THE CENTRAL ELECTRICITY AUTHORITY (INSTALLATION AND OPERATION OF METERS) REGULATIONS, 2006

[Noti. No. 502/70/CEA/DP&D, dt. 17-3-2006]

(As amended vide Noti. F. No. 1/12/CEA/DPM/Regulations/2025, dt. 1-4-2026, w.e.f. 1-4-2026)

In exercise of the powers conferred by sub-section (1) of section 55 and clause (e) of section 73 read with sub-section (2) of section 177 of the Electricity Act, 2003, the Central Electricity Authority hereby makes the following regulations for regulating the installation and operation of meters, namely:—

1. Short title and commencement

(1) These regulations may be called the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.

(2) These regulations shall come into force on the date of their publication in the Gazette of India.

2. Definitions

(1) In these regulations, unless the context otherwise requires,—

(a) "Act" means the Electricity Act, 2003;

(b) "Accredited Test Laboratory" means a test laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL);

(c) "Active Energy" means the electricity supplied or consumed during a time interval, being the integral of Active Power with respect to time, measured in the units of 'Watt - hours' or standard multiples thereof. One 'kilowatt - hour' (kWh) is one unit;

(d) "Active Power" means the electrical power, being the product of root mean square (rms) voltage, root mean square (rms) current and cosine of the phase angle between the voltage and current vectors and measured in units of 'Watt' (W) or in standard multiples thereof;

[1][da) "Advanced Metering Infrastructure" is an integrated system of smart meters, communication networks and data management systems that enables two way communication between the utilities and energy meters, and the functional blocks of Advanced Metering Infrastructure typically include Head end system, Wide area network, Neighborhood area network, Data concentrator unit and Home area network;

(db) "Advanced Metering Infrastructure Service Provider" is a person appointed by the distribution licensee, for owning, operating, and maintaining Advanced Metering Infrastructure or a part of the Advanced Metering Infrastructure, till its transfer to the licensee;]

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1 Inserted vide Noti. No. CEA-GO-13-15(12)/1/2022-DPR Division, dt. 28-2-2022, w.e.f. 28-2-2022.

(e) "Appropriate Load Despatch Centre" means 'National Load Despatch Centre' (NLDC) or 'Regional Load Despatch Centre' (RLDC) or the 'State Load Despatch Centre' (SLDC), as the case may be;

(f) "Appropriate Transmission Utility" means the 'Central Transmission Utility' (CTU) or the 'State Transmission Utility' (STU), as the case may be;

[1][xxx]

(h) "Buyer" means any generating company or licensee or consumer whose system receives electricity from the system of generating company or licensee;

[2][(i) "Check Meter" means a meter, which shall be connected to the same core of the Instrument Transformer to which main meter is connected and shall be used for accounting and billing of electricity in case of failure of main meter;]

[3][(j) "Consumer Meter" means a meter used for accounting and billing of electricity supplied to or from the consumer but excluding those consumers covered under Interface Meters;]

[4][(k) "Correct Meter" means a meter, complying the standards as specified in the Schedule to these regulations;]

(l) "Energy Accounting and Audit Meters" means meters used for accounting of the electricity to various segments of electrical system so as to carry out further analysis to determine the consumption and loss of energy therein over a specified time period;

[5][(m) "Instrument Transformer" means the "Current Transformer" (CT) or "Current Transformer" (CT) and "Capacitor Voltage Transformer" (CVT) or "Current Transformer" (CT) and "Inductive Voltage Transformer" (IVT);]

[6][(n) "Interface Meter" means a meter used for accounting and billing of electricity, connected at the point of interconnection between electrical

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1 Omitted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to omission, clause (g) read as under:
"(g) "Availability Based Tariff (ABT)" means a tariff structure based on availability of generating units and having components, viz., Capacity Charges (CC), Energy Charges (EC) or Variable Charges (VC) and charges for Unscheduled Interchange (UI);"

2 Substituted, ibid. Prior to substitution, clause (i) read as under:
"(i) "Check Meter" means a meter, which shall be connected to the same core of the Current Transformer (CT) and Voltage Transformer (VT) to which main meter is connected and shall be used for accounting and billing of electricity in case of failure of main meter;"

3 Substituted, ibid. Prior to substitution, clause (j) read as under:
"(j) "Consumer Meter" means a meter used for accounting and billing of electricity supplied to the consumer but excluding those consumers covered under Interface Meters;"

4 Substituted, ibid. Prior to substitution, clause (k) read as under:
"(k) "Correct Meter" means a meter, which shall at least have, features, Accuracy Class and specifications as per the Standards on Installation and Operation of Meters given in Schedule of these regulations;"

5 Substituted, ibid. Prior to substitution, clause (m) read as under:
"(m) "Instrument Transformer" means the 'Current Transformer' (CT), 'Voltage Transformer' (VT) and 'Capacitor Voltage Transformer' (CVT);"

6 Substituted, ibid. Prior to substitution, clause (n) read as under:
"(n) "Interface Meter" means a meter used for accounting and billing of electricity, connected at the point of interconnection between electrical systems of generating company, licensee and consumers, directly connected to the Inter-State Transmission System or Intra-State Transmission System who have to be covered under ABT and have been permitted open access by the Appropriate Commission;"

systems of generating company, licensee and consumers, directly connected to the Inter-State Transmission System or Intra-State Transmission System or Distribution System and who have been permitted open access by the Appropriate Commission;]

(o) "Main Meter" means a meter, which would primarily be used for accounting and billing of electricity;

[1][(p) "Meter" means a device suitable for measuring, indicating and recording the conveyance of electricity or any other quantity related with electrical system and shall include, wherever applicable, other equipment such as Instrument Transformer necessary for the purpose of measurement and also mean 'Correct Meter', if it complies with the standards as specified in the Schedule to these regulations;]

(q) "Power Factor" means the cosine of the electrical angle between the voltage and current vectors in an AC electrical circuit;

[2][xxx]

(s) "Reactive Energy" means, the integral of Reactive Power with respect to time and measured in the units of 'Volt-Ampere hours reactive (VARh) or in standard multiples thereof;

(t) "Reactive Power" means the product of root mean square (rms) voltage, root mean square (rms) current and the sine of the electrical phase angle between the voltage complexor and current complexor, measured in 'Volt-ampere reactive' (VAr) and in standard multiples thereof;

