

State of Florida



# Public Service Commission

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COMMISSION CLERK

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

**DATE:** March 23, 2006

**TO:** Director, Division of the Commission Clerk & Administrative Services (Bayó)

**FROM:** Office of the General Counsel (Cibula, Keating) *J.M.C. DES*  
Division of Economic Regulation (Matlock, Kummer, Hewitt) *CSH WJN RLT*

**RE:** Docket No. 060121-EI – Proposed amendment of Rules 25-6.022, 25-6.052, 25-6.056, 25-6.058, 25-6.059, 25-6.060, and 25-6.103, Florida Administrative Code.

**AGENDA:** 04/04/06 – Regular Agenda – Rule Proposal – Interested Persons May Participate

**COMMISSIONERS ASSIGNED:** All Commissioners

**PREHEARING OFFICER:** Tew

**RULE STATUS:** Proposal May Be Deferred

**SPECIAL INSTRUCTIONS:** None

**FILE NAME AND LOCATION:** S:\PSC\GCL\WP\060121.RCM.DOC

### Case Background

Pursuant to section 366.05, Florida Statutes, the Commission has jurisdiction to prescribe standards of quality and measurements for electric utilities and to adopt rules to implement and enforce the provisions of Chapter 366. Section 366.05 also specifically states that the Commission must provide for the examination and testing of all meters used for measuring any product or service of a public utility and establish reasonable fees to be paid for the testing of meters. Moreover, the Commission has the authority, pursuant to section 366.04(f), "to prescribe and require the filing of periodic reports and other data as may be reasonably available and as necessary."

The Commission has adopted rules to implement its authority over electric meter testing. The following rules address the Commission's standards on electric meter testing: 1) Rule 25-

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6.022, Record of Metering Devices and Metering Device Tests; 2) Rule 25-6.052, Test Procedures and Accuracies of Consumption Metering Devices; 3) Rule 25-6.056, Metering Device Test Plans; 4) Rule 25-6.058, Determination of Average Meter Error; 5) Rule 25-6.059, Meter Test By Request; 6) 25-6.060, Meter Test – Referee; and 7) Rule 25-6.103, Adjustment of Bills for Meter Error.

In a customer complaint proceeding initiated by Southeastern Utilities Services, Inc. against Florida Power & Light Company, in Docket No. 030623-EI, the Commission discovered that Rules 25-6.052 and 25-6.103 were not completely clear with respect to the appropriate method for testing the accuracy of the demand portion of the meters. By Order PSC-05-0226-FOF-EI, in Docket No. 030623-EI, issued February 25, 2005, the Commission directed staff to pursue rulemaking to clarify the rules.<sup>1</sup> Staff also reviewed the other meter testing rules and determined that changes may be necessary to update and clarify the rules.

Staff held two rule development workshops to obtain input from interested persons on potential revisions to the rules. The first staff rule development workshop was held on June 9, 2005. Issues raised at the first workshop indicated to staff that it was necessary to conduct a second rule development workshop. The second staff rule development workshop was held on September 21, 2005. Interested persons submitted written comments after the second workshop.

Florida Power & Light Company and Gulf Power Company suggested in their post-workshop comments the idea of a third staff rule development workshop in connection with the issue of how to test mechanical and lagged demand meters. While these companies initially indicated confusion over staff's method for testing such meters, further conversations with the companies revealed that they were not so much confused as to how to make the calculations using the staff's test method, but that they disagreed with staff in regard to the best method to test these types of meters. The companies' disagreement with staff as to best method for testing mechanical and lagged demand meters had been discussed and noted at the second staff rule development workshop. As staff was already aware of the companies' position on the issue, staff concluded that a third workshop would not be an efficient use of resources. The companies' position on the best method for testing mechanical and lagged demand meters is discussed in the body of this recommendation.

This recommendation addresses whether the Commission should amend Rules 25-6.022, 25-6.052, 25-6.056, 25-6.058, 25-6.059, 25-6.060, and 25-6.103. The Commission has rulemaking authority pursuant to sections 366.04, 366.05, and 120.54, Florida Statutes.

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<sup>1</sup> Staff notes that Order No. PSC-05-0226-FOF-EI is currently on appeal before the Florida Supreme Court. The issues before the Court on appeal do not impact this rulemaking.

### Discussion of Issues

**Issue 1:** Should the Commission propose the amendment of Rule 25-6.022, Record of Metering Devices and Metering Device Tests; Rule 25-6.052, Test Procedures and Accuracies of Consumption Metering Devices; Rule 25-6.056, Metering Device Test Plans; Rule 25-6.058, Determination of Average Meter Error; Rule 25-6.059, Meter Test By Request; 25-6.060, Meter Test - Referee; and Rule 25-6.103, Adjustment of Bills for Meter Error?

**Recommendation:** Yes. Rules 25-6.022, 25-6.052, 25-6.056, 25-6.058, 25-6.059, 25-6.060, and 25-6.103 should be amended as set forth in Attachment A of this recommendation. (Cibula, Keating, Matlock, Hewitt)

**Staff Analysis:** Staff is recommending the amendment of Rules 25-6.022, 25-6.052, 25-6.056, 25-6.058, 25-6.059, 25-6.060, and 25-6.103. Staff is recommending both technical changes (i.e., word choice, grammar, punctuation, renumbering) and substantive changes (i.e., clarifications, additions, deletions, updates) to these rules. Attachment A contains all of staff's recommended changes to the rules. The following is a summary of the substantive changes that staff is recommending.

#### Rule 25-6.022 Record of Metering Devices and Metering Device Tests

Staff recommends, on page 11, beginning on line 4, that the rule be amended to require test records be retained until any dispute arising from a customer-requested standard meter test or a refereed meter test is resolved. Staff believes that a plain reading of the current rule may lead to the conclusion that a test record can be discarded after the meter is re-tested. Staff believes that it is important for the utility to retain all test records until the dispute is resolved.

#### Rule 25-6.052 Test Procedures and Accuracies of Consumption Metering Devices

Staff recommends, on page 14, line 1, that the title of this rule be changed. Staff believes that the change is necessary to more accurately reflect the contents of the rule.

Staff recommends that a section be added at the beginning of this rule, page 14, beginning on line 3, to define the terms "electronic meter," "mechanical meter," "lagged demand (or thermal demand) meter," "registration error," and "meter type." The industry suggested inclusion of the definitions to clarify the meaning of these terms in the rules.

On page 14, line 17, staff recommends that the language of the rule be changed to refer to the "registration error," which would be defined in the new subsection (1), page 14, line 11. Since the rule would refer to registration error, the rule language was changed to state that the registration error should not exceed plus or minus two percent, instead of the range of no more than 102 percent or not less than 98 percent, which refers to average percent registration. While the language has changed, the meaning of the rule remains the same.

On page 14, line 25, and page 15, line 3, staff recommends that references to Rule 25-6.058, which specifies the methodology for determining meter registration error, should added.

There appears to be no disagreement that such references need to be included. There is, however, disagreement as to the best method for determining the meter registration error. This disagreement is discussed below in the summary pertaining to Rule 25-6.058.

