

**SPECIAL ELECTRIC RULES**

**OF THE**

**ALABAMA PUBLIC SERVICE COMMISSION**

## TABLE OF CONTENTS

Rule E-1	Engineering Practice in Construction and Maintenance of Electric Plant .....	3
Rule E-2	Location of Meters and Master Metering .....	4
Rule E-3	Meter Testing Facilities, Equipment and Standards .....	6
Rule E-4	Accuracy Requirements for Service Watt-Hour Meters .....	7
Rule E-5	Accuracy Requirements for Demand Meters .....	8
Rule E-6	Place and Methods for Meter Testing .....	9
Rule E-7	Meter Tests Prior to Installation .....	9
Rule E-8	Periodic Tests of Watt-Hour and Demand Meters .....	10
Rule E-9	Tests Upon Request of Consumer .....	10
Rule E-10	Voltage Limits .....	11
Rule E-11	Standard Frequency .....	12
Rule E-12	Voltage Studies and Records .....	12
Rule E-13	Station Instruments and Meters .....	12
Rule E-14	Interstate Operation .....	12
Rule E-15	Billing Inaccuracies .....	12

## **RULE E-1**

### Engineering Practice in Construction and Maintenance of Electric Plant

- (A) The electric plant of the utility shall be constructed, installed, maintained, and operated in accordance with accepted good engineering practice in the electric industry to assure, as far as reasonably possible, continuity of service, uniformity in the quality of service furnished, and the safety of persons and property.
- (B) The utility shall use the applicable provisions in the following publications as standards of accepted good practices:
  - (1) National Electric Safety Code, as approved by the American National Standards Institute, for utility line construction and grounding.
  - (2) American National Standards Institute - Code for Electricity Metering, (ANSI C-12.1).
  - (3) IEEE Requirements for Instrument Transformers IEEE C-57.13..
  - (4) In the absence of any state or municipal codes, the utility may require the applicant or customer to have all interior wiring, apparatus, and appliances installed and maintained in accordance with the applicable requirements of the National Electrical Code as adopted by the National Fire Protection Association.
  - (5) Extra code practices in trial installations are permissible, provided approval of same is obtained from code authorities.
- (C) The operation of the requirements in (B) above will not be necessarily retroactive. Compliance with the requirements in effect at the time of any particular installation or construction will satisfy said Rule without any obligation to meet the requirements of succeeding revisions providing said installation or constructions continue to be consistent with reasonable and safe operating conditions. In addition, the requirements in (B) above are not all inclusive as to what constitutes accepted good practice in the electric industry.
- (D) Both power supply companies and communication companies shall cooperate and use all reasonable means to minimize inductive effects between adjacent power and communication circuits and to work out those general coordinated methods which are mutually applicable to power supply and communication systems.
- (E) The generating capacity of the utility's plant, supplemented by the electric power regularly available from other sources, must be sufficiently large to meet all normal demands for service and provide a reasonable reserve for emergencies.
- (F) Each utility should adopt a program of inspection of its electric plant in order to determine the necessity for replacement and repair. The frequency of the

- various inspections shall be based on the utility's experience and accepted good practice.
- (G) Each utility shall file with the Commission a map showing the utility's operating area. This map shall be revised annually unless such revision is unnecessary, in which event the utility shall notify the Commission that the map on file is current. The map should show:
- (1) Generating stations
  - (2) Transmission lines
  - (3) State boundary crossings
  - (4) Territorial boundary, where practicable
  - (5) Names of all communities (post offices) served
- (H) Complete records and maps shall be kept on file showing the location of all distribution lines, size and location of poles, wire circuits, distribution transformers, and customer services. These records must be kept current within not more than twelve months of actual construction.

## **RULE E-2**

### Location of Meters and Master Metering

#### (A) All Meters

- (1) The center of meters hereafter installed shall not be more than five (5) or less than four (4) feet above final grade of floor level.
- (2) When metering for seven (7) or more apartments grouped on one wall, the center of meters hereafter installed may be as high as six (6) feet above final grade of floor level.

