estimates indicate accuracy  
4 problems, to determine if units in the population need to be  
5 adjusted or replaced (in-service sampling plans).

6       2. A statement of the plan's statistical design and  
7 the rationale for using the plan in lieu of testing 100  
8 percent of the units in the population.

9       3. A precise statement of the plan's null hypothesis  
10 and alternative hypotheses, the probability of committing  
11 Type I error and Type II error, and the criteria for  
12 accepting or rejecting the null hypothesis.

13       (d) "Variables" sampling plans may use either of the "known  
14 variability" or the "unknown variability" acceptance criteria.

15 The acceptance criteria shall be appropriately modeled.

16 Variables sampling plans shall use the population standard  
17 deviation to measure variability unless the proposed plan is  
18 accompanied by adequate justification for using another  
19 parameter.

20       (8) The analysis of a proposed Random Sampling Plan, or a  
21 proposed periodic in-service testing schedule where applicable,

22 shall include assessments of the plan's ability to detect the  
23 presence of inaccurate equipment, the economy of testing only a

24 sample of the units in the population, the impact of having  
25 inaccurate units used for billing purposes, the number of units

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1 in the population, and the historical performance of the type of  
2 equipment covered by the proposed plan.

3 (9) Approval of Sampling Plans and In-Service Testing  
4 Schedules. All utilities subject to this rule shall submit to  
5 the Commission's Division of Electric and Gas a proposed Random  
6 Sampling Plan for each population of metering devices for which  
7 it intends to use a random sampling plan for acceptance testing  
8 or for in-service testing, and a proposed periodic testing  
9 schedule for each population of metering devices for which it  
10 does not submit a proposed in-service random sampling plan.  
11 Sampling plans and in-service testing schedules must be reviewed  
12 and approved prior to their use.

13 (10) Review of Proposed Test Plan. As used in this  
14 subsection, the word "plan" includes periodic testing schedules  
15 as well as Random Sampling Plans. Except where a utility has  
16 requested a formal ruling by the Commission, within 90 days after  
17 submission, the Division of Electric and Gas shall review each  
18 utility's plan to determine whether it satisfies the criteria set  
19 forth in subsections (7) and (8) above and shall notify the  
20 utility in writing of its decision accepting or rejecting the  
21 proposed plan. If a proposed plan is rejected, the written  
22 notice of rejection shall state clearly the reasons for rejecting  
23 the proposed plan. If a utility's proposed plan is rejected, the  
24 utility shall submit a revised plan to the Commission within 60  
25 days after receiving the notice of rejection. Where a utility

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1 has requested staff review of its plan and the plan has been  
2 rejected, the utility may petition the Commission for approval of  
3 the initially proposed plan. If a utility has not submitted a  
4 satisfactory plan within six months following the submission of  
5 the initially proposed plan, the Commission may prescribe by  
6 order a plan for the utility.

7 Specific Authority: 366.05(1), F.S.

8 Law Implemented: 366.05(3), F.S.

9 History: 7/29/69, Amended 4/13/80, formerly 25-6.56, Amended

10 \_\_\_\_\_

11 ~~25-6.057 Methods of Meter Test.~~

12 ~~—— (1) In all tests of watt hour meters where comparison of~~  
13 ~~revolutions is made, at least nine (9) revolutions shall be taken~~  
14 ~~at heavy load and two separate checks shall be made. The~~  
15 ~~accuracy of the meter under test shall be the average accuracy~~  
16 ~~determined from the two checks and they must agree within .2 of~~  
17 ~~it. If however, watt hour meters are tested on electronic test~~  
18 ~~equipment, only one revolution and one check need be made.~~

19 ~~—— (2) If the watt hour meter has a contact device other than~~  
20 ~~a solid state pulse initiator which operates a demand mechanism,~~  
21 ~~the disk revolutions when testing should be multiples of the~~  
22 ~~number of revolutions per contact in order to take account of the~~  
23 ~~varying friction which may be present during the movement of the~~  
24 ~~contact cam from one contact to the next.~~