[3][(ta) Smart Meter means a meter as specified in IS 16444 and as amended from time to time;]

(u) "Standards" means 'Standards on Installation and Operation of Meters' given in the Schedule of these regulations unless otherwise any other standard specifically referred;

[4][(v) "Standby Meter" means a meter connected to Instrument Transformer, other than those used for main meter and check meter and shall be used for accounting and billing of electricity in case of failure of both main meter and check meter;]

(w) "Supplier" means any generating company or licensee from whose system electricity flows into the system of another generating company or licensee or consumer;

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, clause (p) read as under:
"(p) "Meter" means a device suitable for measuring, indicating and recording consumption of electricity or any other quantity related with electrical system and shall include, wherever applicable, other equipment such as Current Transformer (CT), Voltage Transformer (VT) or Capacitor Voltage Transformer (CVT) necessary for such purpose;"

2 Omitted, ibid. Prior to omission, clause (r) read as under:
"(r) "Prepaid Meter" means a meter which facilitates use of electricity only after advance payment;"

3 Inserted, ibid.

4 Substituted, ibid. Prior to substitution, clause (v) read as under:
"(v) "Standby Meter" means a meter connected to CT and VT, other than those used for main meter and check meter and shall be used for accounting and billing of electricity in case of failure of both main meter and check meter;"

[1][xxx]

(2) The words and expressions used and not defined in these regulations but defined in the Act shall have the meaning assigned to them in the Act.

3. Applicability of regulations[2]

(1) These regulations shall be applicable to meters installed and to be installed by all the generating companies and licensees who are engaged in the business of generation, transmission, trading, distribution, supply of electricity and to all categories of consumers.

(2) After coming into force of these regulations, the provisions of the Indian Electricity Rules, 1956 relating to installation and operation of meters in this regard shall not be applicable.

(3) These regulations provide for type, standards, ownership, location, accuracy class, installation, operation, testing and maintenance, access, sealing, safety, meter reading and recording, meter failure or discrepancies, anti tampering features, quality assurance, calibration and periodical testing of meters, additional meters and adoption of new technologies in respect of following meters for correct accounting, billing and audit of electricity:—

(i) Interface meter

(ii) Consumer meter

(iii) Energy accounting and audit meter

4. Type of meters

[3][(1)(a) all new Interface Meters and Energy Accounting and Audit Meters shall be of static type and shall have automatic remote meter reading facility;

[4][(b) All consumers in areas with communication network, shall be supplied electricity with Smart Meters conforming to relevant IS, within the timelines as provided by the Central Government:

PROVIDED that all consumer connections having current carrying capacity beyond that specified in relevant IS, shall be provided with meters having automatic remote meter reading facility or Smart Meters as per relevant IS:

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1 Omitted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to omission, clauses (x) & (y) read as under:
"(x) "Time of the Day (TOD) Meter" means a meter suitable for recording and indicating consumption of electricity during specified time periods of the day;
(y) "Renewable Energy Meter" means a meter used for accounting and billing of electricity supplied to and from the consumer but excluding those covered under Interface Meters."

2 Reg. 2 regarding Application of these retulations as per Amdt. Regulation, 2014 omitted.

3 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, sub-reg. (1) read as under:
"(1) All interface meters, consumer meters and energy accounting and audit meters shall be of static type."

4 Substituted vide Noti. F. No. 1/12/CEA/DPM/Regulations/2025, dt. 1-4-2026, w.e.f. 1-4-2026. Prior to substitution, clause (b) read as under:
"(b) All consumers in areas with communication network, shall be supplied electricity with Smart Meters working in prepayment mode, conforming to relevant IS, within the timelines as specified by the Central Government:
PROVIDED that all consumer connections having current carrying capacity beyond that specified in relevant IS, shall be provided with meters having automatic remote meter reading facility or Smart Meters as per relevant IS:
PROVIDED FURTHER that in areas which do not have communication network, installation of prepayment meters, conforming to relevant IS, shall be allowed by the respective State Electricity Regulatory Commission."

PROVIDED FURTHER that in areas which are not covered with communication network, installation of prepayment meters, conforming to relevant IS, shall be allowed by the respective State Electricity Regulatory Commission:

PROVIDED ALSO that all the Advanced Metering Infrastructure shall include the prepayment functionality and shall be interoperable in accordance with the guidelines issued by the Authority:

PROVIDED ALSO that the Smart Meter conforming to relevant Indian Standard with accuracy class of 1.0/0.5S shall act as an Interface meter for the consumer permitted open access at voltage level not exceeding 650 V.]

(2) The meters not complying with these regulations shall be replaced by the licensee on his own or on request of the consumer. The meters may also be replaced as per the regulations or directions of the Appropriate Commission or pursuant to the reforms programme of the Appropriate Government.

5. Standards

All interface meters, consumer meters and energy accounting and audit meters shall—

[1][(a) comply with the relevant standards of Bureau of Indian Standards (BIS). If BIS Standards are not available for a particular equipment or material, the relevant International Electro-technical Commission (IEC) Standards, or any other equivalent Standard shall be followed:

PROVIDED that whenever an IEC Standard or any other equivalent Standard is followed, necessary corrections or modifications shall be made for nominal system frequency and nominal system voltage prevailing in India before actual adoption of the said Standard:

PROVIDED FURTHER that necessary corrections or modifications for ambient temperature and humidity shall be made as per the range specified in the Schedule to these regulations.]

(b) conform to the standards on 'Installation and Operation of Meters' as specified in Schedule annexed to these regulations and as amended from time to time.

6. Ownership of meters

(1) *Interface meters*

(a) All interface meters installed at the points of inter-connection with Inter-State Transmission System (ISTS) for the purpose of electricity accounting and billing shall be owned by CTU.

(b) All interface meters installed at the points of inter-connection with Intra-State Transmission System excluding the system covered under sub-clause (a) above for the purpose of electricity accounting and billing shall be owned by STU.

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, clause (a) read as under:
"(a) comply with the relevant standards of Bureau of Indian Standards (BIS). If BIS Standards are not available for a particular equipment or material, the relevant British Standards (BS), International Electro-technical Commission (IEC) Standards, or any other equivalent Standard shall be followed:
PROVIDED that whenever an international Standard or IEC Standard is followed, necessary corrections or modifications shall be made for nominal system frequency, nominal system voltage, ambient temperature, humidity and other conditions prevailing in India before actual adoption of the said Standard;"

(c) All interface meters installed at the points of inter-connection between the two licensees excluding those covered under sub-clauses (a) and (b) above for the purpose of electricity accounting and billing shall be owned by respective licensee of each end.

