Rajasthan Electricity Regulatory Commission (Metering) Regulations 2007

RAJASTHAN
India

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Rule
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Rajasthan Electricity Regulatory Commission (Metering) Regulations 2007Published vide Notification No. RERC/Secy/Reg 70, dated 29.5.2007Last Updated 20th May, 2019No.RERC/Secy/Reg 70. - In exercise of the powers conferred under section 50 read with section 171 (zp), of the Electricity Act 2003 (No. 36 of 2003),the Rajasthan Electricity Regulatory Commission hereby makes the following regulations to supplement the Central Electricity Authority (Installation and Operation of Meters) Regulations 2006 to specify the requisite standards and to bring about uniformity in practice by the licensees , generating companies and other stake-holders within the State.

1. Short title and Commencement.

(1)These regulations may be called the Rajasthan Electricity Regulatory Commission (Metering) Regulations 2007 in short RERC (Metering) Regulations and shall come into force from the date of their publication in the Gazette.(2)Metering codes for distribution licensees issued by Ajmer Vidhyut Vitran Nigam limited, Jaipur Vidhyut Vitran Nigam limited and Jodhpur Vidhyut Vitran Nigam limited and Metering code for transmission licensee, incorporated as part III of state grid code shall cease to be operative.

2. Definitions.

(1)In these regulations, unless the context otherwise requires;(i)"Apparent Energy" means the integral with respect to time of the Apparent Power.(ii)"Base Computer" (BC) means computer with

a provision of a Base Computer Software (BCS) meant to handle the data down loaded from meter(s), to process the data into desired output and to synchronise the time with GPS signal.(iii)"CEA meters Regulations" or "metering Regulation" means the Central Electricity Authority (Installation and Operation of Meters) Regulations 2006.(iv)Central Data Collection System (CDCS) means the computer system located at a central point containing a data base regularly updated from the Settlement In-stations to which it has dedicated communication links.(v)"Common Meter Reading Instruments (CMRI or MRI) or Hand held terminal (HHT)" means a meter reading instrument with necessary accessories capable of interrogating various makes of alternating current (AC) static electrical energy meters when loaded with the corresponding meter specific soft-ware(s) called meter reading instrument program(s).The CMRI shall be capable to extract information about energy data, load survey data, meter status and meter anomaly data from the memory of the meter as stored in preset cyclic order for retrieval at later stage.(vi)"CT-VT or CT-PT Set" means equipment comprising of both Current Transformer and Voltage Transformer.(vii)"Data Concentrator" means a center to club the processed data received from the connected meter(s)/stations for onward transmission through dedicated communication channels to CDCS.(viii)"Demand Period" means the period over which Active Energy, Reactive Energy or Apparent Energy is integrated to produce average Demand Values. For settlement purpose, unless the context requires otherwise, each Demand Period shall be of 15 minutes duration, and shall finish at 24:00 hours.(ix)"Demand Values" in the context off(a)"Demand value energy" means active energy, reactive energy or apparent energy drawn during one demand period commencing at 00.00 hours.(b)"Demand value power" expressed in MW, MVAr or MVA, means four times the value of MWh, MVArh or MVAh recorded during the 15 minutes demand period or two times the value of MWh, MVArh or MVAh recorded during the 30 minutes demand period. The demand values are quarter hour or half hour demands and these are identified by the time of the end at the Demand Period, one of which shall finish at 24:00 hours.(x)"Load Survey" means a database of load values stored in energy meter during predefined time interval. Load survey contains database for different parameters for predefined number of days.(xi)"Maximum Demand [MD]" means the average kVA delivered at Metering point of the consumer, during any demand period of maximum use during the month as specified by the Commission. The Licensee, however reserves the right to shorten this time period, with the approval of the Commission.(xii)"Metering System" means the System which shall comprise of meter (instrument) along with associated equipments and accessories like wiring, meter cabinet/meter box, test terminals blocks etc. required for measurements.(xiii)"NABL" means National Accreditation Board for Testing & Calibration Laboratories.(xiv)"Remote Transmitting Unit (RTU)" means a data transmission unit in digital and sequential mode i.e. to transmit low level analogue/digital signals from transducers, switches, relays etc. connected to it and to transmit received signal to devices connected to it.(xv)"Settlement In-station" means a computer-based system, which collects or receives data on routine basis from selected out-station system linked to CDCS.(xvi)"Supply Code" means RERC (Supply code & connected matters) Regulation 2004.(xvii)"Transducer" means a device to convert high-level parameters (MW, MVA, Amp, and Volt etc.) into low-level transmission signal.(2)Words and expressions used and not defined in these regulations shall have the meaning assigned to them in CEA meters Regulations, State Grid Code and the Electricity Act 2003.

