

TPCODL

TP Central Odisha Distribution Limited

TPNODL

TP Northern Odisha Distribution Limited

TPSODL

TP Southern Odisha Distribution Limited

TPWODL

TP Western Odisha Distribution Limited

CENTRALIZED CONTRACTS GROUP**NIT No.: TPCODL/CCG/24-25/1000000629 Dated. 29.04.2024****Corrigendum- I****NIT No. : TPCODL / CCG / 24-25 / 1000000629 Dated. 29.04.2024****Rate Contract - Supply of Three Phase LTCT Smart Energy Meters for Tata Power Odisha Discoms****Dated 20th May 2024****Following changes in Calendar of Events in page no 6 of tender document is made;****1.3 Revised Calendar of Events:**

(b)	Date by which Interested and Eligible Bidder to pay Tender Fee and confirm participation as mentioned in "Procedure to Participate in Tender"	21.05.2024 [15:00 hrs]
(e)	Due date and time of receipt of Bids	28.05.2024 [15:00 hrs]
(f)	Date & Time of opening technical bids	28.05.2024 [15:30 hrs]

All other terms and conditions of the above tender shall remain unaltered.

Yours faithfully,**-sd-****Head-Contracts
CCG, Bhubaneswar**

Format for Pre-Bid Queries

Tender No: TPCODL / CCG / 23-24 / 100000629

Tender Description: Rate Contract - Supply of Three Phase LTCT Smart Energy Meter for Tata Power Odisha Discoms

Bidder :

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
1	2	3	4	5
1	GENERAL TECHNICAL REQUIREMENTS	4.04: Reference Conditions for testing the performance: Vref = 230 V, Frequency = 50Hz , Temperature= 27 °C	Vref=240V, we have type test and BIS of Vref=240V. So kindly accept the same	240V(Complying with 230V)
2	GENERAL TECHNICAL REQUIREMENTS	4.23: Self-Diagnostic feature The meter shall have indications on meter display, for anomaly/ unsatisfactory / non-functioning of (i) Real Time Clock (ii) Battery (iii) Non Volatile Memory (iv) Status of NIC	Meter have separate icon for indication of Communication status. Network signal strength status will be displayed as – Good, moderate, weak, no signal. NVM and Status of NIC is not available.	The meter will have indications on meter display & dump, for anomaly/ unsatisfactory / non-functioning of (i) Real Time Clock (ii) RTC battery.... single status of RTC OK/fail for Real time clock & RTC battery (iii) Memory status (iv) Battery status (v) NIC card status
3	GENERAL TECHNICAL REQUIREMENTS	4.31: Software and communication compatibility: The bidder shall supply software required for local (MRI – conventional/4G) & remote (AMI) connectivity including required training to use the software free of cost. Following parameters may be updated multiple times during life cycle of meters over the air : Post Paid to Prepaid mode and vice versa Import mode to export Mode and vice versa. Accordingly Display parameters shall be updated remotely.	LTCT meter will support only postpaid mode. Prepaid mode is not recommended/ supported in LTCT meters. Kindly accept the same.	Noted
4	GENERAL TECHNICAL REQUIREMENTS	4.38 Harmonic recording: The meter should record the current and voltage THD.The meter should record harmonics up to 20th harmonic Average THD of all phase for voltage THD and current THD. THD values shall have 30 minutes integration period in load survey.Accuracyof harmonics recording shall be as per meter accuracy class. The meter shall generate a flag/event whenever the threshold (user configurable) of the 5% THD of theload current and voltage is breached.	Kindly accept harmonics up to 15th harmonic average THD	Specification to be complied
5	GENERAL TECHNICAL REQUIREMENTS	4.39 Terminal Pin Arrangement Terminal Pin shall be 12 pin, zig-zag arrangement with Voltage terminal in between Current terminals	Terminal Pin will be 11 pin (2pin for neutral terminals) kindly accept the same.	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
6	GENERAL TECHNICAL REQUIREMENTS	4.40 Maximum size of meter 235x300x120mm (however, smaller size meter will be preferred maintaining the terminal sizing as per existing CT Unit.)	Meter size is 265 mm x 179 mm x 70 mm with Tolerance ±5mm. kindly accept the same.	Noted

