PSC 113

Filed Sept 29, 1965
4:15 P.M.

BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

STATE OF WISCONSIN)
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PUBLIC SERVICE COMMISSION)

I, Francesca A. di Lorenzo, Acting Secretary of the Public Service Commission of Wisconsin and legal custodian of the official records of said Commission, do hereby certify under my signature and the official seal of the Commission that the annexed document in Docket 2-U-911, inthe Matter of the Revision of Service Rules for All Electric Utilities in Wisconsin, relating to repeals, amendments and adoption of rules in Chapter PSC 113, Wisconsin Administrative Code was duly approved and adopted by this Commission on September 9, 1965

I further certify that copy of the document hereto attached has been compared by me with the original on file in this Commission and that the same is a true copy thereof, and of the whole of such original.

Dated at Madison, Wisconsin,

September 29, 1965

Francesca A. di Lorenzo

Acting Secretary

ORDER OF THE PUBLIC SERVICE COMMISSION

ADOPTING, AMENDING, OR REPEALING RULES

Pursuant to authority vested in the Public Service Commission by chapter 196, Wis. Stats., the Public Service Commission hereby repeals, amends, and adopts rules as follows:

Sections PSC 113.01 (2) and PSC 113.055 (introductory paragraph) of the Wisconsin administrative code are amended to read:

PSC 113.01 (2) Nothing in this chapter of the Wisconsin administrative code shall preclude special and individual consideration being given to exceptional or unusual situations and upon due investigation of the facts and circumstances therein involved, the adoption of requirements as to individual utilities or services which shall be lesser, greater, other, or different than those provided in said rules and regulations.

PSC 113.055 (introductory paragraph) Protection of utility facilities. A public utility upon receipt of written notice as required by section 66.047 (2), Wis. Stats., from the property owner or from a contractor of work which may affect its facilities used for serving the public:

Section PSC 113.057 of the Wisconsin administrative code is created to read:

PSC 113.057 Interference with public service structures. (1) No utility having any work upon, over, along, or under any public street or highway or upon, over, along, or under any private property shall interfere with, destroy, or disturb the structures of any other public service corporation or railroad encountered in the performance of such work so as to interrupt, impair, or affect the public service for which such structures may be used, without first reaching an agreement concerning the location and the nature of the proposed work.

(2) A utility shall exercise care when working in close proximity of existing facilities. When the facilities are underground and are to be exposed or possibly may be exposed, hand-digging shall be employed. In these cases, such support as may be reasonably necessary for protection of the facilities shall be provided in and near the construction area. When backfilling an excavation such procedures and materials will be employed to provide reliable support for existing underground facilities in and near the construction area.

(3) A utility shall, in the absence of working arrangements, give at least three days' written notice (not counting Saturdays, Sundays, and legal holidays) to all utilities or railroads and to those who may have facilities in and near the construction area which may be affected by the proposed work. The utility proposing to work shall obtain from the affected party the location of the existing facilities determined to be affected or to be in and near the construction area.

(4) A utility upon receiving a notice of proposed construction shall furnish in three days detailed information relative to location and type of facilities that are present in the proposed construction area. In those cases where the facilities are underground, they shall be marked physically in the field relative to location.

(5) Nothing in the above shall prevent a utility from proceeding as quickly as possible with any emergency construction work which might interfere with existing facilities. However, all reasonable precautions shall be taken to avoid or minimize damage or interference to the other facilities and notification shall be given as soon as possible to the utilities which have facilities in the construction area.

Section PSC 113.08 of the Wisconsin administrative code is repealed and recreated to read:

PSC 113.08 Power-factor correction of gaseous tube lighting. When fluorescent, neon, zeon, or other hot or cold cathode types of gaseous tube lighting having similar power-factor characteristics are installed as the major lighting source, the customer shall furnish, install, and maintain at his own expense corrective apparatus designed to maintain at not less than 90% lagging the power-factor of individual lighting unit or the entire lighting installation.