(d) All interface meters installed at the points of inter-connection for the purpose of electricity accounting and billing not covered under sub-clauses (a), (b) and (c) above shall be owned by supplier of electricity.

(2) *Consumer meters*

[1][(a) Consumer meters shall generally be owned by the licensee:

PROVIDED that in case the licensee has engaged the services of Advanced Metering Infrastructure Service Provider to provide Advanced Metering Infrastructure services for an Advanced Metering Infrastructure project area, the ownership of meters shall remain with Advanced Metering Infrastructure Service Provider during the contract period.]

[2][(b) If any consumer opts to purchase a meter, the same may be purchased by him as per the technical specifications laid down by the licensee in compliance with these regulations and meter purchased by the consumer shall be tested, installed and sealed by the licensee:

PROVIDED that the consumer shall claim the meter purchased by him as his asset only after it is permanently removed from the system of the licensee.]

(c) All consumer meters shall bear BIS mark, meet the requirements of these regulations and have additional features as approved by the Appropriate Commission or pursuant to the reforms programme of the Appropriate Government. To facilitate this, the licensee shall provide a list of makes and models of the meters.

(3) *Energy accounting and audit meters*

Energy accounting and audit meters shall be owned by the generating company or licensee, as the case may be.

[3]**[7. Location of meters**

(1) ***Interface meters,***—

(a) The location of interface meters shall be as specified in Table-1:

PROVIDED that the location of main, check and standby meters installed at the existing generating stations shall not be changed unless permitted by the Authority:

PROVIDED FURTHER that the generating companies or licensees may install meters at additional locations in their systems depending upon the requirement.

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1 Substituted vide Noti. No. CEA-GO-13-15(12)/1/2022-DPR Division, dt. 28-2-2022, w.e.f. 28-2-2022. Prior to substitution, clause (a) read as under:
"(a) Consumer meters shall generally be owned by the licensee."

2 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, clause (b) read as under:
"(b) If any consumer elects to purchase a meter, the same may be purchased by him. Meter purchased by the consumer shall be tested, installed and sealed by the licensee. The consumer shall claim the meter purchased by him as his asset only after it is permanently removed from the system of the licensee."

3 Substituted by Amendment Regulations, 2010 vide Noti. No. 502/6/2009/DP&D/D-I, dt. 4-6-2010.

[1][TABLE-1

Sl. No.	*Stages*	*Main meter*	*Check meter*	*Standby meter*
(1)	(2)	(3)	(4)	(5)
1.	Generating Station	On all outgoing feeders including bus sectionalizer or tie line between two stages of generating stations having different tariffs or different ownership or both	On all outgoing feeders including bus sectionalizer or tie line betwen two stages of generating stations having different tariffs or different ownership or both	(i) High Voltage (HV) side of Generator Transformers (ii) High Voltage side of all Station Auxiliary Transformers
2.	Transmission and Distribution System	(i) At one end of the line between the sub-stations of the same licensee; (ii) At both ends of the line between sub-stations of two different licensees: PROVIDED that meters at both ends shall be considered as main meters for respective licensees	—	There shall be no separate standby meter. Meter installed at other end of the line in case of two different licensees shall work as standby meter
3.	Inter-Connecting Transformer (ICT)	High Voltage (HV) side of ICT	—	Low Voltage (LV) side of ICT
[2][4.	Consumer directly connected to the Inter-State Trans-mission System or Intra-State Transmission or Distribution System who has been permitted open access at voltage level exceeding 650 V by the Appropriate Commission or any other system not covered above	At consumer premises		At consumer premises on separate Instrument Transformer or at Licensee's substation as mutually agreed.

1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019.
2 Substituted vide Noti. F. No. 1/12/CEA/DPM/Regulations/2025, dt. 1-4-2026, w.e.f. 1-4-2026.

5.	Consumer permitted open access at voltage level not exceeding 650 V	At consumer premises	At consumer premises	—]]

(b) The scheme for location of interface meters shall be submitted to the Central Transmission Utility or the State Transmission Utility or the licensee by owner of the meter in advance, before the installation of the scheme.

(2) ***Consumer meter***,—

(a) The consumer meter shall be installed by the licensee either at the consumer premises or outside the consumer premises:
PROVIDED that where the licensee installs the consumer meter outside the premises of the consumer then the licensee on a request from consumer shall provide [1][in home display unit] at the premises of the consumer for his information to indicate the electricity consumed by the consumer:
PROVIDED FURTHER that for the purpose of billing, the reading of consumer meter shall be taken into account.

[2][(b) The location of meter and height of meter display from the floor shall be as specified in IS 15707 and as amended from time to time.]

[3][(c) For outdoor installations, the meters shall be protected by appropriate enclosure of level of protection as specified in the IS 15707 and as amended from time to time.]

[4][xxx]

Metering arrangement	*Location of Renewable Energy Meter*
Feed in Tariff metering: Renewable Energy Plant is connected to the grid to inject the entire electricity generated to the grid.	Out going feeder from Renewable Energy Plant.
Net metering: Renewable Energy Plant is connected to the load bus of the owner to consume electricity generated primarily by the owner of the Plant and excess electricity, if any, is injected to the grid.	In case of first installation for the purpose of Renewable Energy Metering, the 'Renewable Energy Meter' shall be installed at the location specified for consumer meter and in case of existing consumers, the consumer meter shall be replaced with 'Renewable Energy Meter'.

Note: In case of Net metering, Renewable Energy Plants with battery can supply the consumer load in the event of grid failure. In this case, an automatic isolating

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1 Substituted for "real time display unit" vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019.

2 Substituted, ibid. Prior to substitution, clause (b) read as under:
"(b) The location of meter and height of meter display from floor shall be as per Indian Standard on Testing, Evaluation, Installation and Maintenance of ac Electricity Meters - Code of Practice."

3 Substituted, ibid. Prior to substitution, clause (c) read as under:
"(c) For outdoor installations, the meters shall be protected by appropriate enclosure of level of protection specified in the Indian Standard on Testing, Evaluation, Installation and Maintenance of ac Electricity Meters - Code of Practice."