Furthermore, staff recommends, on page 15, line 11, that this rule be amended to reflect that watt-hour meters and associated devices must be tested for accuracy and adjusted in accordance with the most current version of the American National Standard for Electric Meters, Code for Electricity Metering, which is the 2001 edition. The rule currently refers to the 1995 edition of the code.

Staff recommends, on page 16, line 22, deletion of the last sentence of this subsection. Staff believes that the sentence does not give sufficient guidance, as it fails to state how the Commission will prescribe a procedure for the utility. Deleting the language does not bar the Commission from prescribing a test procedure for the utility by order, as the Commission has statutory authority to do so pursuant to section 366.05. Moreover, as currently written, the language of the rule could be construed to prevent the Commission from pursuing other options in the event that the utility fails to abide by the rule, such as initiating a show cause proceeding. Removal of the language will give the Commission the option to pursue alternative remedies available under Chapter 366 to force compliance with the rule.

#### Rule 25-6.056 Metering Device Test Plans

On page 19, line 1, staff recommends a section be added to the rule requiring all meters within a population being sampled have the same class amperage and class voltage. This requirement will ensure that meter populations are somewhat homogeneous, yielding more valid test results.

Staff further recommends that original subsection (7)(a), on page 19, lines 12 through 14, be deleted from the rule. Staff believes that this subsection is only informational. Thus, it does not need to be included in a rule.

On page 21, line 7, staff recommends deletion of the last sentence of this subsection. Rule 25-6.052 contains almost identical language, and as discussed above, staff believes the sentence does not give sufficient guidance because it fails to state how the Commission will prescribe a test plan for the utility. Deleting the language does not bar the Commission from prescribing a plan for the utility by order pursuant to its statutory authority set forth in section 366.05. Moreover, as currently written, the language of the rule could be construed to prevent the Commission from pursuing other options in the event that the utility fails to abide by the rule, such as initiating a show cause proceeding. As stated above, removal of the language will give the Commission the option to pursue alternative remedies available pursuant to Chapter 366 to force compliance with the rule.

Rule 25-6.058 Determination of Average Meter Error

On page 22, line 1, staff recommends that the word "Registration" be added to the title. Staff believes this change is necessary to more accurately reflect the contents of the rule.

On page 22, staff recommends that lines 2 through 3 be deleted as the title of the rule already provides sufficient information as to the purpose of this rule. Staff believes this language is redundant and should be eliminated to prevent any potential confusion.

Staff recommends, on page 22, lines 10-11 and 21-22, that the rule be amended to require that the company select the method for determining the average registration error that best fits the customer's usage pattern. Staff believes the company should be responsible for choosing the best method because the company has access to the customer's usage information.

Staff also recommends, on page 23, beginning on line 6, the addition of a new subsection, delineated as subsection (2). Subsection (2) sets forth a precise method for determining the registration error for demand meters.

For mechanical and lagged demand meters, staff recommends that the rule be amended to require testing the meter at two points. The results of this test would be used to determine if the meter is registering properly throughout a range of 25% of full-scale to 100% of full-scale.

The formulas set forth on lines 12 and 13 of page 23 determine the meter registration error for mechanical and lagged demand meters. These formulas are based on the method of "straight-line interpolation." Using this method, the meter is tested at two different points on the scale, once at 40% of full-scale value and again at 80% of full-scale value. The results of the test determines a straight line from which the error at any point on the scale can be estimated. The error at 25% of full-scale value and 100% of full-scale value are determined in this way. If the error at both points is less than or equal to 4%, then the meter meets the accuracy requirement stated in Rule 25-6.052(3)(a). Otherwise, the meter does not meet the accuracy requirement.

Staff has included, as Attachment B, a diagram depicting staff's recommended methodology. The diagram shows an example of the application of staff's recommended methodology.

Florida Power & Light Company disagrees with the meter testing methodology recommended by staff. It instead suggests that questionable meters be tested at a single point that represents the customer's average demand. Gulf Power Company agrees with FPL.

Staff believes that testing at two points is preferable to testing at a single point for the following reasons: (1) testing a mechanical or lagged demand meter at a single point is not sufficient to determine the meter's accuracy throughout its range; (2) testing a lagged demand meter at the customer's average load is problematic in that it is somewhat difficult to know the precise level of amperage to feed into the test board to cause the meter to indicate its average load; and (3) by testing meters at a single point representing the customer's average load, the test boards can only test one meter at a time; however, with staff's proposed method, as many as 18

meters may be tested at one time, albeit tested twice, once at 40% of full-scale and once at 80% of full-scale. Moreover, customer confidence in the testing would be further enhanced. Thus, staff believes this is the best method for testing mechanical or lagged demand meters.

On page 24, line 3, staff recommends that a subsection should be added to address electronic demand meters. All workshop participants seemed to agree with this additional rule language.

#### Rule 25-6.059 Meter Test By Request

On page 25, line 8, staff recommends that the deposit for meter tests be increased from \$15 to \$100. Staff notes that the \$15 deposit has not changed since at least 1983 and inflation justifies the change. It is important to note that the deposit pertains only to those meter tests requested by customers more often than once a year. Gulf Power Corporation suggested the new deposit amount.

Staff further recommends, on page 25, line 20, that the rule be amended to reflect that watt-hour meters and associated devices must be tested for accuracy and adjusted in accordance with the most current version of the American National Standard for Electric Meters, Code for Electricity Metering, which is the 2001 edition. The rule currently refers to the 1982 edition of the code.

Staff also recommends in subsection (4), page 25, lines 15 through page 26, line 5, that additional language be added to the rule to clarify which entity (i.e., utility or customer) is responsible for costs associated with independent (third party) meter testing and which entity is responsible for making estimates of third party testing costs. The changes to this section also clarify the costs that are to be refunded, if any.

On page 26, line 10, staff recommends an amendment to the rule to include a requirement that the utility retain any accuracy test results that are on record at the time the meter test is requested in accordance with Rule 25-6.022. This added language reinforces the requirement to retain accuracy test results, as set forth in Rule 25-6.022. As discussed in reference to Rule 25-6.022, staff believes that all test records are important to keep when a customer is questioning the accuracy of the meter.

#### Rule 25-6.060 Meter Test – Referee

On page 27, line 10, staff recommends the addition of a requirement that the utility retain any accuracy test results on record at the time the meter test is requested in accordance with Rule 25-6.022. As discussed in reference to Rule 25-6.022, staff believes that all test records are important to keep when a customer is questioning the accuracy of the meter.

Rule 25-6.103 Adjustment of Bills for Meter Error

On page 28, line 2 through page 29, line 1, staff recommends that the rule be amended to include a methodology for determining the error of the customer's meter at the customer's average billing demand. Under the rule amendment, the error for mechanical and lagged demand meters would be based on testing the meter at two test points. For purposes of refund, the test-point error at the customer's average load would be used. The error for electronic meters is defined by the rule amendment to be the same error determined in Rule 25-6.058(1) for wathour registration error.

The formula set forth on page 28, line 8 determines the kilowatt error of the meter at the customer's average billing demand for purposes of calculating a refund or backbill. The formula is based on "straightline interpolation," as described in Rule 25-6.058(2). The error at the customer's average billing demand is obtained by simply plugging the average billing demand,  $M_{avg}$ , into the formula on page 28, line 8.