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7	NIC MODULE DETAILS & INTEGRATION	<p>With the service providers offering 4G services, 1PWODL intends to leverage 4G as the primary communication technology with hot swappable 2G Interface Card as a fall back for meter data acquisition.</p> <p>a) The Network Interface Card for 4G shall be modular and pluggable. The NIC shall be interoperable for service provider</p> <p>b) NIC card shall support remote Device Management Capability such as Reset, Configuration, Log Check, Ping, and over the air Firmware upgrade</p> <p>c) NIC shall support two-way communications between smart meter & head-end system such as data exchange, configuration parameters exchange, alarms, operational commands, firmware upgrade of the meter as defined in IS16444 and IS15959.</p> <p>d) NIC shall support push services, alarms services of the smart meter as defined in IS16444 and IS15959.</p> <p>e) 4G NIC card shall support communication protocols as prescribed by 4G HES supplier.</p> <p>f) NIC shall also support on-demand / schedule reading, time sync, configuration and over the air firmware upgrade from the head-end system.</p> <p>g) NIC shall have persistent network connectivity throughout as defined by 4G standards. It shall support self-configuring features.</p> <p>h) NIC shall operate 24*7 and shall recover from any deadlock situation immediately in the field.</p> <p>i) Support for possibility for provision of a unique certificate/key in each card for mutual authentication with</p>	<p>The offered meter is with 4G comms only. Comms module does not have LED indication for System, Power ON indicator, Comms module status i.e installed, getting network, Latched with HES, Communication with HES. however comms status and signal status can be verified through display parameters and display icons.</p>	<p>Specification to be complied</p>
8	COMMUNICATION CAPABILITIES AND SOFTWARE FEASIBILITIES	<p>4.3.1 The meter shall have facilities for data transfer locally through Meter Reading Instrument (MRI) (Using optical port/NIC card) and remotely by 4G with proper security via Plug in type NIC. Data transfer locally through optical port via MRI is desired along with data transfer through NIC card. The data downloaded in MRI/hand held device shall be integrated to HES data base.</p>	<p>For local communication kindly accept BCS in place of CMRI application.</p>	<p>BCS Software & CMRI software to be provided by the bidder.</p>

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9	COMMUNICATION CAPABILITIES AND SOFTWARE FEASIBILITIES	<p>the meters in all database (at HES / MDM/ DCU level etc). However, it will be the responsibility of the Bidder to establish the complete communication solution involving all the meters in the system. Also, the Bidder must ensure that, the mode of communication used for RF shall be consistent with the Government of India stipulations. Bidder should come out with it requirements for integration of meter with HES and MDMS clearly during tender submission.</p> <p>4.3.16 Integration of meter software's with HES/MDMS for seamless transfer of data will also be in scope of bidder till the expiry of warranty of the meters. It is desired meter firmware up gradation/selection should be available over the air. Meter should be able to change to prepaid mode if required with firmware upgrade. The required firmware and any required support for integration with HES shall be provided free of cost till the useful life of the meter..</p> <p>4.3.17 Communication of the meter at optical port /OTA (NAN/WAN) should be as per IS 15959 (Part-2). The optical port should be with magnetic/ locking arrangement. ISM band of RF 865-867 MHz will be used for communication, in case of NAN (RF/RF mesh) based communication in the smart meter.</p> <p>4.3.18 Communication NIC/network should be immune with any external Magnetic field/ESD /Jammer/HV influence such that it shall not affect the normal overall functionality.</p> <p>4.3.19 Meter once powered up with NIC should be self-detected by NAN (RF/ RF Mesh)/ WAN (NB-IoT/ 4G) network and its basic name plate details, present billing</p>	<p>4.3.14 Our scope will be upto supply of meter, the integration of supplied meter with existing HES will be in scope of utility.</p> <p>4.3.16 LTCT smart meters are by default in postpaid mode. Prepayment option is not supported /recommended.</p> <p>4.3.20 OBIS codes are either as per DLMS or manufacturer specific. Kindly accept the same.</p> <p>Kindly accept the same.</p>	<p>There are different HES at Odisha Discoms. The bidder has to integrate with the HES & ensure the data model /profiles according to the requirement shared during detailed engineering.</p> <p>The required OBIS codes & profiles shall be shared by the Discoms to the bidder during integration of the SMART Meters.</p> <p>The bidder has to ensure avaiability of all the required parameters in the HES.</p> <p>Prepayment in LTCT meter is not required.</p>
10	COMMUNICATION CAPABILITIES AND SOFTWARE FEASIBILITIES	<p>4.3.21 Meter display should have provision for showing if NIC card if : 1. Installed, 2.Getting Network, 3. Latched with HES, 4. Communicating with HES</p> <p>4.3.24 Following parameters may be updated multiple times during life cycle of meters over the air : Post Paid to Prepaid mode and vice versa Import mode to export Mode and vice versa. Accordingly Display parameters shall be updated remotely.</p>	<p>4.3.21 In offered meter the status of NIC is shown over display in form of WAN icon.</p> <p>4.3.24 HTCT smart meters are by default in postpaid mode. Prepayment option is not supported /recommended.</p>	<p>NIC error codes -12nos. To be provided. Signal strngth (numerical value should be available in display & profile data</p>