3. Scope.

(1)To supplement CEA Meter Regulation, these regulations specify the national / international standards, requirements of calibration and testing of metering equipments, practices that shall be employed and the facilities that shall be provided for the measurement and recording of various parameters.(2)In case of any inconsistency in these Regulations with CEA meters Regulations, the latter shall prevail.

4. Standards.

- The standards (as amended up to date) for meters and Associated equipment shall be as under:

i	IS 13799	Indian Standard for AC static watt hour metersclass 1&2
ii	IS 14697	Indian Standard for AC Static transformeroperated watt hour & VAR Meter class 0.2S& 0.5S
iii	IS 2705	Indian Standard for Current Transformers
iv	IS 3156	Indian Standard for Voltage Transformers
v	IS 9348	Indian Standard for Coupling Capacitor andCapacitor Divider
vi	IS 5547	Indian Standard for Capacitor VoltageTransformers
vii	CBIP Technical Report - 88	Specification for AC static electrical energymeters
viii	CBIP Technical Report - 111	Specifications for Common Meter ReadingInstrument.

5. Ownership.

(1)It will be the responsibility of the consumer or generating company or licensee to keep the meter intact, in whose premises it is installed for example where the meter for the high voltage consumer is installed at supplier's substation, it shall be the responsibility of the supplier to keep the system intact. However the responsibility of burning or any damage to the meter on part of the consumer will depend on merits of the case.(2)Where a consumer elects to provide his own meter, he shall procure the meter conforming to the specification and other features as notified by the licensee from time to time. All such meters shall be tested/calibrated and sealed by the licensee or accredited test laboratory before installation at consumer's premises.(3)Where the consumer do not provide the complete metering system(s), ownership of consumer shall be limited to part of the system provided by him.

6. Facility for Metering System.

- (1) Interface and Energy Accounting Meter. - Each generating company or licensee, in whose premises a meter is to be installed, shall make available the required space for the meter and metering system to facilitate the installation in the premises and shall provide access to the licensee for meter readings (including data downloading and communication), its operation, maintenance

and testing.(2)Consumer Meter. - (i) The consumer in whose premises the meter is installed shall provide space for location of meter at the main entrance or working entrance of the premises for ease of access to the Licensee for meter readings (including data down loadings and communication), its inspection, maintenance and testing.(ii)Where access is denied to licensee's employees, agents/duly authorized representative for inspecting, testing, calibrating, sealing, replacing the damaged meter, collecting the data, joint meter reading, recording, other functions necessary and other mutually agreed functions, a notice will be served as per provisions of Supply Code to provide the same. In case access to consumer meter (including open access consumer) is not provided within notice period, his supply can be disconnected. In case of repeated failures, premises/location of installation of meter may be altered.

7. Type of Meter Instruments and Metering Capability.

(1)"Interface meters" and "Energy accounting & audit meters". - (a) The Meter instrument and its capability shall conform to the specifications as per Annexure-1.(b)Interface meters shall be draw-out type modular unit(s) and have feature of automatic CT short circuiting so that meter can be taken out for testing without shut down requirements. Check and Standby meters shall also meet this requirement.(c)Separate test terminal blocks for testing of main and check meters shall be provided so that when one meter is under testing, the other meter continues to record the energy consumptions during the test period.(d)Interface meters shall be capable of powered with 230 volt AC supply and 110 volt or 220 volt DC supply of the substation so that metering core of PT/CVT is never loaded and in case of shut down on feeder/breaker, meter can be interrogated locally or remotely. It will normally be powered by AC supply and switched over automatically to DC supply only when AC supply fails.(e)The meter shall have the battery back-up of 12 years for its Real Time Clock (RTC) while meter in service.(f)The meters shall be equipped with necessary configurable software to suit tariff requirements as may be called for from time to time.(g)Accuracy of check and stand by meters shall be same as that of the main meter.(h)The meter shall be capable of measuring fundamental energy as well as total energy including harmonics separately.(i)Energy measurement during demand period will be such that sampling in the meter is synchronized with that of the time block ending otherwise energy measured in a demand period but not stored in that period shall be carried forward.(j)A light emitting diode (LED) glow or pulse output coincident with end of each demand period shall be provided for inter face meters to ensure that demand integration coincides the preset time block.(k)Any interrogation / read operation shall not delete or alter any stored data in the meter.(2)Consumer Meter. - (a) The meter instrument shall be of following types complying the requirements as specified in Annexure-2.

(i) Meter Type A- (a) Single-phasewhole current meters(b) Poly phase whole current meters.