4 Omitted, ibid, Prior to omission, clause (d) read as under:
"(d) The location of Renewable Energy Meters shall be as specified below:"

mechanism has to be provided at appropriate location to make islanding of the consumer load from the grid at the event of grid failure.]]

(3) ***Energy accounting and audit meter***

The Energy accounting and audit meters shall be installed at following locations to facilitate the accounting of the energy generated, transmitted, distributed and consumed in various segments of the power system and the energy loss, namely:—

(i) *Generating Stations*:

(a) at a point after the generator stator terminals and before the tap-off to the unit auxiliary transformer(s):

[1][PROVIDED that in case of Renewable energy generating station, the meter shall be installed at the inverter Alternating Current (AC) output terminals.]

(b) on each incoming feeder of 3.3 kV and above.

(c) low voltage side of each incoming transformer feeder of low voltage (415 V) buses, and

(d) on all high tension motor feeders:

PROVIDED that in case, numerical relays having built-in feature of energy measurement of requisite accuracy are provided in high voltage or low voltage switchgear, separate energy meter is not necessary.

(ii) *Transmission system*: all incoming and outgoing feeders (if the interface meters do not exist)

[2][(iii) Distribution system,—

(a) all incoming feeders (3.3 kV and above);

(b) all outgoing feeders (3.3 kV and above);

(c) sub-station transformer including distribution transformer - Licensee may provide the meter on primary or secondary side or both sides depending upon the requirement for energy accounting and audit:

PROVIDED that all feeders and distribution transformers shall be provided with meters having automatic remote meter reading facility or Smart Meters as per relevant IS, as per the timelines specified by the Central Government:

PROVIDED FURTHER that distribution transformer level energy accounting data shall be uploaded by the distribution licensees on quarterly basis on National Power Portal as per the format prescribed in Bureau of Energy Efficiency (Manner and Intervals for Conduct of Energy Audit in electricity distribution companies) Regulations, 2021.]

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1 Inserted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019.

2 Substituted vide Noti. No. CEA-GO-13-15(12)/1/2022-DPR Division, dt. 28-2-2022, w.e.f. 28-2-2022. Prior to substitution, clause (iii) read as under:
"(iii) Distribution system:
(a) all incoming feeders (11 kV and above)
(b) all outgoing feeders (11 kV and above)
(c) sub-station transformer including distribution transformer - Licensee may provide the meter on primary or secondary side or both sides depending upon the requirement for energy accounting and audit."

8. Accuracy class of meters

Every meter shall meet the requirement of accuracy class as specified in the standards given in the Schedule.

9. Installation of meters

(1) Generating company or licensee, as the case may be, shall examine, test and regulate all meters before installation and only correct meters shall be installed.

(2) The meter shall be installed at locations, which are easily accessible for installation, testing, commissioning, reading, recording and maintenance. The place of installation of meter shall be such that minimum inconvenience and disruptions are caused to the site owners and the concerned organizations.

[1][(3) In case of single phase meters, the consumer shall ensure that there is no common neutral or phase or looping of neutral or phase of two or more consumers on consumer's side wiring:

PROVIDED that, if such common neutral or phase or looping of neutral or phase comes to the notice of licensee, it shall suitably inform the consumer through installation report or regular electricity bills or meter test report or SMS as applicable, as soon as it comes to its notice and the same shall be rectified by the consumer within 15 days from such notice by the licensee.]

(4) Consumer shall install the Earth Leakage Protective Device (ELPD) in accordance with the provisions of the rules or regulations in this regard.

[2][(5) If the earth leakage indication is displayed in the meter, the licensee shall suitably inform the consumer through installation report or regular electricity bills or meter test report or SMS as applicable, as soon as it comes to its notice and the same shall be rectified by the consumer within 15 days from such notice by the licensee.]

[3][(6) In case Instrument Transformer form part of the meters, the meter shall be installed as near as possible to the Instrument Transformer to reduce the potential drop in the secondary leads.]

10. Operation, testing and maintenance of meters

The operation, testing and maintenance of all types of meters shall be carried out by the generating company or the licensee, as the case may be.

11. Access to meter

The owner of the premises where, the meter is installed shall provide access to the authorized representative(s) of the licensee for installation, testing, commissioning, reading and recording and maintenance of meters.

12. Sealing of meters

(1) *Sealing Arrangements*

(a) All meters shall be sealed by the manufacturer at its works. In addition to the seal provided by the manufacturer at its works, the sealing of all meters

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, sub-regulation (3) read as under:
"(3) In case of single phase meters, the consumer shall ensure that there is no common neutral or phase or looping of neutral or phase of two or more consumers on consumers' side wiring. If such common neutral or phase or looping of neutral or phase comes to the notice of the licensee, it shall suitably inform the consumer through installation report or regular electricity bills or meter test report as applicable."

2 Substituted, ibid. Prior to substitution, sub-regulation (5) read as under:
"(5) If the earth leakage indication is displayed in the meter the licensees shall suitably inform the consumer through installation report or regular electricity bills or meter test report as applicable."

3 Substituted, ibid. Prior to substitution, sub-regulation (6) read as under:
"(6) In case CTs and VTs form part of the meters, the meter shall be installed as near the instrument transformers as possible to reduce the potential drop in the secondary leads."

shall be done as follows at various sealing points as per the standards given in the Schedule:—

(i) Sealing of interface meters, shall also be done by both the supplier and the buyer.

(ii) Sealing of consumer meters shall be done by the licensee.

(iii) Sealing of energy accounting and audit meters shall be done by the licensee or generating company, as the case may be.

[1][(b) A tracking and recording mechanism for all seals shall be maintained by the licensee so as to track total movement of seals starting from procurement (with manufacturer's details), storage, record keeping, installation, series of inspections and removal.]

(c) Seal shall be unique for each utility and name or logo of the utility shall be clearly visible on the seals.

(d) Only the patented seals (seal from the manufacturer who has official right to manufacture the seal) shall be used.

(e) Polycarbonate or acrylic seals or plastic seals or holographic seals or any other superior seal shall be used.

(f) Lead seals shall not be used in the new meters. Old lead seals shall be replaced by new seals in a phased manner and the time frame of the same shall be submitted by the licensee to the Appropriate Commission for approval.