#### (B) Outdoor Meters

- (1) Where meters are installed outdoors, they shall be placed on the exterior of buildings in locations readily accessible to authorized company representatives for meter reading, testing, and maintenance, and shall not be subject to severe vibration.
- (2) Meters shall not be installed in locations where the meter readers or servicemen may inadvertently damage flower beds or shrubbery, or where it will be necessary for them to climb fences or other obstructions to read or service the meters. They shall not be placed in locations where they may be accidentally damaged, such as buildings where they will extend unguarded into alleys or driveways, or where they will cause inconvenience either to the customer or to the company's representative.

#### (C) Indoor Meters

- (1) New meters will be installed indoors only at the discretion of the utility. Where meters are installed indoors, they shall be located on the first floor or in the basement where they will be readily accessible to authorized company representatives for meter reading, testing, or maintenance and shall not be subject to severe vibration or excessive dampness. Meters shall not be installed near belts or moving machinery endangering the safety of those doing work on such meters.

(D) Master Metering

- (1) Master Metering is prohibited in buildings on which construction began on or after January 1, 1981, and which have more than one unit, and separate metering of the electric energy controlled by each unit in such building is required.
- (2) Notwithstanding the requirements of Rule E-2(D)(1), Mastering Metering is permitted, and separate metering is not required, in the following cases:
  - (a) In residential buildings where units are usually rented or leased for a term of less than 30 days;
  - (b) In residential buildings where a single family residence is divided to create a separate unit or units;
  - (c) In residential buildings that do not have individual electric appliances in the units for one or more of the following purposes:
    - (1) Space heating
    - (2) Space cooling
    - (3) Water heating
  - (d) In student housing buildings of schools, colleges, and universities;
  - (e) In commercial buildings where one company or firm occupies 70% or more of the available floor space;
  - (f) In commercial buildings which are not permanently divided into units, but space is allocated for each new tenant;
  - (g) In residential buildings where tenants are required to be at least 60 years of age.
- (3) Master Metering is prohibited in mobile home parks opened after June 1, 1981, and separate metering of the electric energy controlled by each mobile home is required. Notwithstanding the preceding sentence, in mobile home parks where space is usually rented or

leased for a term of less than 30 days, separate metering is not required.

- (4) Additional exceptions may be permitted by order of the Commission in specific situations where it appears that a prohibition of a Master Meter would not be appropriate. The Secretary of the Commission will serve a copy of the petitions or requests for exceptions on parties so requesting, and written comments on a petition or request may be filed within 15 days of the filing of the petition or request.

(E) Meter Relocations

- (1) The Utility may, at its option and at its expense, relocate a meter when deemed reasonably necessary.
- (2) The company, upon request, will relocate a customer's service facilities and the customer will pay such costs as are in accordance with the company's applicable service extension policy.

### **RULE E-3**

Meter Testing Facilities and Equipment

(A) Metering Laboratory

- (1) Whenever any utility is maintaining or shall hereafter establish and maintain a metering laboratory, periodic inspection by the Commission will be made of the instruments and methods in use, and if instruments and methods are acceptable to the Commission after such inspections, certification of meters and instruments for its own or other utilities' use may be made by such laboratory. Utilities not maintaining metering laboratories may obtain authorization from the Commission to have certification of meters and instruments made for them by any approved metering laboratory.

(B) Facilities and Equipment

- (1) Each utility furnishing metered electric service shall, unless specifically excused by the Commission, provide for and have available such meter laboratory, standard meters, instruments, and other equipment and facilities as may be necessary to make the tests required by these Rules. Such equipment and facilities shall be acceptable to the Commission, and shall be available at all reasonable times for the inspection of any authorized representatives of the Commission.
- (2) Each utility furnishing metered electric service shall provide for and have available such portable indicating electrical testing instruments or watt-hour meters of suitable range and type for testing service watt-hour meters, demand meters, switchboard instruments, recording volt

meters, and other electrical instruments in use as may be deemed by the Commission necessary and satisfactory.