(ii) Meter Type B- LT Tri-vector CT Operated meters.

(iii) Meter Type C- HT Tri-vector CT-VT operated meters.

(b)The meter Type B and Meter Type C shall be capable of measuring fundamental energy as well as total energy including harmonics separately.(c)Whenever additional meter is to be provided with the main meter by a licensee, its accuracy shall be same as that of the main meter.

8. Instrument Transformers.

(1)The current transformers and voltage transformers (including CT-PT set) shall meet the relevant Indian Standard (IS) requirements and the accuracy class shall not be inferior to that of the meter instrument vide Annexure-1 & Annexure-2.(2)The total burden connected to each Instrument transformer shall not exceed its rated burden. The rated burden and connected burden of the Instrument transformer may normally be such that actual burden remains between 25% to "100% of the rated burden.(3)Dedicated Instrument Transformers or its dedicated core shall be provided for metering.(4)The errors of the instrument transformers shall be checked in the laboratory or at site. If such facilities are not available, test certificates issued by the supplier or by the accredited test laboratory shall be referred to.(5)11kV/33kV CT-PT sets may preferably be of dry type, if available. EHV grade oil shall be used in oil filled CT-PT sets. Inhibitors like DBC Powder may be added to the oil.(6)Current Transformers:(i)"Interface meters" and "Energy accounting and audit meters" shall have three single phase current transformers. The secondary current rating of the CTs shall normally be 5.0 Amp or 1 Amp except for 400kV and 220kV sub-stations where it shall be 1 Amp.(ii)Consumer meter.External current transformers, where required to be provided, on consumer meters shall generally have 5 Amps secondary current rating. The licensee shall prepare norms for selection of the CT ratio for consumer connections.(7)Voltage transformers.(i)The secondary voltage shall be 110/□3 volts per phase.(ii)No fuse whether on HT or LT side of the VT/CVT shall be provided in consumer meters. In case of existing installations also, the PT fuses shall be dispensed with

9. Memory of meter instrument.

(1)Memory of meter instrument for all meters excluding single-phase whole current meters shall be as follows,(i)The data stored in the meter memory shall be available for retrieving by CMRI through meter communication port and for down loading to Base Computer.(ii)The memory in a meter shall not get "erased" after reading or retrieving data through CMRI. Data shall be stored on first in first out basis for a minimum of 75 days.(iii)The data retrieved in CMRI shall be erasable, once the memory of a CMRI becomes full, after downloading the data.(2)Memory in Type A single-phase meters shall be as per requirement of the licensee.

10. Inspection Testing and Calibration.

(1)Calibration and testing in laboratory(A)"Interface meters" and "Energy accounting & audit meters".(i)Test facility for Interface meter instrument and Energy accounting & audit meter instrument testing shall be as under:(a)The STU will have at least one Automatic meter test bench with high accuracy, static source and 0.02 class electronic reference standard meter. This bench with 0.02 class reference standard shall also be used for testing and calibration of portable test sets.(b)Portable test set with static source and electronic reference meter of 0.10 class or one class better accuracy than meter under test shall be used for verification and joint testing of accuracy of static meters at site on regular/routine basis.(ii)The routine testing of meter instrument shall have the following periodicity. While testing of the meter instruments, the correctness of functionality of CTs and PT' shall also be verified:(a)Interface meters - 1 year(b)Energy accounting and audit meters

2 years.(B)Consumer Meter(i)Testing facility with the licensee for the consumer meters instruments testing shall be as follows.(a)Meters may be tested by the licensee at its own or on the request of a consumer.Such testing may be at the site or licensee's laboratory or accredited test laboratory. Site testing may be carried out by the licensee or by an accredited laboratory having accreditation for site calibration/testing.(b)Each distribution licensee shall have at least one automatic meter test bench with high accuracy static source and 0.02 class electronic reference standard meter for testing and calibration. The bench with 0.02 class reference standard shall also be used for checking and calibration of portable testing equipments. Additionally the licensee may have test benches of lower accuracy class as per their requirements(c)Portable test set with static source and electronic reference meter of 0.1 class or one class better accuracy than meter under test, shall be used for testing of meters at site.(d)The routine testing of meter instrument shall have the following periodicity. While testing the meters, the functionality correctness of CTs and PTs shall be verified separately.

i.	Extra High Voltage consumers.	1 Year
ii.	High voltage consumers.	
(a) Above 500 KVA contract demand	1 year	
(b) Upto 500 KVA contract demand	2 years	
iii	Industrial Low Tension consumers	2 years
iv.	Low Tension consumers other than domesticservices	3 years
v.	Domestic service consumers	5 years