(2) *Removal of seals from meters*

(a) Interface meters

Whenever seals of the interface meters have to be removed for any reason, advance notice shall be given to other party for witnessing the removal of seals and resealing of the interface meter. The breaking and re-sealing of the meters shall be recorded by the party, who carried out the work, in the meter register, mentioning the date of removal and resealing, serial numbers of the broken and new seals and the reason for removal of seals.

(b) Consumer meters

Seal of the consumer meter shall be removed only by the licensee. No consumer shall tamper with, break or remove the seal under any circumstances. Any tampering, breaking or removing the seal from the meter shall be dealt with as per relevant provisions of the Act.

(c) Energy accounting and audit meters

Seal of the energy accounting and audit meter shall be removed only by the generating company or the licensee who owns the meter.

13. Safety of meters

(1) The supplier or buyer in whose premises the interface meters are installed shall be responsible for their safety.

(2) The consumer shall, as far as circumstances permit, take precautions for the safety of the consumer meter installed in his premises belonging to the licensee.

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, clause (b) read as under:
"(b) A tracking and recording software for all new seals shall be provided by the manufacturer of the meter so as to track total movement of seals starting from manufacturing, procurement, storage, record keeping, installation, series of inspections, removal and disposal."

(3) Licensee shall be responsible for the safety of the [1][Consumer Meter] located outside the premises of the consumer and the consumer shall be responsible for the safety of the [2][in home display] unit installed by the licensee in consumer premises.

(4) The generating company or the licensee who owns the energy accounting and audit meters shall be responsible for its safety.

14. Meter reading and recording

[3][(1) *Interface Meters*:

(a) It shall be the responsibility of the Generating Company or the licensee, in whose premises the meter has been installed, to download the meter data, record the metered data and furnish such data to various agencies as per the procedure laid down by the Appropriate Commission:

PROVIDED that the responsibility of maintaining database of all the information associated with the Interface Meters and verifying the correctness of the metered data shall be in accordance with the procedure laid down by the Appropriate Commission.

(b) The metered data shall be communicated to the respective Load Despatch Centre by using a secured and dedicated communication system.

(2) *Consumer Meters*:

(a) It shall be the responsibility of the licensee to download the Meter data either locally or remotely, record the metered data, maintain database of all the information associated with the Consumer Meters and verify the correctness of the metered data:

PROVIDED that the Appropriate Regulatory Commission shall specify suitable time frame for ensuring electronic meter reading of all consumer meters by the licensees.

(b) The licensee shall maintain accounts for the electricity consumption and other electrical quantities of its consumers:

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1 Substituted for "consumer meter" vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019.

2 Substituted for "real time display", ibid.

3 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, sub-regulation (1) of regulation 14 read as under:

"(1) *Interface meters*

It shall be the responsibility of the Appropriate Transmission Utility or the licensee to take down the meter reading and record the metered data, maintain database of all the information associated with the interface meters and verify the correctness of metered data and furnish the same to various agencies as per the procedure laid down by the Appropriate Commission.

(2) *Consumer meters*

(a) It shall be the responsibility of the licensee to record the metered data, maintain database of all the information associated with the consumer meters and verify the correctness of metered data.

(b) The licensee shall maintain accounts for the electricity consumption and other electrical quantities of its consumers.

(c) Brief history, date of installation and details of testing, calibration and replacement of meters shall be maintained by the licensee.

(3) *Energy accounting and audit meters*

It shall be the responsibility of the generating company or licensee to record the metered data, maintain database of all the information associated with the energy accounting and audit meters and verify the correctness of metered data. Each generating company or licensee shall prepare quarterly, half-yearly and yearly energy account for its system for taking appropriate action for efficient operation and system development."

PROVIDED that the licensee shall provide information to the consumer related to his energy consumption through Mobile App or Web application or in home display or any other suitable means.

(c) Brief history, date of installation and details of testing, calibration and replacement of meters shall be maintained by the licensee.

(3) *Energy Accounting and Audit Meters* :

(a) It shall be the responsibility of the generating company or licensee to download the meter data locally or remotely, record the metered data, maintain database of all the information associated with the energy accounting and audit meters and verify the correctness of the metered data.

(b) Each generating company or licensee shall prepare quarterly, half-yearly and yearly energy account for its system for taking appropriate action for efficient operation and system development.]

15. Meter failure or discrepancies

(1) *Interface meters*

[1][(a) Whenever difference between the readings of the Main Meter and the Check Meter for any month is more than 0.5%, the following steps shall be taken:

(i) checking of Instrument Transformers connections;

(ii) testing of accuracy of Interface Meter at site with a reference standard meter of accuracy class higher than the meter under test;

(iii) based on the test results as specified in items (i) and (ii), corrective action shall be taken to replace the defective meter.

(b) In case of conspicuous failures like burning of meter and erratic display of metered parameters and when the error found in testing of meter is beyond the permissible limit of error provided in the relevant standard, the meter shall be replaced immediately:

PROVIDED that whenever an Interface Meter is replaced, it shall be ensured that Interface Meter at the other end, if any, of the transmission or distribution system, shall have same accuracy class.]

(c) In case where both the Main meter and Check meter fail, at least one of the meters shall be immediately replaced by a correct meter.

(d) Billing for the failure period:—

(i) The billing for the failure period of the meter shall be done as per the procedure laid down by the Appropriate Commission.

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, clauses (a) and (b) read as under:
"(a) Whenever difference between the readings of the Main meter and the Check meter for any month is more than 0.5%, the following steps shall be taken:—
(i) checking of CT and VT connections;
(ii) testing of accuracy of interface meter at site with reference standard meter of accuracy class higher than the meter under test.
If the difference exists even after such checking or testing, then the defective meter shall be replaced with a correct meter.
(b) In case of conspicuous failures like burning of meter and erratic display of metered parameters and when the error found in testing of meter is beyond the permissible limit of error provided in the relevant standard, the meter shall be immediately replaced with a correct meter."

(ii) Readings recorded by Main, Check and Standby meters for every time slot shall be analysed, cross-checked and validated by the Appropriate Load Despatch Centre (LDC). The discrepancies, if any, noticed in the readings shall be informed by the LDC in writing to the energy accounting agency for proper accounting of energy. LDC shall also intimate the discrepancies to the Appropriate Transmission Utility or the licensee, who shall take further necessary action regarding testing, calibration or replacement of the faulty meters in accordance with the provisions laid down.

(e) The defective meter shall be immediately tested and calibrated.