(C) Test Standards

- (1) For testing the accuracy of portable watt-hour meters, commonly called "**portable watt-hour meter standards**," and other portable instruments used for testing service meters, each utility not specifically excused by the Commission, as provided for in section (B) of this Rule, shall provide for and have available as reference or check standards suitable indicating electrical instruments, watt-hour meters, watt meters or any or all of them, hereafter called reference standards. Such standards may be of the service type of watt-hour meters but, if so, such watt-hour meters shall be permanently mounted in the meter laboratory of the utility and be used for no other purpose than for checking working portable watt-hour meter standards. Reference standards of all kinds will be tested and, if necessary, adjusted by the Commission at least once a year, unless a metering laboratory is maintained as provided for in (A) of this Rule.
- (2) All alternating current portable watt-hour meters (portable watt-hour meter standards) shall be compared with reference standards at least once every twelve (12) months during the time such portable testing standards are being regularly used. Unless accompanied by a calibration card, if such check shows any portable watt-hour meter (portable watt-hour meter standard) to be in error more than one (1) percent plus or minus at any load which the standards will be used, the meter shall be tested, adjusted, and certified in the laboratory of the utility, or in some other approved laboratory, or by the Commission. Each portable watt-hour meter (portable watt-hour meter standard) shall at all times be accompanied by a certificate or calibration card, signed by the proper authority, giving the date when it was certified and adjusted. Records of the certifications and calibrations shall be kept on file in the office of the utility for a period of at least one year.
- (3) All portable indicating electrical testing instruments such as volt-meters, amp meters and watt-meters, when in regular use for testing purposes, shall be checked against suitable reference standards at least once every twelve (12) months, and if found appreciable in error at zero or in error by more than two (2) percent of full scale value at commonly used scale deflections shall, unless accompanied by a calibration card, be adjusted and certified in some approved laboratory or by the Commission.

**RULE E-4**

Accuracy Requirements for Service Watt-Hour Meters

(A) Meter Adjustments – Watt-Hour Meters must be adjusted to meet the following accuracy requirements before installation and after periodic or any other test.

- (1) No watt-hour meter that has an incorrect register constant, test constant, gear ratio or dial train, or that registers upon no load ("Creeps") shall be placed in service or knowingly allowed to remain in service without adjustment and correction. A meter in service creeps when, with all load wires disconnected, the moving element makes one complete rotation in five minutes or less.
- (2) No watt-hour meter that has an error in registration of more than plus 2 or minus 4 percent at light load, or plus or minus 2 percent at full load, shall be placed in service or knowingly be allowed to remain in service without adjustment. Whenever on installation, periodic, or any other test, a meter is found to exceed any one of these limits, it must be adjusted. Light load shall be approximately 5 to 10 percent of the test ampere rating of the meter. Full load shall be not less than 90 percent, nor more than 100 percent, of the test ampere rating of the meter.
- (3) Meters must be adjusted as closely as practicable to the condition of zero error. The tolerances are specified to allow for necessary variations, and meters must not be adjusted to the tolerances allowable.

(B) Average Error

- (1) In tests made by the Commission or utility, the average error of a meter shall be determined by the following method:
  - (a) Calculate one-fifth of the algebraic sum of two times the error at light load plus three times the error at full load.

## RULE E-5

### Accuracy Requirements for Demand Meters

(A) Meter Adjustments - Demand meters must be adjusted to meet the following accuracy requirements before installation and after periodic or any other test.

- (1) **Solid State Meters:**
  - (a) Electrical Element rating. Error shall not exceed 2 percent of full scale
  - (b) .. Timing Element (rate) 0.25 percent
- (2) **Integrated-Demand Meters:**



- (a) Electrical Element. Tolerance specified in Rule E-4 for service watt-hour meters
- (b) Timing Element Where the timing element serves only to measure the demand interval, it should be adjusted if its rate is more than plus or minus 2 percent in error. Where the timing element serves also to keep a record of the time of day at which the demand occurs, it should be adjusted if its average rate is more than plus or minus 0.25 percent in error.

## **RULE E-6**

### Place and Methods for Meter Testing

- (A) All tests on watt-hour meters and demand meters in service provided for in these rules shall be made with approved testing apparatus either in the place of permanent location on the customer's premises, or in the meter shop of the utility.
- (B) For any meter that is read remotely through an Automated Meter Reading system where no other verification occurs, the meter's kilowatt energy remote register reading will be verified for accuracy any time a meter test is performed on that meter. The reading will be verified either through direct contact with a person at the reading terminal or through use of a remote reading tool.