On page 28, line 17, through page 29, line 1, staff is recommending that a "correction factor" be added to the rule. Staff believes that this will further clarify the rule by providing more detail for calculating the customer's corrected billing demand. The correction factor would be applied to the original monthly billing demands in the refund/backbill period to obtain the corrected monthly billing demands. The correction factor is based on the percentage error determined by the tests specified in Rule 25-6.058(1) for wathour meters and in Rule 25-6.058(2) for demand meters.

Staff has included, as Attachment C, a diagram depicting staff's recommended methodology. The diagram shows an example of the application of staff's recommended methodology.

As with the method for determining average meter registration error, Florida Power & Light Company disagrees with this method for determining error for purposes of making refunds. FPL prefers to only test the meter at a single point -- the customer's average load. In addition, FPL prefers that the percent error used for refund purposes be the full-scale percentage error rather than the test-point error. Gulf Power Company seems to agree with FPL on this issue. Staff believes that it is necessary to use test-point error to make the both the utility (when the meter is under-registering) and the customer (when the meter is over-registering) whole.

On page 29, beginning on line 2, staff recommends the addition of rule language addressing the methodology for the backbilling/refunding of wathour and electronic demand meters. This subsection states that "the percentage error to be used for refunds and backbills shall be the same percentage calculated when tested for wathour registration as set forth in Rules 25-6.058(1) and 25-6.058(2)(b), respectively." Staff also recommends, on page 29, lines 4 through 12, the inclusion of the formula for determining the correction factor to provide further clarification to this rule, as discussed above.

On page 29, line 15, staff recommends that the reference to Rule 25-6.058 be deleted and references to subsections (1) and (2) of Rule 25-6.103 be added. This change is required as staff

is recommending the inclusion of the methodology for determining backbills/refunds in subsections (1) and (2) of this rule.

Staff also recommends that the rule be amended, on page 29, lines 22 through 24, to delete the restriction that any backbilling must start at the date that the utility notifies the customer that his or her meter is under-registering. Staff believes that the utility should be able to backbill for up to twelve months regardless of the date that the utility notifies the customer that his or her meter is under-registering because there may be legitimate reasons for a delay in meter testing. For example, if there is a large number of meters to test, the time it takes to test the meters and notify the customer of the under-registration reduces the time period for which the customer may be backbilled. Also, coordinating the schedules of the utility, the customer, and the referee to actually conduct the test can sometimes cause substantial delays which reduces the time period in which backbilling would be allowed if the meter is found to be under-registering.

One interested person expressed concerns with this proposed change because the amount to be backbilled could be increased. Staff was not persuaded by this argument because, if the meter is found to be under-registering, staff believes that the utility should be made whole for the under-registration. Staff also notes that the rule allows collection of backbillings over the same amount of time as the backbilling period. Thus, any consumer concerns in regard to having to immediately repay a potentially large sum of money in one lump sum payment is somewhat alleviated.

On page 30, line 7, staff is recommending that subsection (4)(b) be added to the rule. This is the same language that was deleted from the paragraph above, on page 30, lines 4 through 6. Staff believes that placing this language in its own subsection adds clarity to the rule.

On page 30, line 13, staff recommends that the rule be amended to refer to subsection (1) and (2) of the rule instead of referring back to Rule 25-6.058, as the methodology for determining the amount of the refund or backbill was added to this rule on page 28, line 2 through page 29, line 1. Furthermore, as this methodology was added to this rule, the language on page 30, lines 13 through 17, is no longer necessary.

Staff also recommends, on page 30, lines 21 through 22, that the term "partially registering meter" be deleted from the rule and the language "a meter for which the test results are inconclusive" be added to the rule. Staff believes that the term "partially registering meter" could be confused with an "under-registering meter" which is referenced in new subsection (4) of this rule on page 29, line 21. The methodology recommended by staff in new subsection (1), page 28, beginning on line 1, applies to the adjustment of bills for under-registering meters. New subsection (5), on page 30, line 21, however, applies to those meters that are either not registering at all or are damaged in such a way that it is impossible to tell exactly how much the meters are under-registering.

On page 30, line 25 through page 31, line 3, staff recommends that original subsection (3) be deleted from the rule. This subsection is no longer necessary because staff is recommending, on page 28, line 2 through page 29, line 1, the inclusion of a methodology for determining the



amount of refund or backbill for over-registering or under-registering mechanical and lagged demand meters. Staff notes that the language in original subsection (3) created confusion at the hearing in Docket No. 030623-EI, which led the Commission to direct staff to proceed to rulemaking.

### **STATEMENT OF ESTIMATED REGULATORY COSTS**

The Florida Administrative Procedure Act encourages an agency to prepare a Statement of Estimated Regulatory Costs (SERC). The SERC prepared by staff, included as Attachment D, states that the utilities that replied to the data request done in conjunction with the SERC indicated that there would be no significant cost impacts from the proposed amendments. As in their post-workshop comments, FPL indicated that it was unable to determine the exact calculations for testing mechanical and lagged demand meters under the amended rules.

The SERC states that the utilities and the Commission should benefit by the rule amendments because there will be a clearer understanding as to what is required for meter testing. Likewise, small businesses, cities, and counties may also get some benefit from the clarification of the calculation of meter error.

Based on the foregoing, staff recommends that the Commission propose the amendment of Rules 25-6.022, 25-6.052, 25-6.056, 25-6.058, 25-6.059, 25-6.060, and 25-6.103 as set forth in Attachment A of this recommendation.

Docket No. 060121-EI

Date: March 23, 2006

**Issue 2:** Should this docket be closed?

**Recommendation:** Yes, if no requests for hearing or comments are filed, the rule amendments as proposed should be filed for adoption with the Secretary of State, and the docket should be closed. (Cibula)

**Staff Analysis:** Unless comments or requests for hearing are filed, the rules as proposed may be filed with the Secretary of State without further Commission action. The docket may then be closed.

1 **25-6.022 Record of Metering Devices and Metering Device Tests.**

2 (1) For all types of utility-performed tests, a test record shall be made whenever a unit  
3 of metering equipment is tested, but need not be retained after the equipment is again tested  
4 unless the test is made in accordance with Rule 25-6.059 or Rule 25-6.060. When equipment  
5 accuracy testing is required under Rule 25-6.059 or Rule 25-6.060, any record of accuracy  
6 testing for disputed equipment that is on file at the time the customer request is made under  
7 Rule 25-6.059 or Rule 25-6.060 must be retained until the dispute is resolved. The record  
8 shall show information to identify the unit and its location; equipment with which the unit is  
9 associated; the date of the test; reason for the test; readings before and after the test; if the  
10 meter creeps, a statement as to the rate of creeping; a statement of the "as found" accuracy;  
11 indications showing that all required checks have been made; a statement of repairs made, if  
12 any; and identification of the person making the test. The completion of each test will signify  
13 the "as left" accuracy falls within the required limits specified in Rule 25-6.052, F.A.C.,  
14 unless the meter is to be retired.