(2) *Consumer meters*

In case the consumer reports to the licensee about consumer meter readings not commensurate with his consumption of electricity, stoppage of meter, damage to the seal, burning or damage of the meter, the licensee shall take necessary steps as per the procedures given in the Electricity Supply Code of the Appropriate Commission read with the notified conditions of supply of electricity.

(3) *Energy accounting and audit meters*

Energy accounting and audit meters shall be rectified or replaced by the generating company or licensee immediately after notice of any of the following abnormalities:—

(a) the errors in the meter readings are outside the limits prescribed for the specified Accuracy Class;

(b) meter readings are not in accordance with the normal pattern of the load demand;

(c) meter tampering, or erratic display or damage;

[1][(d) readings not in conformity with the readings of Interface Meters.]

16. Anti-tampering features of meters

The meters shall be provided with such anti-tampering features as per the Standards on Installation and Operation of Meters given in the Schedule.

17. Quality assurance of meters

(1) The distribution licensee shall put in place a system of quality assurance and testing of meters with the approval of Appropriate Commission.

[2][(2) (a) The licensee shall set up accredited testing laboratories or utilise the services of other accredited testing laboratories.

(b) The licensee shall take immediate action to get the accreditations for their existing meter testing laboratories from NABL, if not already done.

(3) The generating company or licensee shall ensure that all type, routine and acceptance tests are carried out by the manufacturer complying with the requirement of the relevant Indian Standards.]

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1 Inserted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019.

2 Substituted, ibid. Prior to substitution, sub-regulations (2) and (3) read as under:
"(2) The licensee shall set up appropriate number of accredited testing laboratories or utilize the services of other accredited testing laboratories. The licensee shall take immediate action to get the accreditations of their existing meter testing laboratories from NABL, if not already done.
(3) The generating company or licensee shall ensure that all type, routine and acceptance tests are carried out by the manufacturer complying with the requirement of the relevant IS or BS or IEC, as the case may be."

18. Calibration and periodical testing of meters

(1) *Interface meter*

(a) At the time of commissioning, each interface meter shall be tested by the owner at site for accuracy using standard reference meter of better accuracy class than the meter under test.

[1][(b) All Interface Meters shall be tested on-site using accredited test laboratory for routine accuracy testing at least once in five years and recalibrated if required.

PROVIDED that these meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters.

(c) Testing and calibration of Interface Meters shall be carried out in the presence of the representatives of the supplier and buyer by giving the advance notice to the other party regarding the date of testing.]

[2][(2) *Consumer Meters*: The testing of Consumer Meters shall be done at site through accredited test laboratory at least once in five years and recalibrated, if required:

PROVIDED that the licensee instead of testing the meter at site can remove the meter and replace the same by a meter duly tested in an accredited test laboratory:

PROVIDED FURTHER that meter shall be tested if the consumption pattern changes drastically from the similar months or seasons of the previous years or if there is consumer's complaint pertaining to a meter:

PROVIDED ALSO that the meter used for testing shall be of better accuracy class than the meter under test.

(3) *Energy Accounting and Audit Meters*: Energy Accounting and Audit Meters shall be tested at site through accredited test laboratory at least once in five years or whenever

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, clauses (b) and (c) read as under:
"(b)All interface meters shall be tested at least once in five years. These meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters. Whenever there is unreasonable difference between the quantity recorded by interface meter and the corresponding value monitored at the billing center via communication network, the communication system and terminal equipment shall be tested and rectified. The meters may be tested using NABL accredited mobile laboratory or at any accredited laboratory and recalibrated if required at manufacturer's works.
(c) Testing and calibration of interface meters may be carried out in the presence of the representatives of the supplier and buyer. The owner of the meter shall send advance notice to the other party regarding the date of testing."

2 Substituted, ibid. Prior to substitution, sub-regulations (2) and (3) read as under:
"(2) Consumer meters
The testing of consumer meters shall be done at site at least once in five years. The licensee may instead of testing the meter at site can remove the meter and replace the same by a tested meter duly tested in an accredited test laboratory. In addition, meters installed in the circuit shall be tested if study of consumption pattern changes drastically from the similar months or season of the previous years or if there is consumer's complaint pertaining to a meter. The standard reference meter of better accuracy class than the meter under test shall be used for site testing of consumer meters up to 650 volts. The testing for consumers meters above 650 volts should cover the entire metering system including CTs, VTs. Testing may be carried out through NABL accredited mobile laboratory using secondary injection kit, measuring unit and phantom loading or at any accredited test laboratory and recalibrated if required at manufacturer's works.
(3) *Energy accounting and audit meters*
Energy accounting and audit meters shall be tested at site at least once in five years or whenever the accuracy is suspected or whenever the readings are inconsistent with the readings of other meters, e.g., check meters, standby meters. The testing must be carried out without removing the CTs and VTs connection. Testing may be carried out through NABL accredited mobile laboratory using secondary injection kit, measuring unit and phantom loading or at any accredited test laboratory and recalibrated if required at manufacturer's works."

the accuracy is suspected or whenever the readings are inconsistent with the readings of other meters, e.g., Check Meters, Standby Meters and defective meters shall be recalibrated, if required:

PROVIDED that the testing shall be carried out without removing the Instrument Transformers connection.]

19. Additional meters

In addition to any meter which may be placed for recording the electricity consumed by the consumer, the licensee may connect additional meters, maximum demand indicator or other apparatus as he may think fit for the purposes of ascertaining or regulating either the quantity of electricity supplied to the consumer, or the number of hours during which the supply is given, or the rate per unit of time at which energy is supplied to the consumer, or any other quantity or time connected with the supply to consumer:

PROVIDED that the meter, indicator or apparatus shall not, in the absence of an agreement to the contrary, be placed otherwise than between the distributing mains of the licensee and any meter:

PROVIDED FURTHER that, where the charges for the supply of energy depend wholly or partly upon the reading or indication of any such meter, indicator or apparatus as aforesaid, the licensee shall, in the absence of an agreement to the contrary, keep the meter, indicator or apparatus correct.

[1]**[xxx]**

[2]**[21. Cyber Security**

Generating Company and licensee shall comply with cyber security guidelines issued by the Central Government, from time to time, and the technical standards for communication system in Power Sector laid down by the Authority.

22. Relaxation of Regulations

The Authority, by order in writing and the reasons to be recorded, may relax any provision of these regulations in respect of any matters referred to the Authority on case to case basis.]