(c)Instrument Transformers.(i)The periodicity of testing of Instrument transformers shall be at least once in five years .(ii)Testing of Instrument transformers shall be carried out separately during the testing of the metering scheme.(iii)Laboratory of the Licensee shall be accredited by NABL for calibration in Laboratory and calibration and testing at site.(iv)Test bench reference standards of the Licensee shall be calibrated periodically at NABL accredited test laboratory having suitable measurement uncertainty.(2)Inspection and Testing at site(A)Testing of Interface meters: -(i)The inspection, testing & calibration of the interface meters shall be carried out by licensees in the presence of the other concerned parties involved for dispatch and receipt of energy by giving advance notice.(ii)During joint inspection, accuracy of the meters by secondary injection and functioning shall be verified and certified jointly by both the agencies.(iii)The meters provided at the sending end and at the receiving end will be jointly tested/calibrated on all loads and power factors as per relevant standard through static phantom load.(iv)Calibration of meter shall not be attempted through CMRI.(v)After inspection, testing, or calibration the meter shall be sealed and a joint inspection report shall be prepared giving details of testing work carried out, old seals removed, new seals affixed, error as found.(B)Testing of Consumer meters: -(i)The inspection, testing & calibration of the consumer meters (including interface meters of open access consumers), wherever applicable, shall be carried out by licensee by giving advance notice, in the presence of the consumer's representative if he wish to be present,(ii)The Meter before installation at premises of the consumer shall be tested as per norms in the Laboratory and will carry seal(s).(iii)) Installation

and testing of EHV consumers shall be same as that of interface meters.(iv)The Meter/Metering system shall be functionally checked at site and shall be sealed after commissioning and after each time the seal is broken.(v)Calibration of meter shall not be attempted through the CMRI.(vi)Routine testing norms with procedures and details/format etc shall be framed by the licensee for testing of consumer meters and will be submitted to the Commission.(C)Testing of Energy accounting & audit meters. - Testing of Energy accounting and audit meters shall be on running load of the feeder/circuit without removing the CT's and VT's connections. If the load of the feeder/circuit varies substantially, meter may be tested on other running loads over a period of the day.

11. Metering System Requirement.

(1)Interface Meters: -(a)Meter location:(i)For Open access consumers, main & check meters shall be installed at delivery point or relevant to termination point of service line at outgoing isolator of licensee's sub station. The standby meter shall be installed at other end of line. This is applicable to open access interface meters having inter connection with transmission system/distribution system.(ii)For Mini Hydel stations, main and check meters shall be provided at energy transfer points, preferably at the generating station out going feeders.(b)Communication:(i)Metering equipment shall have external / internal modem for remote transmission of the data available in the meter memory through any one or more of the communication links such as Radio frequency, PLCC (Power Line Carrier Communication), PSTN (Public Switched Telephone Network), VSAT,OFC(Optical fiber cable), Mobile or any other means of tele-metering like private network of licensee or low power radio.(ii)The meter shall be capable of data transmission to Data concentrator/ Intelligent Electronic Device (IED). Application Programming Interface (API) and output file format shall be provided to the owner by the supplier, to enable data retrieval and interoperability of meters of different makes. Any additional specific requirement of the owner in this respect, shall be fulfilled by the supplier.(c)Time synchronization. - The time synchronization in the meters shall be from base computer (BC) through communication system and modem. The BC shall be equipped with GPS signal receiver for time synchronization of the meters connected through relevant communication system and modem. As a standby measure, the CMRI will be used for time synchronization of the individual meter. There shall also be a provision in the BC to synchronize with preset time delay with the GPS clock of SLDC or CDCS.(2)Consumer meter.(a)Location: Consumer meters shall be provided as per provisions of Supply Code. Meters shall generally be installed inside the consumer's premises near the main/working entrance where sufficient space for meter box (for LT consumers up to 50 kVA connected load) or a suitable lockable enclosure for HT consumer is reserved by the consumer. The meters shall be installed at proper place, height and in shade to prevent damage to the meter by rainwater etc.(b)Metering cabinet (Box).(i)Meters for LT consumers shall be housed in the meter-box and for HT consumers in metering cabinet provided/ approved by the licensee.(ii)No fuse will be provided inside the meter box in order to keep the meters and CTs free from the external tampering. The meter box shall be opened only in the presence of the authorized Engineer of the licensee. Fuses may be in series with line isolator for HT supply, where considered necessary from protection point of view.(iii)The iron clad switch or MCB/MCCB shall be provided with the meter and connected after the meter.(iv)All terminals shall be made by lugs and crimping.(v)For 11kV HT consumers arrangement of meter cabinet/box which houses CT/PT units and metering equipment inside, shall be installed at