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11	IMMUNITY AGAINST EXTERNAL INFLUENCING SIGNALS	<p>4.4.1 Magnetic Field: Meter shall record accurate energy in case of any external influencing signals in line with IS 13779:1999 Cl.11.2 and variation in limits of error (up to 100% I_{max}) shall be as per the table 17 of IS 14697. Meter shall preferred to be immune to magnetic field such that it shall not affect the normal overall functionality However, in case of abnormal magnetic field as defined below meter shall perform as per the following actions:</p> <p>a. Meter shall log the event in memory as “MAGNET” with date and time stamp, the event logging threshold values as per table no.1 in 4.5 b. The energy recording to shift on I_{max}, V_{ref} with UPF c. Snapshot parameter should show the I_{max} Current in Phase and Actual Current in Neutral</p> <p>Abnormal Magnetic field is defined as below; a. Continuous DC magnetic induction: >0.20 Tesla ± 5% (Value of applied Magneto Motive Force shall be generally >10000 AT. b. AC magnetic induction: >10 milli Tesla (if produced with circular metal core with square cross section with 2800AT as specified in CBIP-325 latest version) c. Permanent Magnet: Immune up to 0.5T and Event logging >0.5T.</p>	<p>4.3.1 Whenever the meter functionality gets affected on account of magnetic field, meter log it as an event and recording starts on I_{max} or it remains immune. Same shall be logged with date & time stamp. Meter will log suitable abbreviation for Magnet event in meter memory. Kindly accept the same.</p>	As per CBIP 325
12	IMMUNITY AGAINST EXTERNAL INFLUENCING SIGNALS	<p>4.3.2. Electrostatic Discharge (ESD) Meter shall preferred to be immune up to 50kV and shall record accurate energy as per IS 14697:1999/CBIP-325. Meter shall log the event in memory as “ESD” with date & time stamp for any ESD greater than 50kV with snap shot the event logging threshold values shall be as per table no. 1 in 4.5</p> <p>4.3.3 The shielding around the meter shall be such that it does not get affected by High Voltage and High Energy or Low Energy Impulse when comes in contact with meter from any side. 4.3.4 Meter should be immune to high/low frequency Jammer devices. Meter shall log the event in its memory as “JAMMER” with date and time stamp, the threshold values shall be as per table no. 1 in 4.5. 4.3.5 The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like Magnetron etc. the threshold values shall be as per table no. 1 in 4.5.</p>	Meter is immune up to 35 kV ESD however event logging is not available.	As per CBIP 325