SCHEDULE

(Refer regulations 2, 5, 8, 12 and 16)

STANDARDS ON INSTALLATION AND OPERATION OF METERS

PART I

STANDARDS COMMON TO ALL TYPE OF METERS

[3][(1) These standards provide for specification of meters, immunity to external factors, sealing points and functional requirements that are required from regulatory perspective:

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1 Omitted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to omission, regulaation 20 reaad aas under:
"**20. Adoption of new technologies**
The distribution licensee shall make out a plan for introduction and adoption of new technologies such as pre-paid meters, time of the day meters (TOD), automatic remote meter reading system through appropriate communication system with the approval of the Appropriate Commission or as per the regulations or directions of the Appropriate Commission or pursuant to the reforms programme of the Appropriate Government."

2 Inserted, ibid.

3 Substituted, ibid. Prior to substitution, paragraph 1 read as under:
"(1) These standards provide for specification of meters, immunity to external factors, sealing points and functional requirements that are required from regulatory perspective. Detailed technical specification shall be prepared by the purchaser of the meter."

PROVIDED that, detailed technical specifications shall be prepared by the Generating Company or licensee, as the case may be.]

[1][(2) *Specification of meters*

<table>
<tr><td>1.</td><td>Standard Reference Voltage, Voltage Range, Standard Frequency, Starting Current and Maximum Current, Power Factor Range, Power Frequency withstand voltage, Impulse voltage withstand test for 1.2/50 micro sec, Power Consumption</td><td>As per relevant Indian Standards (IS)</td></tr>
<tr><td>2.</td><td>Standard Basic Current</td><td>As per relevant IS. Current range of consumer meters shall be so chosen as to record the load current corresponding to the sanctioned load.</td></tr>
<tr><td>3.</td><td>Accuracy Class</td><td>Meters shall meet the following requirements of Accuracy Class:
<table>
<tr><td>(a) Interface meters</td><td>0.2S</td></tr>
<tr><td colspan="2">(b) Consumer meters</td></tr>
<tr><td>(i) Upto 650 Volts Direct Connected</td><td>1.0</td></tr>
<tr><td>(ii) Upto 650 volts CT Connected</td><td>Class 0.5S as per relevant IS where separate CTs are used
Or
Class 1.0 as per relevant IS for terminal less direct connected long current range meters.</td></tr>
<tr><td>(iii) Above 650 volts and up to 33 kilo volts</td><td>0.5S</td></tr>
<tr><td>(iv) Above 33 kilo volts</td><td>0.2S</td></tr>
</table>
(c) Energy Accounting and Audit Meters

(i) In generating stations, the accuracy class of meter(s) at a point after the generator stator terminals, before the tap off to the unit auxiliary transformer(s) and at the inverter AC output terminals in case of Renewable Energy generating station, shall not be inferior to that of 0.2S accuracy class:</td></tr>
</table>

1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019.

		PROVIDED that, the accuracy class of other meters shall not be inferior to that of 1.0S accuracy class. (ii) The accuracy class of meters in transmission system shall not be inferior to that of 0.2S accuracy class. (iii) The accuracy class of meters in distribution system shall not be inferior to that of 0.5S accuracy class where separate CTs are used with meter: PROVIDED that in case of terminal less direct connected long current range meters accuracy class shall not be inferior to class 1.0. (iv) The accuracy class of Energy accounting and Audit Meters for renewable energy generating station located at consumer premises shall be same as that of consumer meter.
4.	Ambient Temperature and Humidity (in case an International Standard or an IEC Standard is followed)	Temperature range: Limit range of operation: -10˚C to +70˚C Limit range for storage and transport: -10˚C to +70˚C Relative Humidity: up to 100% ***Note***: (1) For Special applications other temperature values can be used according to agreement between manufacturer and purchaser. (2) Operation, storage and transport of the meter at the extremes of the temperature range should be for a maximum period of six hours.
5.	Only fundamental frequency quantities shall be measured and computed while measuring Wh and VArh]	

[1][(3) Meter shall have one port for downloading facilities of metered data through Common Meter Reading Instrument (CMRI) and another port/system for remote communication.]

(4) *Immunity to External Factors*

The meter shall be immune to external influences like magnetic induction, vibration, electrostatic discharge, switching transients, surge voltages, oblique suspension and harmonics and necessary tests shall be carried out in accordance with relevant standard.

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, para (3) read as under:
"(3) Meter shall have downloading facilities of metered data through Meter Reading Instrument (MRI)"

[1][(5) *Sealing Points* : Sealing shall be done at the following points (as applicable):

(a) Meter body with cover (Not applicable if integrated body is used),

(b) Meter terminal cover ,

(c) Meter test terminal block ,

(d) Meter cabinet/panel,

(e) Instrument Transformer(s) terminal box for metering purpose, and junction box, if any.

(6) (a) The accuracy class of Instrument Transformer shall not be inferior to that of associated meters.

(b) The Instrument Transformer shall comply with relevant Indian Standards.

(c) The existing Instrument Transformer not complying with these regulations shall be replaced by new Instrument Transformer, if found defective or non-functional.]

[2][xxx]

PART II

STANDARDS FOR INTERFACE METERS

(1) *Functional Requirements* :

[3][(a) The Interface Meters shall be three phase four wire static type, composite meters, self-contained devices for measurement of active

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, paragraphs (5) and (6) read as under:
"(5) *Sealing Points*
Sealing shall be done at the following points (as applicable):
(a) Meter body or cover
(b) Meter terminal cover
(c) Meter test terminal block
(d) Meter cabinet
(6) The accuracy class of Current transformers (CTs) and Voltage transformers (VTs) shall not be inferior to that of associated meters. The existing CTs and VTs not complying with these regulations shall be replaced by new CTs and VTs, if found defective, non-functional or as per the directions of the Appropriate Commission. In case the CTs and VTs of the same Accuracy Class as that of meters cannot be accommodated in the metering cubicle or panel due to space constraints, the CTs and VTs of the next lower Accuracy Class can be installed."

2 Omitted, ibid. Prior to omission, para (7) read as under:
"(7) The Voltage Transformers shall be electromagnetic VT or Capacitive Voltage Transformer (CVT)."