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

19 (3) Records of Test for Incoming Purchases. Regardless whether the newly purchased  
20 metering equipment is tested under a Random Sampling Plan approved pursuant to Rule 25-  
21 6.056, each utility shall maintain and make available to the Commission for each purchase of  
22 new meters and associated devices made during the calendar or fiscal year, the following  
23 information:

24 (a) Type of equipment, including manufacturer, model number, and any features which  
25 will subsequently be used to classify the units purchased into a population of units for in-

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from existing law.

1 service tests;

2 (b) The number of units purchased;

3 (c) The total number of units tested;

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

5 (e) Average percent registration;

6 (f) Standard deviation about the average percent registration (population or sample

7 standard deviation);

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

9 (h) If a utility does not perform its tests for incoming purchases, the data provided by

10 equipment manufacturers concerning units tested on a 100 percent basis by the manufacturer,

11 with the manufacturer's test results used as a basis for acceptance testing, shall also be

12 retained.

13 (4) Records of Periodic and Annual In-Service Meters Tests. Each utility shall

14 maintain test records for each periodic and annual in-service test of electric meters and

15 associated devices in such a manner that the information listed in paragraphs (4)(a) through

16 (h) is readily available to the Commission on request. These data shall be maintained for units

17 of metering equipment tested under approved Random Sampling Plans and for units tested

18 under periodic testing programs, and shall be summarized on an annual basis.

19 (a) Type of equipment, including manufacturer, model number, and any features that

20 ~~which~~ are currently used to classify the units tested into a population of units for in-service

21 tests;

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

23 (c) The total number of units tested;

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

25 (e) Average percent registration;

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- 1 (f) Standard deviation about the average percent registration (population or sample  
2 standard deviation);
- 3 (g) Results showing whether the units tested under an approved random sampling  
4 program meet the utility's acceptance criteria; and
- 5 (h) A statement of the action to be taken to make further tests or replace inaccurate  
6 units, when the units tested under an approved random sampling program do not meet the  
7 acceptance criteria.
- 8 (i) The information regarding units tested during the year but not tested under a  
9 Random Sampling Plan or a periodic testing program need not be maintained as listed in  
10 paragraphs (4)(a) through (h) or be summarized on an annual basis.
- 11 Specific Authority 366.05(1) FS.  
12 Law Implemented 366.05(1), (3), 366.04(2)(f) FS.  
13 History—Amended 7-29-69, Formerly 25-6.22, Amended 5-19-97,\_\_\_\_\_.

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1 **25-6.052 Accuracy Requirements and Test Procedures Plans for and Accuracies of**  
2 **Consumption Metering Devices.**

3 (1) Definitions.

4 (a) “Electronic Meter.” Any meter that measures electric demand or energy and  
5 displays registration using electronic components only.

6 (b) “Mechanical Meter.” Any meter that measures electric demand or energy and  
7 displays registration using mechanical components rather than electronic or solid-state  
8 components.

9 (c) “Lagged Demand (or Thermal Demand) Meter.” Any meter that indicates demand  
10 by means of thermal or mechanical devices having an approximately exponential response.

11 (d) “Registration Error.” The variation in kilowatts or kilowatt-hours from the true  
12 value measured by a standard or reference device.

13 (e) “Meter Type.” A combination of design and construction that forms a unique  
14 method of measurement of the consumption of electricity. For example, electromechanical,  
15 thermal, solid state, hybrid, etc.

16 (2)(1) Accuracy Requirements for Watthour Meters. The performance of an in-service  
17 watthour meter shall be acceptable when the meter does not creep and the average registration  
18 error does not exceed plus or minus two percent. ~~percentage registration is not more than 102~~  
19 ~~percent nor less than 98 percent, calculated~~ Meter registration error shall be determined in  
20 accordance with Rule 25-6.058(1), F.A.C.

21 (3)(2) Accuracy Requirements for Demand Meters and Registers.

22 (a) The performance of a mechanical or lagged demand meter or register shall be  
23 acceptable when the ~~error of registration~~ error does not exceed four percent in terms of full-  
24 scale value, ~~when tested~~ at any point between 25 percent and 100 percent of full-scale value.  
25 Meter registration error shall be determined in accordance with Rule 25-6.058(2)(a).

1 (b) The performance of an electronic demand meter or register shall be acceptable  
2 when the ~~error of registration~~ error does not exceed two percent of reading, ~~when tested at any~~  
3 point between 10 percent and 100 percent of ~~full scale value~~ test amperes. Meter registration  
4 error shall be determined in accordance with Rule 25-6.058(2)(b).

5 (c) Demand meters shall indicate zero under no-load conditions.

6 ~~(4)(3)~~ (4) Meter Equipment Test Procedures.

7 (a) The test of any unit of metering equipment shall consist of a comparison of its  
8 accuracy with the accuracy of a standard.

9 (b) Watthour meters and associated devices shall be tested for accuracy and adjusted in  
10 accordance with American National Standard for Electric Meters, Code for Electricity  
11 Metering (ANSI C12.1 – ~~2001~~1995), which is incorporated herein by reference.

12 (c) Electronic ~~Totally solid-state~~ meters that compute demand from watthour meter  
13 registration and programmed demand algorithms shall be tested and adjusted in accordance  
14 with ANSI C12.1 – ~~2001~~1995. Demand registration need not be tested, provided the meter has  
15 been inspected to contain the correct demand algorithm whenever watthour registration is  
16 tested.

17 ~~(5)(4)~~ (5) Test Plans ~~Procedures~~.

18 (a) Each utility shall submit its test plan ~~procedures~~ for review and approval for all  
19 types of metering equipment, including:

- 20 1. Single-phase watthour meters;
- 21 2. Polyphase watthour meters;
- 22 3. Demand meters;
- 23 4. Pulse initiating meters;
- 24 5. Pulse recorders;
- 25 6. Time-of-use meters; and

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1 7. Instrument Transformers.

2 (b) Test plans ~~procedures~~ shall contain the following for each type of metering device  
3 covered:

4 1. Adjustment limits;

5 2. Test points;

6 3. Test duration;

7 4. Type of test – single-phase test, polyphase test, etc.; and

8 5. Description of the general steps involved.

9 (c) Any changes to a previously approved test plan ~~procedure~~ must be submitted to the  
10 Commission's Division of Economic Regulation for approval. Adding a meter type to a  
11 previously approved test plan ~~procedure~~ is a change that ~~which~~ requires approval.

12 (d) Review of Proposed Test Plans ~~Procedures~~. Except where a utility has requested a  
13 formal ruling by the Commission, the Division of Economic Regulation shall within 90 days  
14 after submission review each utility's proposed test plan ~~procedures~~ to determine whether it  
15 satisfies ~~they satisfy~~ the criteria set forth in paragraphs ~~(5)~~(4)(a) and (b) above and shall notify  
16 the utility in writing of its decision accepting or rejecting the proposed plan ~~procedures~~. If a  
17 proposed plan ~~procedure~~ is rejected, the written notice of rejection shall state clearly the  
18 reasons for rejecting the proposed plan ~~procedure~~. If a utility's proposed plan ~~procedure~~ is  
19 rejected, the utility shall submit a revised plan ~~procedure~~ to the Commission within 60 days  
20 after receiving the notice of rejection. Where a utility has requested staff review of its plan  
21 ~~procedures~~ and a plan ~~procedure~~ has been rejected, the utility may petition the Commission for  
22 approval of the plan ~~procedure~~. ~~If a utility has not submitted a satisfactory procedure within~~  
23 ~~six months following the submission of the initially proposed procedure, the Commission may~~  
24 ~~prescribe by order a procedure for the utility.~~

25 Specific Authority 366.05(1) FS.

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from existing law.