## **RULE E-7**

### Meter Tests Prior to Installation

- (A) All new watt-hour and demand meters shall be tested and adjusted to register accurately to within the limits specified in Rules E-4 and E-5 before installation. Manufacturers' tests at factory on new meters with quality control and laboratory sample testing will be accepted in lieu of shop test prior to installation.
- (B) Watt-hour meters that are to be used on circuits of low power factor (lagging current) shall be tested and adjusted before installation to register correctly to within two percent (2%) plus or minus, at a power factor of approximately fifty percent (50%), and at approximately one hundred percent (100%) of rated current.
- (C) Instrument transformers shall be tested to determine their ratio and accuracies unless these tests have already been conducted by the manufacturer. All such calibration tests shall be made by a laboratory of recognized standing or by the utility using apparatus and methods satisfactory to good engineering practice.

## **RULE E-8**

### Periodic Tests of Watt-Hour and Demand Meters

- (A) All types of watt-hour meters and demand meters installed upon customer's premises shall be tested in accordance with the latest revision of the American National Standards Institute's Code for Electricity Metering (ANSI C12.1) and with the preceding Electric Rules E-4, E-5 and E-6.
- (B) All watt-hour and demand meters in service on and after the date of this order for which there is no record of test made within the period of time specified for that class and rating of meter in (A) above shall be tested as soon as possible.
- (C) The Commission may relieve the utility from the requirements under this Rule in any particular case in which it is shown that the failure to make the periodic test was due to causes beyond the utility's control.
- (D) All in service meter testing plans developed in accordance with this rule shall be submitted to the Commission staff for review on an annual basis.

## **RULE E-9**

### Tests Upon Request of Consumer

- (A) Each utility shall, without charge, make a test of the accuracy of registration of a meter upon the request of a customer, provided that:
  - (1) The customer does not request such test more frequently than once in 12 months and
  - (2) Any customer requesting a meter test within 12 months of a previous test shall pay the costs of such tests if the test results prove the meter to be satisfactorily accurate as provided in these Rules..
- (B) A written summary report, indicating the results of such test, shall be:
  - (1) Provided to the customer, and
  - (2) A copy of this report and a complete record of such tests shall be kept on file at the office of the utility for a period of at least two years, and
  - (3) If requested by a customer or his representative, a written technical report indicating the test procedures and detailed results shall be provided.

## RULE E-10

### Voltage Limits

- (A) Standard Nominal Voltages - Each utility shall adopt, and file with the Commission, standard nominal voltages for each of the several areas into which its distribution system or systems may be divided.
- (B) Secondary Voltages - For all retail service except power service, the variations of voltage shall be no more than six percent (6%) above or below the standard voltage at any time. For retail power service, the variation of voltage shall be no more than ten percent (10%) above or below the standard voltage at any time. Retail power service shall be those industrial customers that have largely motor load. Some examples are saw mills, rock crushers and grist mills (not an all inclusive list).
- (C) Phase Voltages - Where three-phase service is provided, the utility shall exercise reasonable care to assure that the phase voltages are in balance.
- (D) Primary Voltages
- (1) For service rendered principally for industrial or power purposes, the voltage variation shall not exceed six percent (6%) above or six percent (6%) below the standard nominal voltages as filed in the utility's rules.
  - (2) For service rendered to public utilities and others for resale, the nominal voltage shall be as mutually agreed upon by the parties concerned. The allowable variations shall not exceed six percent (6%) above or six percent (6%) below the agreed upon nominal voltage without the express approval of the Commission.
  - (3) The limitations in (1) and (2) do not apply to special contracts in which the customer specifically agrees to accept service with unregulated voltage.
- (E) Exceptions to Voltage Requirements - Voltage outside the limits specified will not be considered a violation when the variations:
- (1) Arise from the action of the elements;
  - (2) Are infrequent fluctuations not exceeding 5 minutes duration;
  - (3) Arise from service interruptions;
  - (4) Arise from temporary separation of parts of the system from the main system;
  - (5) Are from causes beyond the control of the utility.

## **RULE E-11**

### Standard Frequency

The standard frequency for alternating current distribution systems shall be 60 hertz. The frequency shall be maintained within limits which will permit the satisfactory operations of customer's clocks connected to the system.