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13	Neutral Disturbance & other tampers	<p>4.4.1 The meter shall not saturate on passage of direct current, which can cause the meter either to stop recording/ record inaccurately. DC injection shall be tested both in phase and neutral. Measurement by meter shall not get influenced by injection of Chopped signal/ DC signal/ DC pulse upto 330V and for any value beyond this. Meter shall log the event into memory as 'Neutral Disturbance' with date & time stamp the thresholds are as per table no. 1 in 4.5</p> <p>4.4.2 The meter should log event with snapshot when all three phase currents are zero and neutral current is present.</p> <p>4.4.3 Aneventtobeprovidedforinvalidphaseassociationwithname'I nvalidphase association'</p>	In such condition meter will be either immune or log the ND event.	Specification to be complied
14	Abnormal Tamper conditions	4.5.2 For all tamper events the time stamp and snapshot parameters shall be recorded at the start time of event for occurrence (T1) and for restoration the time stamp and snapshot parameters shall be recorded at the end time of the event (T3).	Snapshot will be recorded after confirmation of event (Persistence time) of occurrence and restoration.	Specification to be complied
15	Abnormal Tamper conditions	ESD/JAMMER Threshold Value for Occurrence of Events: Immunity up to 50KV with NIC and logging of event>50KV	Meter is immune up to 35 kV ESD however event logging is not available.	As per CBIP 325
16	Abnormal Tamper conditions	MAGNET	For Occurrence : Whenever the meter functionality gets affected on account of magnetic field, meter log it as an event and recording starts on I _{max} or it remains immune. For Restoration : On removal of magnetic field	As per CBIP 325
17	Abnormal Tamper conditions	Voltage Unbalance Threshold Value for Occurrence of Events: 20% or more between the phases and current > 2% I _{basic} Threshold Value for Restoration of Events: Shall be less than 10 % between the phases and current > 2% I _{basic}	For voltage unbalance line current is ignored for occurrence and restoration.	Specification to be complied
18	Abnormal Tamper conditions	CT Open Threshold Value for Occurrence of Events: I _r + I _y + I _b + I _n >=10% of I _{basic} (vector Sum) AND Phase current < 1% of I _{basic} with All current positive Threshold Value for Restoration of Events: I _r +I _y +I _b +I _n <5 % of I _{basic} . (vector Sum) AND Phase current > 10% of I _{basic} with All current positive	For CT open event Threshold Value for Restoration of Events: I _r +I _y +I _b +I _n <10 % of I _{basic} . (vector Sum) AND Phase current > 10% of I _{basic} with All current positive	Specification to be complied
19	Abnormal Tamper conditions	CT Reversal Threshold Value for Occurrence of Events: Active current negative Threshold Value for Restoration of Events: Active current positive AND > 2 % I _{basic}	Threshold Value for Restoration of Events: Active current positive AND > 10 % I _{basic}	Specification to be complied
20	Abnormal Tamper conditions	Current Unbalance	For Occurrence : Current difference > 10% between Phases and I _{min} 10% of I _{basic} For Restoration : Current difference < 5% between the phases and I _{min} >10% of I _b	Specification to be complied

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21	Abnormal Tamper conditions	Low Power Factor Threshold Value for Occurrence of Events: I >1% of Ib and Power Factor <=0.5 in any phase Threshold Value for Restoration of Events: I >1% of Ib and Power Factor >=0.7 in respective phase	For Occurrence : Power Factor < 0.5 in any phase For Restoration : Power Factor > 0.5 in respective phase	Specification to be complied
22	Abnormal Tamper conditions	Neutral Disturbance Threshold Value for Occurrence of Events: Voltage >145% of Vref & Current >10% Ib OR Frequency < 47 Hz OR Frequency > 53 Hz OR DC voltage / signal/ pulse/ chopped signal injection Threshold Value for Restoration of Events: Voltage <115% of Vref&Current > 10% Ib AND Frequency > 47 Hz OR Frequency < 53 Hz	For occurrence: In case meter is get affected by external signal injection (chopped DC, Chopped AC & Dc injection through diode) or both active. For restoration: If neutral is restored and meter is in normal condition	Specification to be complied
23	Abnormal Tamper conditions	Microwave	Event logging for Microwave is not available. Kindly accept the same.	This clause is deleted
24	Abnormal Tamper conditions	NO DISPLAY	Event logging for NO DISPLAY is not available. Kindly accept the same.	This clause is deleted
25	Abnormal Tamper conditions	Temperature Rise Threshold Value for Occurrence of Events: Temperature >70 C Threshold Value for Restoration of Events: Temperature <60 C	Threshold Value for Restoration of Events: Temperature <70 C	Specification to be complied
26	Abnormal Tamper conditions	PhSeq	Event logging for PhSeq is not available as meter will be immune to the same. Kindly accept the same.	Noted
27	Abnormal Tamper conditions	4.5.12 The Meter Shall be able to differentiate between actual CT reversal and condition arising out of unbalanced / unhealthy capacitor bank. The logics for the same to be provided in tender samples also.	For Occurrence : CT polarity reversal For Restoration : Correct CT polarity Kindly accept the same	Specification to be complied
28		1. Measurement/ computing chips : The Measurement/ computing chips used in the meter should be with the Surface mount type along with the ASICs USA: Analog Devices, Cyrus Logic, Atmel, Phillips, Free scale semiconductor, Texas Instruments, ST Microelectronics South Africa: SAMES Japan: NEC, Renesas	any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
29		2. Memory chips/NVM The memory chips should not be affected by the external parameters like sparking, high voltage spikes or electrostatic discharges. The life of NVM shall be 15 years. USA: Atmel, National Semiconductors, Texas Instruments, Phillips, Microchip Japan: Hitachi or Oki Swiss: STMicro	ST Micro or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied

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30	General Constructions.	<p>3. Display modules The display modules should be well protected from the external UV radiations. The display visibility should be sufficient to read the meter mounted between height of 0.5m and 2m. The construction of the modules should be such that the displayed quantity should not disturbed with the life of display. Should be with Green LED background. It should be trans-reflective STN type industrial grade with extended temperature range.</p> <p>Taiwan: Holtek Singapore: Bonafied Technologies Korea: Advantek China: Xiamen, Truly semiconductor</p>	Tianma Microelectric or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
31		<p>4. Optical port Optical port should be used to transfer the meter data to meter reading instrument. The mechanical construction of the port should be such to facilitate the data transfer easily. It should be magnetic locking type.</p> <p>USA: National Semiconductors Holland / Korea: Phillips Taiwan: MAXIM, Everlight, Japan: Hitachi</p>	Everlight or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
32		<p>5 P.C.B. Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm</p> <p>A class consumer</p>	any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
33		<p>6. Electronic components The active & passive components should be of the surface mount type & are to be handled & soldered by the state of art assembly processes.</p> <p>USA: National Semiconductors, Atmel, Phillips, Texas Instruments, Vishay Japan: Hitachi, Oki, AVX or Ricoh Korea: Samsung</p>	any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
34		<p>7. Battery Lithium with guaranteed life of 15 years</p> <p>Varta / Tedirun / Vitzrocell / Sanyo.</p>	any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
35		<p>8. Micro controller and RTC having separate battery The accuracy of RTC shall be as per relevant IEC / IS standards and RTC shall be provided with separate battery in its ckt. The micro controller shall be of superior quality from reputed make with long life.</p> <p>USA: Philips , Dallas, Atmel, Motorola, Texas Instruments, ST Microelectronics Japan: NEC or Oki, Renesas</p>	NXP or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied

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36		5.1.1 Meter body shall be made of unbreakable,high grade,fire retardant reinforced Insulating material (protective Class II) with FV0 Fire Retardant, self - extinguishing, UV stabilize, recyclable and Anti oxidation properties.	Meter body is complying with V2 grade however terminal block is complying with FV0 grade	Specification to be complied
37		5.1.2 The minimum thickness of the meter enclosure shall be 2mm.	T thickness of the meter enclosure will be 2±0.2 mm. Kindly accept the same.	Specification to be complied
38		5.1.3 Meter base shall be opaque with VIRGIN POLYCARBONATE LEXAN 500R or Lexan 500R compared with the alternative material, on prior approval from the TPWODL. (the bidders should submit material data sheet in technical bid)	Meter base will be of PC-FR material. Kindly accept the same.	Specification to be complied
39	Meter Body	5.1.4 Meter cover shall be transparent with VIRGIN POLYCARBONATE LEXAN 143R/943A or equivalent on prior approval from the TPWODL. (Bidders should submit material data sheet in technical bid).	Meter cover will be of PC-FR material. Kindly accept the same.	Specification to be complied
40		5.1.5 Meter cover & base shall be provided with CONTINUOUS AND SEAMLESS ULTRASONIC WELDING such that it cannot be opened without breaking the enclosure. Front cover & base shall be such that it is not possible to cut & open the meter without certainly damaging the meter body and by no means shall an attempt to reassemble would not leave physical evidence. The damage evidences should be visible externally& should be traceable in such a way that attempts can be proved in court of law.	Meter have seamless Chemical welding between base and cover with break to open feature. It also have sealing provision. Kindly accept the same	Specification to be complied
41		5.1.8 Unidirectional screws to be used on meter covers where ever required.	Meter have seamless Chemical welding between base and cover with break to open feature. It also have sealing provision. Kindly accept the same	Specification to be complied
42		5.2.4 The terminal block shall be of opaque with VIRGIN POLYCARBONATE LEXAN500R or equivalent first use material (complying with above requirement) on prior approval from the TPWODL. (the bidders should submit the relevant material data sheet in technical bid)	Meter terminal will be of PC-FR material. Kindly accept the same.	Specification to be complied
43	TERMINALS, TERMINAL BLOCK	5.2.12 Meter terminal should have 12 pins, zig zag arrangement. The terminals should have center to center distance of 11.5mm.	Terminal Pin will be 11 pin (2pin for neutral terminals) kindly accept the same.	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
44		5.2.13 Pin configuration shall be R-Cin, R volt, R-Cout, Y-C	5.2.13 Pin configuration (11 PIN) will be R-Can, R volt, R-Cout, Y-Can, Y volt, Y-Cout, B-Can, B-volt, B-Cout, N-in, N-out. Kindly accept the same.	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
45		5.2.14 The preferred meter size shall be HxWxT= 235x300x120mm.	Meter size is 265 mm x 179 mm x 70 mm with Tolerance ±5mm. kindly accept the same.	Noted
46	TERMINAL COVER	5.3.1 Terminal cover shall be short type (25-30mm) and shall be transparent with VIRGIN POLYCARBONATE LEXAN 143R/943A on prior approval from the TPWODL (the bidders should submit the relevant material data sheet in technical bid)	Terminal cover will be of PCFR. Kindly accept the same.	Specification to be complied