- 1 Law Implemented 366.05(3) FS.
- 2 History—Amended 7-29-69, Formerly 25-6.52, Amended 5-19-97,\_\_\_\_\_.
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1 **25-6.056 Metering Device Test Plans.**

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

7 (2) All metering device tests shall be retained in accordance with ~~by the utility and~~  
8 ~~made available to the Commission pursuant to~~ Rule 25-6.022, F.A.C.

9 (3) New instrument transformers shall be tested in accordance with subsection (5) of  
10 this rule ~~before initial installation~~. Instrument transformers ~~that~~ ~~which~~ have been removed  
11 from service shall be tested prior to reinstallation if the reason for removal, physical  
12 appearance, or record of performance gives cause to doubt its reliability.

13 (4) All metering equipment listed in Rule paragraph 25-6.052(5)(4)(a), F.A.C., shall be  
14 tested:

15 (a) Before initial and each successive installation, either by the utility or the  
16 manufacturer, with the exception of units of metering equipment ~~that~~ ~~which~~ are statistically  
17 sample tested by the utility under an approved Random Sampling Plan; and

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

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

21 (a) On a 100 percent basis, with testing performed by the utility;

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

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

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from existing law.

1           (6) Within each population specified in an approved sampling plan or periodic test plan  
2 of mechanical or lagged demand meters, or other metering devices for which acceptability is  
3 stated in terms of full-scale value, each device shall have the same class amperage and class  
4 voltage.

5           ~~(7)(6)~~ In-Service Testing.

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

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

11           ~~(8)(7)~~ Random Sampling Plans Submitted for Approval.

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

15           ~~(a)(b)~~ Random Sampling Plans published by the United States Department of Defense  
16 or by The American Society for Quality Control, or any other sampling plans ~~that~~ ~~which~~ have  
17 been approved by the Commission prior to the effective date of this rule need not be re-  
18 approved for the types of equipment for which they were approved.

19           ~~(b)(e)~~ Each Random Sampling Plan submitted for approval shall include, at a  
20 minimum, the following information:

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

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

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from existing law.

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

4           (c)(d) "Variables" sampling plans may use either the "known variability" or the  
5 "unknown variability" acceptance criteria. The acceptance criteria shall be appropriately  
6 modeled. Variables sampling plans shall use the population standard deviation to measure  
7 variability unless the proposed plan is accompanied by adequate justification for using another  
8 parameter.

9           (9)(8) The analysis of a proposed Random Sampling Plan, or a proposed periodic in-  
10 service testing schedule where applicable, shall include assessments of the plan's ability to  
11 detect the presence of inaccurate equipment, the economy of testing only a sample of the units  
12 in the population, the impact of having inaccurate units used for billing purposes, the number  
13 of units in the population, and the historical performance of the type of equipment covered by  
14 the proposed plan.

15           (10)(9) Approval of Sampling Plans and In-Service Testing Schedules. All utilities  
16 subject to this rule shall submit to the Commission's Division of Economic Regulation a  
17 proposed Random Sampling Plan for each population of metering devices for which it intends  
18 to use a random sampling plan for acceptance testing or for in-service testing, and a proposed  
19 periodic testing schedule for each population of metering devices for which it does not submit  
20 a proposed in-service random sampling plan. Sampling plans and in-service testing schedules  
21 must be reviewed and approved pursuant to subsection (11) of this rule prior to their use.

22           (11)(10) Review of Proposed Test Plan. As used in this subsection, the word "plan"  
23 includes periodic testing schedules as well as Random Sampling Plans. Except where a utility  
24 has requested a formal ruling by the Commission, the Division of Economic Regulation shall  
25 within 90 days after submission review each utility's plan to determine whether it satisfies the

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1 criteria set forth in subsections (8)(7) and (9)(8) above and shall notify the utility in writing of  
2 its decision accepting or rejecting the proposed plan. If a proposed plan is rejected, the written  
3 notice of rejection shall state clearly the reasons for rejecting the proposed plan. If a utility's  
4 proposed plan is rejected, the utility shall submit a revised plan to the Commission within 60  
5 days after receiving the notice of rejection. Where a utility has requested staff review of its  
6 plan and the plan has been rejected, the utility may petition the Commission for approval of  
7 the initially proposed plan. ~~If a utility has not submitted a satisfactory plan within six months~~  
8 ~~following the submission of the initially proposed plan, the Commission may prescribe by~~  
9 ~~order a plan for the utility.~~

10 Specific Authority 366.05(1) FS.

11 Law Implemented 366.05(3) FS.

12 History--New 7-29-69, Amended 4-13-80, Formerly 25-6.56, Amended 5-19-97,\_\_\_\_\_.

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1 **25-6.058 Determination of Average Meter Registration Error.**

2 ~~Whenever a metering installation is tested and found to exceed the accuracy limits, the~~  
3 ~~average error shall be determined in one of the following ways:~~

4 (1) Average Meter Registration Error for Watthour Registers.

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

9 ~~(b)(2)~~ If a single-phase metering installation is used on a varying load, the average  
10 registration error shall be determined by in one of the following methods. ways: The utility  
11 shall select the method that best fits the customer's usage pattern.

12 1.(a) The weighted algebraic average of the error at approximately 10 percent and at  
13 100 percent of the rated test amperes for the meter, the latter being given a weight of four  
14 times the former;

15 2.(b) The simple average of the error at approximately 10 percent and at approximately  
16 100 percent of the rated test amperes of the meter, each being given an equal weight; or

17 3.(c) A single point, when calculating the error of an electronic a-totally solid state  
18 meter, and the single point is an accurate representation of the error over the load range of the  
19 meter.

20 ~~(c)(3)~~ If a polyphase metering installation is used on a varying load, the average  
21 registration error shall be determined by in one of the following methods. ways: The utility  
22 shall select the method that best fits the customer's usage pattern.

23 1.(a) The weighted algebraic average of its error at light load (approximately 10  
24 percent rated test amperes) given a weight of one, its error at heavy load (approximately 100  
25 percent rated test amperes) and 100 percent power factor given a weight of four, and at heavy

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1 load (approximately 100 percent rated test amperes) and 50 percent lagging power factor  
2 given a weight of two; or

3 2.(b) A single point, when calculating the error of ~~an electronic~~ a totally solid-state  
4 meter, and the single point is an accurate representation of the error over the load range of the  
5 meter.

6 (2) Average Meter Registration Error for Demand Registers.