25 ~~—— (3) Polyphase meters shall be tested by one of the~~

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1 following three methods:

2 ~~—— (a) Single phase test with voltage coils in parallel and~~  
3 ~~current coils in series.~~

4 ~~—— (b) Individual element test with voltage coils all~~  
5 ~~simultaneously energised from the same or different phases. The~~  
6 ~~current shall be of such magnitude that heavy load test current~~  
7 ~~on each element will be between 0.5 N and 1 N times the rated~~  
8 ~~current of the meter but not more than twice the rated current,~~  
9 ~~and the light load current shall be 0.1 times the rated current~~  
10 ~~of the meter. (N equals the number of elements in the polyphase~~  
11 ~~watt hour meter.)~~

12 ~~—— The average of the registration for each element shall be~~  
13 ~~taken as the meter registration at heavy or light load,~~  
14 ~~respectively.~~

15 ~~—— (c) Polyphase test with a polyphase portable standard~~  
16 ~~watt hour meter. The opposition method of testing for balance is~~  
17 ~~satisfactory for adjusting purposes only, and then only if~~  
18 ~~properly made to avoid error due to anti creep holes in disk. It~~  
19 ~~must be made with at least full load current through the meter.~~  
20 ~~The opposition check must be followed up with an individual~~  
21 ~~element test according to method (b) above, to ascertain the~~  
22 ~~registration of each element where such registration must be~~  
23 ~~obtained. Means for obtaining 50% lagging power factor shall be~~  
24 ~~provided for the method used.~~

25 Specific Authority: 366.05(1), F.S.

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1 Law Implemented: 366.05(3), F.S.

2 History: 7/29/69, formerly 25-6.57, Repealed.

3 25-6.058 Determination of Average Meter Error. Whenever a  
4 metering installation is tested and found to exceed the accuracy  
5 limits, the average error shall be determined in one of the  
6 following ways:

7 (1) If the metering installation is used to measure a load  
8 which has practically constant characteristics, such as a  
9 street-lighting load, the meter shall be tested under similar  
10 conditions of load and the accuracy of the meter "as found" shall  
11 be considered as the average accuracy.

12 (2) If a single-phase metering installation is used on a  
13 varying load, the average error shall be determined in one of the  
14 following ways: the weighted algebraic average of the error at  
15 approximately 10% and at approximately 100% of the rated test  
16 amperes of the meter, the latter being given a weighing of 4  
17 times the former.

18 (a) The weighted algebraic average of the error at  
19 approximately 10 percent and at 100 percent of the rated test  
20 amperes for the meter, the latter being given a weight of four  
21 times the former;

22 (b) The simple average of the error at approximately 10  
23 percent and at approximately 100 percent of the rated test  
24 amperes of the meter, each being given an equal weight; or

25 (c) A single point, when calculating the error of a totally

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1 solid state meter, and the single point is an accurate  
2 representation of the error over the load range of the meter.

3 (3) If a polyphase metering installation is used on a  
4 varying load, the average error shall be determined in one of the  
5 following ways: the weighted algebraic average of its error at  
6 light load (approximately 10% rated test amperes) given a  
7 weighing of 1, its error at heavy load (approximately 100% rated  
8 test amperes) and 100% power factor given a weighing of 4, and at  
9 heavy load (approximately 100% rated test amperes) and 50%  
10 lagging power factor given a weighing of 2.

11 (a) The weighted algebraic average of its error at light  
12 load (approximately 10 percent rated test amperes) given a weight  
13 of one, its error at heavy load (approximately 100 percent rated  
14 test amperes) and 100 percent power factor given a weight of  
15 four, and at heavy load (approximately 100 percent rated test  
16 amperes) and 50 percent lagging power factor given a weight of  
17 two; or

18 (b) A single point, when calculating the error of a totally  
19 solid state meter, and the single point is an accurate  
20 representation of the error over the load range of the meter.

21 Specific Authority: 366.05(1), F.S.

22 Law Implemented: 366.05(3), F.S.

23 History: 7/29/69, formerly 25-6.58, Amended.

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