Section PSC 113.17 (5) of the Wisconsin administrative code is amended to read:

PSC 113.17 (5) A classified record shall be kept of the number and amount of refunds and charges made because of inaccurate meters, misapplication of rates, and erroneous billing. The record for a calendar year shall be submitted to the commission by April 1 of the following year.

Renumber section PSC 113.36 to be section PSC 113.36 (1) and create section PSC 113.36 (2) of the Wisconsin administrative code to read:

PSC 113.36 (2) Loss compensators designed to be used with meters and which accurately add iron and/or copper losses may be used. The compensator shall carry a tag identifying the compensation and shall be tested when the associated meter is tested and when the associated supply equipment or lines are changed.

Sections PSC 113.38 (1)(c); PSC 113.40 (1)(a), (b), (c), and (d) and (2); PSC 113.45 (4)(b), and (5); and PSC 113.46 (2) and (3) of the Wisconsin administrative code are amended to read:

PSC 113.38 (1)(c) Meters should be easily accessible for reading, testing, and making necessary adjustments and repairs. When a number of meters are placed on the same meter board, the distance between centers of direct-current meters should be not less than 15 inches; and between centers of alternating-current meters not less than $8\frac{1}{2}$ inches vertically or $7\frac{1}{2}$ inches horizontally. Meters installed outdoors should not be more than 6 feet or less than 4 feet above final ground level, measured from the center of the meter cover, except in the case of meters on pedestals or on pad-mounted transformers where they shall be placed as high as practicable. On individual installations of meters indoors, the meter should not be more than 6 feet or less than 4 feet above floor level measured from the center of the meter cover. On group installations of meters indoors, no meter should be more than 6 feet or less than 2 feet above floor level, measured from the meter cover. For meters installed both indoors and outdoors, there should be a minimum of 3 feet of unobstructed space in front of the meter, measured from the surface on which the meter is mounted.

PSC 113.40 (1)(a) Watthour meters used for measuring electrical quantities supplied to customers shall:

(a) Be of proper design for the circuit on which they are used, be properly connected and installed, be in good mechanical condition, have adequate insulation, correct internal connections, and correct register.

(b) Not creep at "no load" a full revolution of the disk in 10 minutes or less when the load wires are disconnected and potential is impressed or in a test in the shop where the load wires are disconnected and the permissible voltage variation impressed. If the rate of creep can be determined in a shorter interval, it is not necessary to wait the full 10-minute period.

(c) If they are designed for use on alternating current circuits, be accurate to within plus or minus 1.0% at two unity power factor loads, one equal to approximately 10% and the other approximately 100% (plus or minus 10%) of the reference test current; and shall register correctly within 2.0% plus or minus at a power factor of approximately 50% lagging and at a load between 75% and 100% of the reference test current of the meter. For self-contained meters the reference test current shall be the ampere

or test ampere rating of the meter, whichever is shown on the nameplate. For meters used with current transformers the reference test current shall be the secondary rating of the current transformers.

(d) If they are designed for use on direct-current circuits, be accurate to within plus or minus 1% at two loads, one equal to approximately 10% and the other between 75% and 100% of the test current or customer's maximum ampere demand. The test current shall be the ampere rating or the test ampere rating, whichever is shown on the nameplate.

(2) Polyphase meters shall have their stators in balance within 2% at 100% load at unity and at approximately 50% lagging power factor.

PSC 113.45 (4)(b) Working rotating standards shall be calibrated annually (see section PSC 113.49 (1) and (2)) and shall be adjusted, if necessary, so that their accuracy will be within 99.7% and 100.3% at 100% power factor and within 99.5% and 100.5% at 50% lagging power factor at all voltages and loads at which the standard may be used. A history and calibration record shall be kept for each working rotating standard.

(5) The meter accuracies herein required as to all primary, secondary, and portable standards and service measuring equipment shall be referred to 100%.

PSC 113.46 (2) Self-contained single-phase meters and 3-wire network meters together with associated equipment such as demand devices, control devices, etc.:

(a) Shall be tested for accuracy at unity power factor at the point where they are installed or at a central testing point or in a mobile testing laboratory:

1. Within a period of 12 months before to 60 days after they are placed in service.
2. When they are suspected of being inaccurate or damaged.
3. When the accuracy is questioned by a customer.
4. Before use when they have been inactive for more than one year.
5. When they are removed from service.
6. Within a period of 6 months before to 6 months after 96 months of service or in accordance with the plan outlined in section PSC 113.465.