3 Substituted, ibid. Prior to substitution, sub-paragraphs (a) and (b) read as under:
"(a) The Interface meters suitable for ABT shall be static type, composite meters, as self-contained devices for measurement of active and reactive energy, and certain other parameters as described in the following paragraphs. The meters shall be suitable for being connected directly to voltage transformers (VTs) having a rated secondary line-to-line voltage of 110V, and to current transformers (CTs) having a rated secondary current of IA (Model-A:3 element 4 wire or Model C:2 element, 3 wire) or 5A (model-B:3 element, 4 wire or Model D:2 element 3 wire). The reference frequency shall be 50 Hz.
(b) The meters shall have a non-volatile memory in which the following shall be automatically stored:
(i) Average frequency for each successive 15-minute block, as a two digit code (00 to 99 for frequency from 49.0 to 51.0 Hz).
(ii) Net Wh transmittal during each successive 15-minute block, upto second decimal, with plus/minus sign.
(iii) Cumulative Wh transmittal at each midnight, in six digits including one decimal.
(iv) Cumulative VArh transmittal for voltage high condition, at each midnight, in six digits including one decimal.
(v) Cumulative VArh transmittal for voltage low condition, at each midnight, in six digits including one decimal.
(vi) Date and time blocks of failure of VT supply on any phase, as a star(*) mark."

and reactive energy, and certain other parameters as described in the following paragraphs:

PROVIDED that, the meters shall be suitable for being connected directly to voltage transformers (VTs) having a rated secondary line-to-line voltage of 110 V, and to current transformers (CTs) having a rated secondary current of 1A or 5A:

PROVIDED FURTHER that, the reference frequency shall be 50Hz.

(b) The meters shall have a non-volatile memory capable of storing data for a period of at least last ten days and shall be able to measure following parameters in the manner specified, in addition to those specified in the relevant Indian Standards:

(i) average frequency for each successive time block upto 2 decimal truncation;

(ii) net Wh transmittal during each successive time block upto two decimal, with plus sign for active power sent out from station busbars and minus sign for active power received into the busbars;

(iii) cumulative Wh transmittal at each midnight, in eight digits including one decimal;

(iv) cumulative VArh transmittal for voltage high condition, at each midnight, in eight digits including one decimal;

(v) cumulative VArh transmittal for voltage low condition, at each midnight, in eight digits including one decimal;

(vi) date and time blocks of failure of VT supply on any phase, as a star(*) mark and (Z) mark in case of complete voltage failure;

(vii) net VArh transmittal during each successive time block upto two decimal with plus sign for reactive power sent out from station busbars and minus sign for reactive power received into the busbars;

(viii) average voltage upto 2 decimal truncation:

PROVIDED that the time block for recording of meter data by the meter shall be 15 minutes or as specified by the Central Commission.]

[1][xxx]

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1 Omitted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to omission, clauses (c) and (d) read as under:

"(c) The meters shall store all the above listed data in their memories for a period of at least ten days. The data older than ten days shall get erased automatically. Each meter shall have an optical port on its front for tapping all data stored in its memory using a hand held data collection device. The meter shall be suitable for transmitting the data to remote location using appropriaate communication medium.

(d) The active energy (Wh) measurement shall be carried out on 3-phase, 4-wire principle, with an accuracy as per class 0.2 S of IEC-687/IEC-62053-22. In model-A and C, the energy shall be computed directly in CT and VT secondary quantities, and indicated in watt-hours. In model-B and Model-D, the energy display and recording shall be one-fifth of the Wh computed in CT and VT secondary quantities."

[1][(e) There shall be two reactive energy registers, one for the period when average RMS voltage is above 103% and the other for the period when the voltage is below 97%.

(f) The Wh recording shall have a +ve sign when there is a net Wh export from substation busbars, and a -ve sign when there is a net Wh import:

PROVIDED that the integrating (cumulative) registers for Wh and VArh shall move forward when there is Wh or VArh export from substation busbars, and backward when there is an import.

(g) The meters shall also display (on demand), by turn, the following parameters:

(i) Unique identification number of the meter,

(ii) Date,

(iii) Time,

(iv) Cumulative Wh register reading,

(v) Average frequency of the previous time block,

(vi) Net Wh transmittal in the previous time block, with +/-sign,

(vii) Average percentage voltage,

(viii) Reactive power with +/- sign,

(ix) Voltage-high VArh register reading,

(x) Voltage-low VArh register reading,

(xi) Net VArh transmittal in the previous time block, with +/-sign.

(h) (i) the three line-to-neutral voltages shall be continuously monitored, and in case any of these falls below 80%, the same shall be suitably indicated and recorded in the meter memory.

(ii) the meters shall normally operate with the power drawn from the VT secondary circuits:

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1 Substituted vide Noti. No. CEA-GO-13-15/3/2019-DPR Division, dt. 23-12-2019, w.e.f. 23-12-2019. Prior to substitution, sub-paragraphs (e), (f), (g) and (h) read as under:
"(e) The Var and reactive energy measurement shall also be on 3-phase, 4-wire principle, with an accuracy as per class 2 of IEC-62053-23 or better. In model-A or Model C, the Var and VArh computation shall be directly in CT and VT secondary quantities. In model-B or Model D, the above quantities shall be displayed and recorded as one-fifth of those computed in CT and VT secondary quantities. There shall be two reactive energy registers, one for the period when average RMS voltage is above 103% and the other for the period the voltage is below 97%.
(f) The 15-minute Wh shall have a +ve sign when there is a net Wh export from substation busbars, and a -ve sign when there is a net Wh import. The integrating (cumulative) registers for Wh and VArh shall move forward when there is Wh/VArh export from substation busbars, and backward when there is an import.
(g) The meters shall also display (on demand), by turn, the following parameters:—
(i) Unique identification number of the meter
(ii) Date
(iii) Time
(iv) Cumulative Wh register reading
(v) Average frequency of the previous 15-minute block
(vi) Net Wh transmittal in the previous 15-minute block, with +/- sign
(vii) Average percentage voltage
(viii) Reactive power with +/- sign
(ix) Voltage-high VArh register reading
(x) Voltage-low VArh register reading.
(h) The three line-to-neutral voltages shall be continuously monitored, and in case any of these falls below 70%, the condition shall be suitably indicated and recorded. The meters shall operate with the power drawn from the VT secondary circuits, without the need for any auxiliary power supply. Each meter shall have a built-in calendar and clock, having an accuracy of 30 seconds per month or better."