consumer's premises in a room exclusively meant for the purpose. The connections from licensee's line and the consumer's premises shall be through 11kV Cables.(vi)For supply at 33kV, the CT-PT set shall be outdoor type panel mounted / double pole structure mounted and the connections from licensee's line to consumer's premises if so required shall be through 33kV cables.(vii)Standard wiring diagrams for LT and HT metering, as prescribed by the distribution licensee/STU and approved by the metering committee, shall only be used.(viii)Secondary wires connections shall be through armoured cable to the meter cabinet in case of HT consumers on 33kV or 11kV, having outdoor CTs and PTs or CT-PT set, .The cable shall be laid in G.I. pipe/flexible conduit pipe and not embedded in the ground.(ix)Cable entry into the marshalling box of the instrument transformers as also the meter box/control panel shall be through glands and check nuts, which may further be sealed with epoxy compound.(x)Tight fitting PVC sleeves, Raychem or any other equivalent make, press &heat shrinkable type epoxy sleeves, shall be applied for at least 1.5 meter on connections/jumpers from out door instrument transformers bushing terminals.(xi)Meters shall be kept as near to the instrument transformers as possible.(xii)HT metering unit including instrument transformer, shall be mounted on double pole/ housed in H.T. cubicle so that licensee's officers can approach the location without assistance of the HT consumers.

12. Meter reading and Data Collection.

(1)Interface Meters: Meter reading and data collection procedure for interface meters shall be specified separately through an order by Commission. Till then, existing practice shall continue.(2)Consumer meters.(a)The licensee shall arrange meter reading of various category of consumers through authorized representative. Depending upon category of consumer meters or it's stored data meter may be read manually or using CMRI through meter communication port.(b)The periodicity and other provisions of meter reading of various category of consumers shall be governed by the provisions contained in the Supply code.(3)Accounting cum energy audit meters shall be read monthly by the STU and licensee in their respective area of supply and a copy of the readings will be supplied to all concerned. The Tele-metered data shall be retrieved from the communication port of the meter.

13. Maintenance of the Metering System.

(1)The proper operation and maintenance of the meters shall be the exclusive responsibility of the licensee or generating company or STU as under,

Distribution Licensee	:	All consumer meters including open accessconsumers. Inter-discom interface meters. Energy accounting andaudit meters of distribution system
State Transmission Utility	:	All interface meters, Energy accounting &audit meters of transmission system.
Generating Companies	:	Energy accounting & audit meters ofgenerating stations.

(2)The operation and maintenance of the metering system includes proper installation, regular maintenance of the metering system, checking of errors of the CTs, VTs and meters, besides proper

laying of cables and protection thereof and attending to any breakdown/fault on the metering system etc.(3)Breaking of the seals before maintenance and replacement of seals after maintenance shall be carried out by the respective agency as under,(a)Interface meters. - by the authorized persons jointly and/or with mutual consent of concerned parties.(b)Energy accounting and audit meters. - by the generating company or the licensee as the case may be.(c)Consumer meters. - by the authorized person in presence of the consumer(4)After replacement and rectification (if any) of meter(s)/seal(s)/metering system, the meter shall be sealed and report prepared giving details of testing work carried out, errors as found, old seals removed and new seals affixed etc. with complete observation(s), and reason(s).(5)The consumer or his authorized representative may sign such report if present during testing. In case of Interface meters, the joint report shall be prepared and signed by representatives of concerned parties. One copy of report shall be delivered to other concerned party/consumer.

14. Sealing.

(1)All the meters, irrespective of ownership, shall be tested, installed and sealed by the licensee or accredited test laboratory.(2)Sealing points of meters shall be as per CEA meters regulations. Following additional points of the meter shall also be sealed as applicable.(a)CT secondary terminal blocks by double seals.(b)PT/CVT secondary terminal blocks by double seal.(3)Licensee/STU shall replace old seal by new seals as per requirement of CEA meter Regulation in a phased manner as under:

(a)	LT consumers other than domestic, non-domesticand agricultural category:	6 months.
(b)	LT consumers of domestic, non-domestic andagricultural category:	
(i)	Identification of quantum of seals required	-by 31.3.2007
(ii)	Replacement of seals For non-Domestic:	- Not less than 5000 per month
	For domestic consumers and agriculturalconsumers:	- 5000 per month
(c)	Interface Meters-	3 months.
(d)	Energy accounting & Audit meters:	3 month

(4)Tracking and recording software for all new seals shall be obtained by the licensee from the meter manufacturer to track movement of seals starting from manufacture, procurement, storage, record keeping, installation, series of inspections, removal and disposal. Similar provision in the tracking software may be made for meter movement also.