(b) Shall be inspected for mechanical and electrical faults whenever the accuracy of the device is checked.

(c) Shall have the register and the internal connections checked before the meter is first placed in service and whenever the meter is repaired.

(d) Shall have the connection to the customer's circuits checked when the meter is tested on the premises or removed.

(e) Shall be tested for accuracy at 50% power factor before first being used for measuring customer's service.

(3) Self-contained polyphase meters together with associated equipment such as demand equipment, phase-shifting transformers, control devices, etc.:

(a) Shall be tested on the customer's premises (except No. 1 below) for accuracy at unity and 50% power factor: (Exception: Thermal demand meters and socket-type self-contained polyphase meters may be tested at a central testing point or in a mobile testing laboratory.)

1. Before being placed in service.
2. On the premises within 60 days after installation.
3. When they are suspected of being inaccurate or damaged.
4. When the accuracy is questioned by a customer.
5. Before use when they have been inactive for more than 1 year.
6. When they are removed from service.
7. Within a period of 3 months before or 3 months after 72 months' service.

(b) Shall be inspected for mechanical and electrical faults whenever the accuracy is checked.

(c) Shall have the register and internal connections checked before the meter is first installed or when repaired.

(d) Shall have the connections to the customer's circuits checked whenever the equipment is tested for accuracy.

Section PSC 113.46 (4) of the Wisconsin administrative code is renumbered to be section PSC 113.46 (6) and the renumbered section PSC 113.46 (6)(e)2. is amended to read:

PSC 113.46 (6)(e) 2. Whenever an approved check (such as the variable burden method in the case of current transformers or a field check of the secondary voltage with a good quality-indicating voltmeter in the case of potential transformers) made in conjunction with each field test of the meter provides evidence that the instrument transformer should be tested, or

A new section PSC 113.46 (4) of the Wisconsin administrative code is created to read:

PSC 113.46 (4) Meters used with instrument transformers on single-phase service together with associated equipment such as demand equipment, phase-shifting transformers, control devices, instrument transformers, etc:

(a) Shall be tested for accuracy at unity power factor on the customer's premises: (Exception: Thermal demand meters may be tested at a central testing point or in a mobile testing laboratory.)

1. Before being placed in service.
2. On the premises within 60 days after installation.
3. When they are suspected of being inaccurate or damaged.
4. When the accuracy is questioned by a customer.
5. Before use when they have been inactive for more than 1 year.
6. When they are removed from service.
7. Within a period of 4 months before or 4 months after 96 months of service.

(b) Shall be inspected for mechanical and electrical faults whenever the accuracy is checked.

(c) Shall have the register and the internal connections checked before the meter is first placed in service and whenever the meter is repaired.

(d) Shall have the connections and multipliers checked whenever the meter is tested or removed and whenever an instrument transformer is changed.

(e) Shall be checked for accuracy at 50% power factor before first being used for measuring customers' service.

Sections PSC 113.46 (5), (6), and (7) of the Wisconsin administrative code are renumbered to be PSC 113.46 (7), (8), and (9), respectively, and a new section

PSC 113.46 (5) is created to read:

PSC 113.46 (5) Meters used with instrument transformers on polyphase service together with associated equipment such as demand equipment, phase-shifting transformers, control devices, instrument transformers, etc.:

(a) Shall be tested for accuracy at unity and 50% power factor on the customer's premises: (Exception: Thermal demand meter may be tested at a central testing point or in a mobile testing laboratory.)

1. Before being placed in service.
2. On the premises within 60 days after installation.
3. When they are suspected of being inaccurate or damaged.
4. When the accuracy is questioned by a customer.
5. Before use when they have been inactive for more than 1 year.
6. When they are removed from service.
7. Within a period of 2 months before or 2 months after 24 months' service.

(b) Shall be inspected for mechanical and electrical faults whenever the accuracy is checked.