7 (a) For mechanical or lagged demand meters, registration error shall be determined by  
8 testing the meter at both 40 percent and 80 percent of its full-scale value, as read on the  
9 reference or standard meter, or as near to these two points as practicable. The following two  
10 formulas shall be used to estimate the kilowatt error of the meter at 25 percent of full scale and  
11 at 100 percent of full scale:

12 
$$E_{25} = [E_{80} - E_{40}] / [R_{80} - R_{40}] * [R_{25} - R_{40}] + E_{40}$$

13 
$$E_{100} = [E_{80} - E_{40}] / [R_{80} - R_{40}] * [R_{100} - R_{40}] + E_{40}$$

14 where:

15 R<sub>25</sub> and R<sub>100</sub> denote the kilowatt readings on the reference meter at 25 percent and 100  
16 percent of the full scale value of the meter being tested, respectively;

17 R<sub>40</sub> and R<sub>80</sub> denote the kilowatt readings on the reference meter at 40 percent and 80  
18 percent of the full scale value of the meter being tested, respectively;

19 E<sub>40</sub> is the difference in kilowatts between the reference reading (R<sub>40</sub>) and the reading  
20 on the meter being tested;

21 E<sub>80</sub> is the difference in kilowatts between the reference reading (R<sub>80</sub>) and the reading  
22 on the meter being tested;

23 E<sub>25</sub> is the estimated kilowatt error corresponding to R<sub>25</sub>; and

24 E<sub>100</sub> is the estimated kilowatt error corresponding to R<sub>100</sub>.

25 The greater of these two estimated kilowatt errors, E<sub>25</sub> or E<sub>100</sub>, shall be expressed as a

1 percentage of the full-scale value of the meter being tested to determine if the meter meets the  
2 accuracy requirement of Rule 25-6.052(3)(a).

3 (b) For electronic demand meters, demand registration need not be separately tested  
4 provided the meter has been inspected to contain the correct demand algorithm whenever  
5 watthour registration is tested.

6 Specific Authority 366.05(1) FS.

7 Law Implemented 366.05(3) FS.

8 History—New 7-29-69, Formerly 25-6.58, Amended 5-19-97,\_\_\_\_\_.

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1 **25-6.059 Meter Test by Request.**

2 (1) Upon request of a customer, the utility shall, without charge, make a test of the  
3 accuracy of the meter in use at his premises provided that the meter has not been tested by the  
4 utility or the Commission within twelve (12) months previous to such request. This may be a  
5 shop test.

6 (2) Should any customer request a meter test more frequently than provided for in  
7 subsection (1) of this rule, the utility may require a deposit to defray costs of testing, such  
8 deposit not to exceed ~~fifteen dollars (\$15.00)~~ one hundred dollars (\$100.00) for each test. If  
9 the meter is found to be running fast in excess of the allowable limit the deposit shall be  
10 refunded, but if the meter is below the allowable limit, the deposit may be retained by the  
11 utility as a service charge for conducting the test.

12 (3) If the customer so desires, he or his authorized representative shall have the  
13 privilege of witnessing the test. A written report giving the results of the test shall be furnished  
14 to the customer upon request.

15 (4) At the request of the customer, the utility shall make arrangements for a meter test  
16 to be conducted by an independent meter testing facility of the customer's choosing. The  
17 customer shall be responsible for negotiating and paying to the independent meter testing  
18 facility any fee charged for such a test. Such independent meter testing facilities shall, at a  
19 minimum, conform to the requirements of the American National Standard for Electric  
20 Metering, Code for Electricity Metering, Seventh Edition (ANSI C12.1 2001+1982), which is  
21 incorporated herein by reference. Where appropriate, the meter may be field tested. The  
22 customer shall be responsible for all the costs incurred by ~~to~~ the utility related to associated  
23 ~~with~~ a meter test by an independent ~~meter~~ testing facility. The utility shall provide a detailed  
24 estimate of ~~such~~ costs the utility expects to incur related to the meter test and may require  
25 payment of such costs prior to the actual meter test. The customer shall provide to the utility a

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from existing law.

1 detailed estimate of charges from the independent testing facility for the meter test prior to the  
2 actual test. If the meter is found to be running fast in excess of the limits established by these  
3 rules, any payment collected by the utility related to the meter test such costs shall be  
4 refunded, but if the meter is found to be within the allowable limits established by these rules,  
5 the utility may retain any payments collected by the utility related to the meter test ~~the costs.~~

6 (5) The utility may, at its discretion, conduct its own test of the meter in conformance  
7 with the testing standards established by these rules. In the event that separate tests of the  
8 same meter conflict as to whether the meter meets the accuracy standards established by these  
9 rules, at the request of the utility or the customer, the Commission will resolve the matter.

10 (6) For equipment tested under this rule, any previous accuracy test result on record at  
11 the time the meter test is requested must be retained in accordance with Rule 25-6.022.

12 Specific Authority 366.05(1) FS.

13 Law Implemented 366.05(4), (5), 366.05(3) FS.

14 History—New 7-29-69, Amended 10-11-83, Formerly 25-6.59, \_\_\_\_\_.

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1 **25-6.060 Meter Test - Referee.**

2 (1) In the event of a dispute, upon written application to the Commission by any  
3 customer, a test of the customer's meter will be made by the utility as soon as practicable. Said  
4 test will be supervised by a representative of the Commission.

5 (2) A meter shall in no way be disturbed after the utility has received notice that  
6 application has been made for such referee test unless a representative of the Commission is  
7 present or unless authority to do so is first given in writing by the Commission or by the  
8 customer.

9 (3) A report of the results of the test will be made by the Commission to the customer.

10 (4) For equipment tested under this rule, any previous accuracy test result on record at  
11 the time the meter test is requested must be retained in accordance with Rule 25-6.022.

12 Specific Authority 366.05(1) FS.

13 Law Implemented 366.05(3) FS.

14 History—New 7-29-69, Formerly 25-6.60, \_\_\_\_\_.

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1 **25-6.103 Adjustment of Bills for Meter Error.**

2       (1) For mechanical or lagged demand meters, the error at the customer's average  
3 billing demand over the refund period shall be used to determine the amount to refund or  
4 backbill the customer. This error shall be determined by testing the meter at both 40 percent  
5 and 80 percent of meter full scale value, as read on the standard or reference meter, or as near  
6 to these two points as is practicable. The following formula shall be used to estimate the  
7 kilowatt error of the meter at the customer's average billing demand:

8       
$$E_{avg} = [E_{80} - E_{40}] / [M_{80} - M_{40}] * [M_{avg} - M_{40}] + E_{40}$$

9       where:

10       M<sub>avg</sub> denotes the customer's average billing demand over the refund period;

11       M<sub>40</sub> and M<sub>80</sub> denote the kilowatt readings on the meter being tested when the reference  
12 meter is at 40 percent and 80 percent of the full-scale value of the meter being tested,  
13 respectively;

14       E<sub>40</sub> and E<sub>80</sub> denote the kilowatt errors on the meter being tested corresponding to M<sub>40</sub>  
15 and M<sub>80</sub>, respectively; and

16       E<sub>avg</sub> denotes the estimated kilowatt error at the customer's average billing demand.

17       The kilowatt error so determined, E<sub>avg</sub>, shall be expressed as a percentage, P, of the  
18 reference meter reading corresponding to the average billing demand. This percentage shall  
19 be used to determine the corrected billing demand for each month of the refund period. A  
20 correction factor, C.F., will be applied to the original billing demand for each month in the  
21 refund/backbill period to determine the corrected billing demand for each month as follows:

22       
$$C.F. * \text{Original Billing Demand} = \text{Corrected Billing Demand}$$

23       where:

24       
$$C.F. = [1 / (1 + P)]$$

25       and P is the percentage error of E<sub>avg</sub> relative to the reference meter reading

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1 corresponding to the average billing demand over the refund/backbill period.