15. Meter Replacement.

(1)The correct meter instrument of required specifications as specified in these regulations read with CEA meters Regulation shall be installed by the licensee within specified time as per Annexure-III appended herewith.(2)CTs and VT's of required accuracy class shall be replaced within timeframe as per Annexure-III appended herewith.

16. Prepaid, Time of Day (ToD) / Time of Use (ToU) Meters.

(1)The distribution licensee shall introduce prepaid meters or time of day or time of use meters for temporary connections, festival lighting to begin with.(2)In case of prepaid meters, a consumer shall be able to consume electricity as per advance payment amount. The payment shall be made at local banks/cash collection centers of licensee. These meters shall have the facility by which the payment credit made for card/token shall be communicated to the meter electronically.(3)The licensee may consider provision of configurable ToD register(s) in all consumer meters on merits. The term ToD meter may be used for all meters except ABT meters, having provision of ToD registers irrespective of applicable tariff.

17. Mechanism For Dispute Resolution.

(1)Any dispute of metering accuracy shall be resolved by testing the meter at accredited licensees laboratory or an independent NABL accredited laboratory approved by the Commission. The aggrieved parties may depute their representative to witness the testing.(2)Based on the report of meter testing, the power consumption of a consumer for the dispute period shall be assessed under the provision of Supply code and Terms and Conditions of Supply framed by the respective distribution licensees. As regards disputes the consumer may approach grievance redressal forum or other settlement mechanism constituted by the Licensee with a right to appeal before the Ombudsman without prejudice to other rights which consumer may otherwise have.(3)The metering disputes between the generating companies (including RVUN, CPPs), transmission licensees (including RVPN), distribution licensees or a trader shall be settled in accordance the with procedures given in relevant PPAs or Bulk Supply Agreements as the case may be or by reference to the Commission.(4)In case of interface meters, in the event of main meter or more than one meter provided becoming defective, the order of precedence for billing shall be (a) main (b) check (c) standby.

18. Remote Transmitting Units and Transducers.

(1)The RTU and Transducers shall be used for SLDC/Sub SLDC data acquisition and monitoring of grid operation and the data so obtained may be used as standby to automatic/remote metering schemes and vice versa.(2)Instantaneous value of following data shall be made available either directly by the meter or through transducers and RTUs from selected individual stations to sub-load dispatch center and load dispatch center continuously.(a)MW (Import/export).(b)MVAr (Lag and lead).(c)Voltage.(d)Current.(e)Frequency.(f)the status of various isolators, circuit breakers and transformer tap positions shall be communicated through RTUs .Note. - The RTUs & Transducers requirement shall not be considered where the meters are capable of transmitting various parameters to SLDC / sub LDC.(3)The transducers shall be suitable for 3 phase 4 wire MW and MVAr measurement. Single transducer giving output of MW, MVAr, voltage, frequency and ampere shall be preferred in place of individual transducers for each metering point.(4)The RTU shall be located in the PLCC room or at location as per optimum cabling requirement. The size of the CT & VT cable to the transducer shall be the same as provided in the metering circuit.(5)The data collected by transducers and fed to RTU shall be processed in the RTU and output will be provided

in the digital telegraphic form. Transmission of these data to the load dispatch center can be through any of the communication links or private network of licensee or low power radio. The data shall again be processed at the load dispatch end in Data Concentrator Unit and converted to analog data and displayed on the monitor screen. The RTU shall be utilized for monitoring and for remote control of feeders / breakers, located at remote sub-stations.

19. Quality assurance of meters.

- The distribution licensee shall put in place a system of quality assurance for meter, starting from receipt, storage in-house testing (if any), installation, periodic testing lab and site testing procedure, removal/replacement and disposal of meters including sealing practices and submit plan/program to the Commission for approval. Any change or amendment in quality assurance program shall be with the permission of the Commission.

