

# **THE PUNJAB STATE ELECTRICITY REGULATORY COMMISSION**

## **CHANDIGARH**

Notification

**The 24th June, 2010**

**No.PSERC/Secy./Regu. 49** –In exercise of the powers conferred by sections 86(1)(h) and 181(1) of the Electricity Act 2003 ( Central Act 36 of 2003) and all other powers enabling it in this behalf, the Punjab State Electricity Regulatory Commission hereby makes the following Regulations:-

1. These Regulations may be called the Punjab State Grid Code (1<sup>st</sup> Amendment) -2010.
2. These Regulations shall come into force with effect from date of publication in the official gazette of the State.
3. In Section 17 of the State Grid Code, for clauses 17.2, 17.7, 17.7.2(ii)(a), 17.7.2(v), 17.7.2(vi), 17.7.2(viii), 17.15(iii)(b) and 17.16 the following shall be substituted:

### **i) 17.2 Objective**

The objective of this code is to define minimum acceptable standards of metering which shall provide proper metering of the various operating system parameters for the purpose of accounting, commercial billing and settlement of electrical energy and to provide information which shall enable to operate the system in economic manner consistent with Licence conditions by Licensees and Generating Companies to effect management and generation and transmission in a safe and economical manner.

Relevant features, parameters, standards and protocols shall be selected in line with IEGC, CEA Regulations depending upon the metering applications.

### **ii) 17.7 Various Standards for Metering equipment**

The sub clause no. 2(a) of Table 1 shall be deleted.

### **iii) 17.7.2(ii)(a)**

The meter shall be 3 phase 4 wire type, capable to record and display import and export kWh, kVArh, kVAh and maximum demand in kW and kVA for 3 phase 4 wire AC balanced/unbalanced load for a power factor having range of zero lagging to unity to zero leading in all 4 quadrants. In addition, meter shall also be capable of displaying, on demand, the present status of supply/load, missing potential, CT polarity, current unbalance, anomaly occurrence and logging of occurrences as well as

load survey data etc. which shall be down loaded to a user friendly Base Computer System (BCS) through portable data collection devices or CMRI which shall be connected to optical communication port of the meter. Meter shall be equipped with self-diagnostic features also and be capable of recording average values based on their integration on time base for kWh, kVArh, kVAh for at least 45 days. Meter shall be capable of measuring fundamental as well as total energy including harmonics separately.

However, for ABT compliant meters {viz meter type A,B,C of Appendix-F(6)} various electrical measurands shall be stored/displayed directly in CT/VT secondary quantities.

iv) 17.7.2 (v) Test terminal blocks

The test terminal blocks shall be provided on all meters to facilitate testing of meters in service. Main & back up meters of inter state/major generating stations shall have either built-in facility(e.g. test links in their terminals) for in-situ testing or a separate test block for each meter.

v) 17.7.2 (vi) Meter Power Supply

Meters of inter state/major generating stations shall be self contained and shall normally operate with power drawn from PT/VT secondary circuits. However meters shall have the provision to display and downloading the data in case of feeder supply outage.

vi) 17.7.2(viii) Meter Programmability

The meters shall be equipped with necessary hardware/software to suit tariff requirements such as ABT/TOD, two-part tariff based on SMD as may be called for from time to time.

vii) 17.15 (iii) (b)

The meters shall be self contained and shall normally operate with the power drawn from PT/VT secondary circuits. However meters shall have the provision to display and downloading the data in case of feeder supply outage.

**viii) 17.16 ABT, Two Part and ToD Tariff Capability**

The ABT compliant meter will have provision to compute and store average active and reactive energy and load data with respect to system frequency and the integration of the data i.e. average kWh & kVarh, and average frequency for 15 minutes block will be available in each meter in CT/VT secondary quantities.

4. In Appendix-F(6) of the State Grid Code for Title, Sr.No.2,3,12,13, and 23(a), the following shall be substituted in respect of meter types A,B & C:

i) Title

APPENDIX F-(6):MINIMUM ACCEPTABLE SPECIFICATION FOR VARIOUS TYPES OF METERS

(Relevant features, parameters, standards and protocols shall be selected in line with IEGC, CEA Regulations depending upon the metering applications)

ii) Sr.No.2 Measurand (s)

Time, date, kWh (Imp/Exp), kVAh at 103% voltage and 97% voltage & kVAh during kWh (Imp/Exp), PF(lag/lead), kW, kVA, Phase Voltage, Line current, frequency, instantaneous load in kW, anomaly Data, Power On hours.

Various electrical measurands shall be computed directly in CT/VT secondary quantities.

iii) Sr.No. 3 (Indian Standard or IEC to which conforming)

IS:14697, IEC: 60687, CBIP Report No. 88, IS:9000 IEC: 60297-3 (IEC: 60297-3, applicable for 19 inch rack mounted meters requirement only) with latest amendments. IEC 60297-3 shall not be applicable to projection mounted ABT meters.

iv) Sr.No. 12 (Display of measurands)

Time, Date, kWh (Imp/Exp), kVAh (lag/lead) & kVAh during kWh (Imp/Exp), PF (lag/lead), kW, kVA, Phase Voltage, Line current, frequency, instantaneous load in kW, anomaly Data, BP Wh (I/E), BP VAh (I/E), BP VA (I/E), BP PF (I/E), Power On hours.

Various electrical measurands shall be displayed directly in CT/VT secondary quantities.

v) Sr. No. 13 (Storage of measurands)

Load Survey Data for 45 days with integration period of 15 minute for kW (Imp/Exp), kVA(Imp/Exp), with average frequency during 15 min block, kVAh (Imp/Exp) during low voltage ( $V < 97\%$ ) and during high voltage ( $V > 103\%$ ), Billing parameters for last 45 days including Power On hours and anomaly information, meter reading count, MD reset count.

Various electrical measurands shall be stored directly in CT/VT secondary quantities.

vi) Sr.No.23 (a) (Tamper prevention/recording for Meter)

Tamper and anomaly detection features like missing potential, CT polarity reversal (for unidirectional meters), Power ON/OFF event, current and voltage unbalance shall be recorded.

5. In Appendix-F(6) of the State Grid

- i) for S.No.24, the following shall be substituted in respect of meter types A, B and C

Sr. No. 24(Any other feature/requirement)

Communication port: One optical port for local meter reading suitable for DCD/CMRI & one galvanically isolated port suitable for remote meter reading.

For remote reading open standard protocol which can remotely read instantaneous & stored data shall be specified.

- ii) Sr.No. 27(Modem) shall be deleted in respect of meter types A, B and C.

**By Order of the Commission**

**Sd/-  
( P.S.Jindal )  
Secretary to the Commission**