## **RULE E-12**

### Voltage Studies and Records

Each utility shall make a sufficient number of voltage studies to indicate that the character of service furnished is in compliance with the voltage requirements outlined by the Commission. Such voltage studies may be accomplished through any combination of the use of recording volt-meters, computerized programs designed to calculate system voltage conditions, and/or any other generally accepted utility practice which will insure actual voltage records. All voltage study records shall be available for inspection by the Commission, or anyone authorized by the Commission, for a period of at least one year.

## **RULE E-13**

### Station Instruments and Meters

Each utility shall install such instruments and meters as may be necessary to obtain a daily record of the load and a monthly record of the output of its plants. Each utility purchasing electrical energy shall install such instruments and meters as may be necessary to furnish full information as to the monthly purchases, unless the utility supplying the energy has already installed such instruments and meters from which the necessary information can be obtained.

## **RULE E-14**

### Interstate Operation

Where an electric utility transmits energy either into or out of the state, the company shall accurately meter and record the interchange of such energy.

## **RULE E-15**

### Billing Inaccuracies

- (A) On request, the utility will test any meter through which the customer is receiving service. If the test shows such meter to be accurate within two percent (2%) plus or minus, the cost of such test shall be borne by the

- customer when the meter has been tested within the past twelve (12) months; otherwise, it shall be at the expense of the utility.
- (B) Adjustments for billing inaccuracies shall be limited to the most recent thirty-six (36) month period and shall be made as follows:
- (1) Whenever a meter in service is found, upon test by the utility or the Commission, to be in excess of two percent (2%) fast or slow as determined by the average error method or any other method prescribed by the Commission or whenever any other equipment affecting the metering or billing of the customer's service fails to perform properly:
    - (a) If the date the meter first became inaccurate or the equipment failed to perform can be definitely ascertained, an adjustment shall be made for the incorrect amount charged since said date in the most recent thirty-six (36) month period, over or under what the billing would have been had the meter registered with one hundred percent (100%) accuracy.
    - (b) Otherwise, adjustments shall be calculated by adjusting the customer's metered consumption for the most recent thirty-six (36) month period by the application of the percentage of error related to one hundred percent (100%) accuracy as determined by a current test or use of the most reliable available information. The rates effective during said thirty-six (36) month period shall be applied to this adjusted consumption and the difference between the amount so obtained and the actual billing shall be adjusted to the customer.
    - (c) Refunds shall be made either as a credit to the customer's next monthly bill or in a lump sum payment within forty-five (45) days of confirmation of inaccurate billing, such method of refund to be mutually agreed upon by the utility and the customer.
    - (d) In the event the inaccuracy results in the customer having underpaid for utility service, no back-billing shall be allowed without prior written notification to the customer by the utility. Such notice shall inform that the customer shall be given the option of repayment of the amount due in monthly installments equal to the period of said under-billing, or by any other mutually agreeable arrangement, except in cases of meter or equipment tampering and/or unauthorized use.
  - (2) Whenever a billing inaccuracy (other than inaccuracies related to misread meters corrected through the next actual meter reading) would not have occurred or would have been corrected more promptly but for a failure of the utility to perform in accordance with applicable rules of this Commission or the written policies, procedures or practices of the utility and the affected customer has not caused or contributed to the

billing inaccuracy or failed to notify the utility of any known or suspected billing inaccuracy, the utility shall:

- (a) Notify the customer of the billing inaccuracy,
  - (b) Correct the billing inaccuracy without charge to the customer for any under-billings caused by the utility's failure,
  - (c) Bill the customer for any under-billings associated with the inaccuracy for the most recent thirty-six (36) month period that were not caused by the utility's failure in accordance with subparagraph (B) (1) hereof, and
  - (d) Refund to the customer any over-billings caused by the utility's failure for the most recent thirty-six (36) month period calculated in accordance with the methods set out in subparagraph (B) (1) above with interest at the rate applicable to customer service deposits under Rule 8 of the General Rules of the Alabama Public Service Commission.
- (3) The thirty-six (36) month limitation set out in this rule and the provisions of subparagraph (B) (2) hereof are not applicable to limit recovery of unbilled revenue or any other relief otherwise available to the utility in any case where the billing inaccuracy relates to meter or equipment tampering and/or unauthorized use.