20. Review of regulations.

(1)These regulations can be reviewed by the commission of its own or on the merits of a reference from a person or on the recommendation of metering committee constituted as here-under as per the Rajasthan Electricity Grid Code:-(a)The Chief Engineer (PPM&R) of RVPN as Chairman.(b)The Superintending Engineer (Protection) of RVPN as Member (Secretary).(c)The Officer at the level of Superintending Engineer nominated by RVUN as member.(d)The Officer at the level of Superintending Engineer nominated by AVVNL as member(e)The Officer at the level of Superintending Engineer nominated by JVVNL as member(f)The Officer at the level of Superintending Engineer nominated by JdVVNL as member(g)One Engineer, connected with Metering, from IPPs Operating within the State, to be nominated by the Chairman of the Panel.(h)One Engineer, connected with metering, from CPPs (installed capacity exceeding 50 MW& connected to the RVPN's transmission system), to be nominated by the Chairman of the Panel.(2)The committee shall formulate the rules of conducting its business and shall meet at least once in six months and conduct the following functions.(a)To resolve difficulties in the implementation of these regulations.(b)To consider requests for amendments in these regulations including introduction of new technology which is economical, secure, safe, reliable, upgradeable, proven and having enabling provisions for revision of tariff and to make recommendations for changes and inclusion in these regulations with reasons and objections, if acceptable to the Commission.Annexure-1Minimum Acceptable Specification for Interface and Energy Accounting & Audit Meters SA

S.No.	Particulars	Interface Meters	Energy ACcounting and Audit Meters above 33KV
1	2	3	4
1	Meter Type (Number phases and wries)	AC Static HT TVM 3 Phase-4 Wire type ABTcompliant	AC Static HT TVM 3 Phase-4Wire TOD type
2	Measurand(s)	Wh (Imp/Exp), V Arh at 103% voltage and 97%voltage & Vah	kWh (Imp/Exp), kV Arh at 103% voltage and 97%voltage

		during Wh (Imp/Exp), V Arh (Lag/lead) &PF(lag/lead), W, VA, phase voltage, Line current, frequency,instantaneous load in W, Anomaly Data, Power On hours andmeasurement in four quadrants.	& kVArh (lag/lead) & kVAh during KWh (Imp/Exp),PF (lag/lead), kW, kVA, Phase Voltage, Line current, frequency,instantaneous load in kW, Anomaly Data, Power on hours, andmeasurement in four quadrants
3	Indian Standard or IEC to which confirming	IS 14697, IEC 62052—11 IEC 62053—22&, CBIP Report No. 88	
4	Rated Current.	3x-/1 Amp or 3x-/5 Amp (Ib)	
5	Reference frequency, Hz & variation	50 Hz, (+/-)5%	
6	(a) Accuracy class of meter.(b) Classificationangle for Var meters	0.2SFour quadrants	
7	Maximum demand recording period (for MDI only)	15 Min.	
8	Display of measurands	Wh (Imp/Exp), Varh (lag/lead) & Vah duringWh (Imp/Exp) Cumulative reactive energy at 103% voltage and 97%voltage PF (leg/lead), W, VA, Phase Voltage, Line current,frequency instantaneous load In W, Anomaly Data, BP Wh (I/E), BPPF (I/E) Power On hours. Measurement in four quadrants	KWh (Imp/Exp), KV Arh (lag/lead) & KVAhduring KWh (Imp/Exp), Cumulative reactive energy at 103% voltageand 97% voltage, PF (lag/lead), W, KVA, Phase voltage, Linecurrent frequency , instantaneous load in KW, KVR, KVAR, AnomalyData, BP KWh (I/E), BP PF (I/E) Power On hours. Measurement infour quadrants.
9	Storage of measurands	Load Survey for 75 days with integration periodof 15 min. for W (Imp/Exp) VA (Imp/Exp), coded frequency wise Wh(Imp/Exp), Vah (Imp/Exp), Billing parameters for last 3 monthsincluding Power On hours and anomaly information meter readingcount, MD reset count.	Load Survey for 75 days with integration periodof 15 min. for KW (Imp/Exp), KVA (Imp/Exp), KWh (Imp/Exp), KVAh(Imp/Exp), Billing parameters for last three (3) months includingPower On Hours and anomaly information, meter reading count, MDreset count.

10	Any other displays	Total energy i.e. Fundamental energy plusHarmonic energy, self-diagnostic features.
11	a) Output device (forreadings)(b) Whether remote reading feasible.	For calibrationYes
12	Immunity to externalfactors(a) Heat & Fire(b) Shock &vibration(c) Dust & Water(d) Electro magneticfields(e) Radiointerference(f) Electro static fields	As per IS: 11000As per IS: 9000IP: 51As per IS: 61 0000As per IS: 6842As per IS: 61000-4-2
13	Any other feature/requirement.	(a) 2 ports suitablefor local & remote communication.(b) Draw out type modular metering units withfacility of automatic CT shorting. Meter mounting shall be eitherof projection type or rack type as per space and siterequirement.
14	Common Meter Reading Instrument, (CMRI)	CBIP report No. 111, IP67, IEC 529, IS 12063,CISPA R22, IEC 61000-4