2 (2) For watthour and electronic demand meters, the percentage error to be used for  
3 refunds and backbills shall be the same percentage calculated when tested for watthour  
4 registration as set forth in Rules 25-6.058(1) and 25-6.058(2)(b), respectively. A correction  
5 factor, C.F., will be applied to the original billing demand/energy for each month in the  
6 refund/backbill period to determine the corrected billing demand/energy for each month as  
7 follows:

8 
$$\text{C.F.} * \text{Original Billing Demand/Energy} = \text{Corrected Billing Demand/Energy}$$

9 where:

10 
$$\text{C.F.} = [1/(1+P)]$$

11 and P is the percentage error calculated according to Rule 25-6.058(1) for watthour  
12 meters and Rule 25-6.058(2)(b) for electronic demand meters.

13 (3)(4) Over-registering Fast meters. Whenever a meter tested is found to have an error  
14 in excess of the plus tolerance allowed in Rule 25-6.052, F.A.C., the utility shall refund to the  
15 customer the amount billed in error as determined by subsection (1) or subsection (2) of this  
16 rule Rule 25-6.058, F.A.C., for one half the period since the last test, said one half period shall  
17 not exceed twelve (12) months; except that if it can be shown that the error was due to some  
18 cause, the date of which can be fixed, the overcharges shall be computed back to but not  
19 beyond such date based upon available records. The refund shall not include any part of any  
20 minimum charge.

21 (4)(2) Under-registering Slow meters.

22 (a) Except as provided by this paragraph, A utility may backbill in the event that a  
23 meter is found to be under-registering slow, non-registering or partially registering. A utility  
24 may not backbill for any period greater than twelve (12) months from the date it notifies a  
25 customer that his or her meter is slow, non-registering or partially registering. If it can be

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1 | ascertained that the meter was under-registering slow, non-registering or partially registering  
2 | for less than twelve (12) months ~~prior to notification~~, then the utility may backbill only for the  
3 | lesser period of time. In any event, the customer may extend the payments of the backbill over  
4 | the same amount of time for which the utility issued the backbill. ~~Nothing in this subsection~~  
5 | ~~shall be construed to limit the application of Rule 25-6.104, F.A.C., or prohibit a utility from~~  
6 | ~~backbilling for four years pursuant to subsection (5) of this rule.~~

7 |       **(b)** Nothing in subsection (4)(a) of this rule shall be construed to limit the application  
8 | of Rule 25-6.104, or prohibit a utility from backbilling for four years pursuant to subsection  
9 | (7) of this rule.

10 |       **(c)(b)** Whenever a meter is tested and not subject to Rule 25-6.104 or subsection 25-  
11 | 6.105(5), F.A.C., and is found to have an error in excess the minus tolerance allowed by Rule  
12 | 25-6.052, F.A.C., the utility may bill the customer an amount equal to the unbilled error as  
13 | determined by subsection (1) or subsection (2) of this rule. ~~Rule 25-6.058, F.A.C., in~~  
14 | ~~accordance with this subsection. In order to determine the amount of undercharge, the~~  
15 | ~~recorded consumption shall be adjusted using the amount of error found by the meter to~~  
16 | ~~determine the correct consumption and the customer's bills in question shall be recalculated~~  
17 | ~~and computed to the actual bills rendered. If the utility has required a deposit for a meter test~~  
18 | ~~as permitted under subsection (2) of Rule 25-6.059(2), F.A.C., the customer may be billed~~  
19 | ~~only for that portion of the unbilled error which is in excess of the deposit retained by the~~  
20 | ~~utility.~~

21 |       **(5)(e)** In the event of a non-registering meter or a meter for which the test results are  
22 | inconclusive partially registering meter, unless the provisions of subsection (3) of this rule  
23 | apply, the utility may bill the customer on an estimate based on previous bills for similar usage  
24 | or on other sources of available data provided.

25 |       **(3)** ~~It shall be understood that when a meter is found to be in error in excess of the~~

1 ~~prescribed limits, the figure to be used for calculating the amount of refund or charge in~~  
2 ~~subsection (1) or paragraph (2)(b) above shall be that percentage of error as determined by the~~  
3 ~~test.~~

4 (6)~~(4)~~ Creeping. Whenever a meter, upon proper testing, is found to have a  
5 registration error due to “creep” in excess of the tolerance allowed by Rule 25-6.052, F.A.C.,  
6 the error shall be calculated by timing the rate of “creeping” and assuming that the creeping  
7 affected the registration of the meter for 25% of the time, unless a more accurate estimate of  
8 the percentage of time the meter should have been inactive can be obtained.

9 (7)~~(5)~~ Where a utility determines that a service location has not previously been  
10 properly metered through errors of an electrical contractor, the utility may backbill for up to  
11 four years from the date of notice to the customer that the error has been discovered.  
12 The customer may extend the payments of the backbill over the same amount of time for  
13 which the utility issued the backbill.

14 Specific Authority 366.05(1) FS.

15 Law Implemented 366.03, 366.041(1), 366.05(1), (3), (4), 366.06(1) FS.

16 History—New 7-29-69, Amended 4-13-80, 5-3-82, \_\_\_\_\_.

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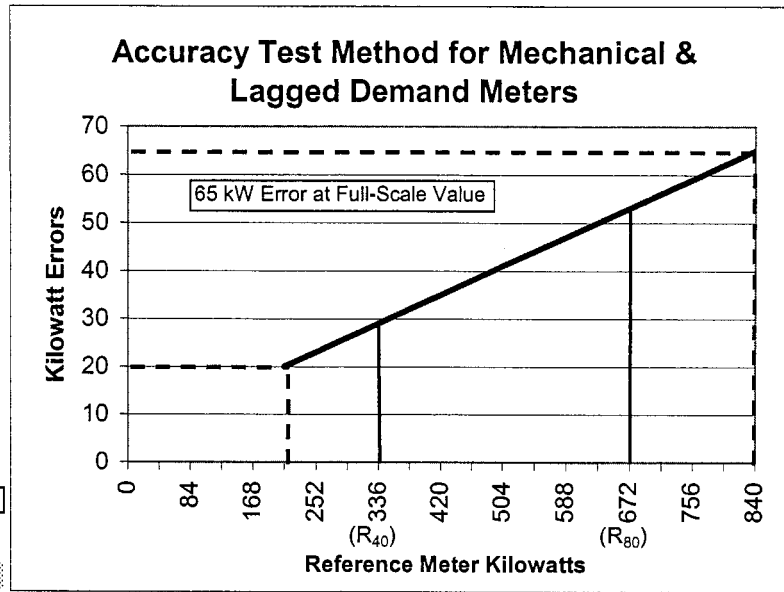
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|            |     |
|------------|-----|
| Full Scale | 840 |
| M80        | 725 |
| E80        | 53  |
| M40        | 365 |
| E40        | 29  |
| R80        | 672 |
| E80        | 53  |
| R40        | 336 |
| E40        | 29  |

| Ref Meter | kW Error | Cust Meter |
|-----------|----------|------------|
| 0         |          |            |
| 42        |          |            |
| 84        |          |            |
| 126       |          |            |
| 168       |          |            |
| 210       | 20       | 230        |
| 252       | 23       | 275        |
| 294       | 26       | 320        |
| 336       | 29       | 365        |
| 378       | 32       | 410        |
| 420       | 35       | 455        |
| 462       | 38       | 500        |
| 504       | 41       | 545        |
| 546       | 44       | 590        |
| 588       | 47       | 635        |
| 630       | 50       | 680        |
| 672       | 53       | 725        |
| 714       | 56       | 770        |
| 756       | 59       | 815        |
| 798       | 62       | 860        |
| 840       | 65       | 905        |