(c) Shall have the register and internal connections checked before the meter is first installed, and when repaired.

(d) Shall have the connections and multipliers checked whenever the meter is tested or removed and whenever an instrument transformer is changed.

Section PSC 113.465 of the Wisconsin administrative code is created to read:

PSC 113.465 Variable interval plan. (1) The variable interval plan described below may be used for testing self-contained, single-phase meters and 3-wire network meters instead of the periodic 96-month test period in section PSC 113.46 (2)(a) 6. if the utility is authorized to do so by the commission.

(a) The meters shall be divided into homogeneous groups as approved by the commission, such as by manufacturers' types and may be further subdivided in accordance with location or other factors which may be disclosed by test records to have an effect on the percentage registration of the meter.

(b) The meter accuracy for each of the groups shall be based on the results of tests of meters longest in service without test made during a 12-month period. The meter accuracy shall be the weighted average of the full and light load test with the full load test being given a weighting of 4 and the light load test a weighting of 1.

(c) Each group of meters is to be considered separately in determining the number of meters to be tested in any period. The percentage, P, of meters in each group to be tested annually shall be based on the number of meters which were found during the previous year's in service tests to have a percentage registration of more than 102% or less than 98%.

The maximum value of P shall be 20%; and the minimum value shall be not less than:

6.25% for a group of 2,000 or more meters.

125 meters or 12½% whichever is less, for a group of fewer than 2,000 meters.

The values of P between the maximum and minimum shall be determined from the formula:

$$P=6.25\left[\left[\frac{100\,(F+S)}{T}\right]-1\right]$$

Where T=total number of meters tested in the group during the preceding year.

F=number of meters in this group which registered more than 102%.

S=number of meters in this group which registered less than 98%.

(d) Meter tests scheduled for the current year in each group shall consist of meters longest in service without test.

(e) Only scheduled periodic and scheduled retirement tests are to be considered when applying the formula.

Section PSC 113.47 (3) of the Wisconsin administrative code is repealed and recreated to read:

PSC 113.47 (3) Polyphase meters shall be tested by one of the following four methods:

(a) Single-phase test with the potential circuits connected in parallel and all current circuits connected in series. Three-stator, 4-wire delta meters must have correct values of

current and potential applied to the differently rated circuits. The normal test loads apply. (See section PSC 113.40 (1)(c).)

(b) Individual stator test with the potential circuits connected in parallel and each current circuit tested separately. (For 2-stator, 4-wire delta meters, the current circuits of the 3-wire stator should be connected in series and treated as a single circuit. Three-stator, 4-wire delta meters must have correct values of potential applied to the differently rated circuits.) The light load test current shall be one-tenth N times the reference test current and the heavy load test current shall be between one-half and one N times the reference test current but not more than twice the test ampere rating of the meter. (N equals the number of stators in the meter except for 2-stator, 3-phase, 4-wire wye meters. For the latter, N shall be 4 for the current circuits which are not common to both stators and N shall be 2 for the current circuit common to both stators.)

(c) Individual stator test with the potential circuits connected to the polyphase circuit in the same manner as in service. (For 2-stator, 4-wire delta meters the current circuits of the 3-wire stator shall be connected in series and treated as a single circuit.) The light load test current shall be one-tenth N times the reference test current and the heavy load test current shall be between one-half and one N times the reference test current but not more than twice the test ampere rating of the meter. (N equals the number of stators in the meter except for 2-stator, 3-phase, 4-wire meters. For the latter N shall be 3 for each current circuit.)

(d) Polyphase test with the meter connected to a polyphase circuit in the same manner as in service, with balanced polyphase currents on the current circuits. This requires the use of a polyphase standard watt-hour meter or as many single-phase standards as there are current circuits under test.

The rules, amendments, and repeals contained

herein shall take effect on November 1, 1965, as provided in section 227.026 (1), Wis. Stats.

Dated: September 29, 1965

PUBLIC SERVICE COMMISSION OF WISCONSIN

Francesca A. di Lorenzo

Francesca A. di Lorenzo
Acting Secretary