Note. - Type C meters provided in annexure-II shall be used for energy accounting & audit meters up to 33kV supply.Annexure-2Salient Technical Specification For Consumer Meters

S.No.	Particulars	Specification of Meters			
Meter Type 'A'	Meter Type 'B'	Meter Type C			
Single Phase	Poly Phase	LT Tri-vector	HT Tri-vector		
1	2	3	4	5	6
1	Meter Type	Electro-static	Electro-static	Electro-static	Electro-static
2	Applicable	Upto 5.0 Kw connected load of LT supply.	Normally upto 18.65 kW connected load of LTsupply.	Normally above 18.65 KW connected load and upto50 kVA contact demand	HT/EHV Supply
3	Number of phases and wires	Single Phase 2 Wire	Three Phase 4 Wire	Three Phase 4 Wire	Three Phase 4 Wire except

					traction supply.
4	Measurand[s]	KWH	KWH	KWH, KVAH, KVA, PF	kWH (Imp/Exp), kVAh, kVARh
5	Indian standard or IEC to which confirming	IS 13779-1999	IS 13779-1999	IS 14697, IS 13779	IS 14697, IS 13779
6	Reference frequency, HZ and variation	50 HZ + 5%	50 HZ + 5%	50 HZ + 5%	50 HZ + 5%
7	Accuracy Class of meter	1.0 or better	1.0 or better	0.5S or better	up to 33 kV supply 0.2s above 33kV supply
8	Meter operation or CT/PT	Whole Current	Whole Current	CT Operated	CT-PT Operated
9	Demand period	-	-	30 Min	30 Min
10	Minimum Starting current as % of base	0.2	0.2	0.1	0.1
11	Import-export feature	Forward Import	Forward Import	Import and Export	Import and Export
12	Load Anti-creeping device	Not more than one Pulse	Not more than one Pulse	Not more than one Pulse	Not more than one Pulse
13	a. Out-put device [for readings] b. Whetherremote reading feasible	VisualNot Required	VisualNot Required	Visual as well asthrough MRINot Required	Visual as well asthrough MRIRequired
14	Immunity to Externalfactors:a. Heat and fireb. Shock andvibrationc. Dust and Water [IPclass]d. Electro MagneticFieldse. Radio Interferencef. Electro Static	As per IS 11000As per IS 9000As per IS 12063As per IEC 61000As per IS 6842As per IEC 61000-4-2	As per IS 11000As per IS 9000As per IS 12063As per IEC 61000As per IS 6842As per IEC 61000-4-2	As per IS 11000As per IS 9000As per IS 12063As per IEC 801-3As per IS 6842As per IEC 61000-4-2	As per IS 11000As per IS 9000As per IS 12063As per IEC 801-3As per IS 6842As per IEC 61000-4-2

	Fields				
15	Any Other feature/ requirement	i. Communicationcapability ii. Up gradation capability (preferred)	i. Communicationcapability ii. Up gradation capability (preferred)	i. Communicationcapability ii. Up gradation capability (preferred)	i. Communicationcapability ii. Up gradation capability (preferred)
16	LED indication	i. Visual signal toindicate the operation of the meterii. Line loadreversal indicationiii. Earth loading indication	i. Visual signal toindicate the operation of the meterii. Line loadreversal indication	i. Visual signal toindicate the operation of the meterii. Line load reversal indication	i. Visual signal toindicate the operation of the meterii. Line load reversal indication

Note. - Railway Traction supply meter shall be three phase three wire type to read measurand (s) of 132 kV double circuit two phase two wire traction supply.Annexure-3Salient Technical Specification for Consumer Meters Specification of Meters

Particulars	Year
A.	Meter instruments
(1) Consumer Meters:	
(i) Extra High Voltage consumers.	1
(ii) High Voltage consumers	
(a) Above 500 KVA contract demand	1
(b) Up to 500 KVA contract demand	1
(iii) Industrial Low Tension consumers	1
(iv) Low Tension consumers other than domestic services	2
(v) Domestic service consumers	5
(2). Interface meters	1
(1) Energy accounting and audit meters (including Stationauxiliary metering)	5
B.	Instrument Transformers for:
(1) Consumer meter	
(i) Extra High Voltage consumers	2
(ii) High Voltage consumers	
(a) Above 500 KVA contract demand	2
(b) Up to 500 KVA contract demand	2
(iii) Industrial Low Tension consumers	2
(iv) Low Tension consumers other than domestic services	2
(v) Domestic Service consumer	5

(2) Interface meters	2
(3) Energy accounting and audit meters (including Stationauxiliary metering)	5