Equation of Line:  $E_x = [E_{80} - E_{40}] / [R_{80} - R_{40}] * [R_x - R_{40}] + E_{40}$

where:  $E_x$  is kilowatt error when Ref Meter is at  $R_x$  kilowatts

the subscript x stands for 25 or 100

$E_{80}$  is kilowatt error at 80% of full-scale value

$E_{40}$  is kilowatt error at 40% of full-scale value

$R_{80}$  is kilowatt reading on Ref Meter at 80% of f.s. value

$R_{40}$  is kilowatt reading on Ref Meter at 40% of f.s. value

Use the higher of  $E_{25}$  and  $E_{100}$  to determine whether meter meets accuracy requirement.

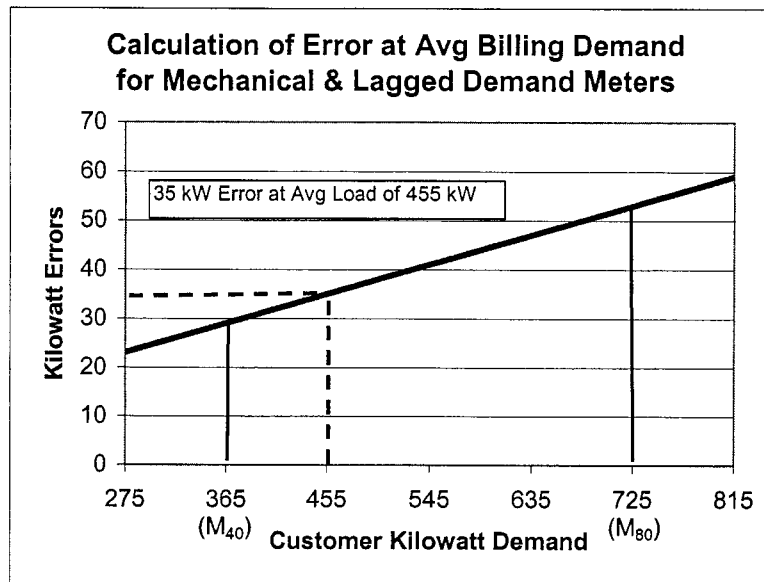
For accuracy requirement, use percent of full-scale value:

Percent of Full-scale Value =  $65 / 840 = 7.74\%$ .

7.74% exceeds the accuracy requirement stated in 25-6.052(3)(a).



|            |          |           |  |
|------------|----------|-----------|--|
| Full Scale | 840      |           |  |
| M80        | 725      |           |  |
| E80        | 53       |           |  |
| M40        | 365      |           |  |
| E40        | 29       |           |  |
| R80        | 672      |           |  |
| E80        | 53       |           |  |
| R40        | 336      |           |  |
| E40        | 29       |           |  |
| Cust Meter | kW Error | Ref Meter |  |
| 275        | 23       | 252       |  |
| 365        | 29       | 336       |  |
| 455        | 35       | 420       |  |
| 545        | 41       | 504       |  |
| 635        | 47       | 588       |  |
| 725        | 53       | 672       |  |
| 815        | 59       | 756       |  |



Equation of Line:  $E_{avg} = [E_{80} - E_{40}] / [M_{80} - M_{40}] * [M_{avg} - M_{40}] + E_{40}$

where:  $E_{avg}$  is kilowatt error when Cust. Meter is at  $M_{avg}$  kilowatts  
 $M_{avg}$  is the customer's average load over the refund period  
 $E_{80}$  is kilowatt error at 80% of full-scale value  
 $E_{40}$  is kilowatt error at 40% of full-scale value  
 $M_{80}$  is kilowatt reading on Cust Meter at 80% of f.s. value  
 $M_{40}$  is kilowatt reading on Cust Meter at 40% of f.s. value

For purposes of refund, use test point percent error:

Test Point Percent Error =  $35/420 = 8.33\%$ .

Corrected Billing Demand =  $[1 / (1 + 0.0833)] * \text{Original Billing Demand}$ .

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:** January 31, 2006  
**TO:** Office of General Counsel (Cibula)  
**FROM:** Division of Economic Regulation (Hewitt) *BAK 102*  
**RE:** Statement of Estimated Regulatory Costs for Proposed Amendments to Rules 25-6.022, F.A.C., Record of Metering Devices and Metering Device Tests; 25-6.052, Accuracy Requirements and Test Plans for Metering Devices; 25-6.056, Metering Device Test Plans; 25-6.058, Determination of Average Meter Registration Error; 25-6.059, Meter Test by Request; 25-6.060, Meter Test - Referee; 25-6.103, Adjustment of Bills for Meter Error

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### SUMMARY OF THE RULES

The meter testing rules contain requirements for checking the accuracy of the devices measuring the amount of energy delivered to electricity customers, reference national standards, and the procedures for testing meters.

The proposed rule amendments would clarify definitions, update references, and improve accuracy requirements and testing.

### ESTIMATED NUMBER OF ENTITIES REQUIRED TO COMPLY AND GENERAL DESCRIPTION OF INDIVIDUALS AFFECTED

All five electric investor owned utilities (IOUs) would be affected by the proposed rule changes.

### RULE IMPLEMENTATION AND ENFORCEMENT COST AND IMPACT ON REVENUES FOR THE AGENCY AND OTHER STATE AND LOCAL GOVERNMENT ENTITIES

The Commission would benefit because there should be less time spent in litigation and hearings concerning meter accuracy and billing errors. There should be no impact on agency revenues.

There should be no negative impact on other state and local government entities but they may benefit from clarification of the calculation of meter error.

ESTIMATED TRANSACTIONAL COSTS TO INDIVIDUALS AND ENTITIES

IOUs would benefit by having a more clear understanding of what is required for meter testing and therefore should have less cost to comply with the rule. The utilities that replied to a data request have indicated that there would be no significant costs from the proposed rule amendments. However, FPL indicated that it is unable to determine the exact calculations called for by the proposed revised rules. This ambiguity could lead to increased costs in rule promulgation if unresolved.

IMPACT ON SMALL BUSINESSES, SMALL CITIES, OR SMALL COUNTIES

There should be no negative impacts on small businesses, small cities, or small counties. These entities may derive some benefit from clarification of the calculation of meter error.

CH:kb

cc: Mary Andrews Bane  
Chuck Hill  
Roland Floyd  
Hurd Reeves