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47		5.3.3 The terminal cover design should be such that the sealing screw locking provision on cover should have min. dimension of 3mmx3mm. (Excluding seal lock hole).	Kindly explain the requirement	Specification to be complied
48	SEALING OF METER	5.4.2 For this, one no. Polycarbonate seal and three no. Hologram seal (on Left, Right & Top side) shall be provided by the bidder.	Meter have provision for 2nos. Sticker seal on Left, Right. Kindly accept the same.	Specification to be complied
49	MD INTEGRATION	The MD integration period shall be 15 minutes (integration period shall be programmable by MRI/HHU at site and also through HES with adequate security level). The MD resetting shall be automatic at the 1st of the month i.e. 0000 hours of 1st day of the month. Manual MD reset button shall not be available. Last twelve MD values shall be stored in the memory MD shall be recorded and displayed with minimum three digits before decimal and minimum two digits after decimal points. MD integration shall be of sliding type at an interval of 10 min.	As the MD integration period is 15 min so the sliding MD will be 5 min.	MD Integration period 15mins/30mins programmable. In case of sliding interval is 5 minutes for 15 minutes MD IP and sliding interval of 10 minute for MD IP 30 minutes
50	LOAD SURVEY (FOR PRE-PAID, POST-PAID METER MODE)	The meter shall be capable of recording 15 minutes average of the following parameters for at least last 45 days a) Voltage for each phase b) Current of each phase c) Actual Neutral current d) Average PF e) Average kWh f) Average kVAh (lag only) g) kVArh(Lagging) h) kVArh(Leading) i) Demand KW j) Demand KVA k) THD Voltage phase wise l) THD Current phase wise Meter shall be capable of recording daily Energy and Demand 00:00 to 24:00 Hrs kWh/kVAh, kW/kVA for 45 days. Midnight energy value of cumulative kWh, KVAh and daily consumption kWh/KVAh should be available in meter memory for last 45 days. Load survey data should be at least with 5 decimal place	Daily consumption kWh & kVAh is not available in midnight energy however same will be logged in meter billing parameters. Load survey data will be upto 2 decimal point. Kindly accept the same.	Specification to be complied

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51		Meter shall be capable for following Instantaneous Parameters in Memory and should be available in BCS. Meter Sr. No. Meter Type 3P 4W LTCT Meter date & Time DD MM YYYY HH MM SS Voltage -R 000.000V Voltage -Y 000.000V Voltage -B 000.000V Line Current -R 00.000A Line Current -Y 00.000A Line Current -B 00.000A Actual Neutral Current 00.00A Active Current -R 00.000A Active Current -Y 00.000A Active Current -B 00.000A Reactive Current-R 00.000A Reactive Current-Y 00.000A	voltage -R 000.00V Voltage -Y 000.00V Voltage -B 000.00V Line Current -R 00.00A Line Current -Y 00.00A Line Current -B 00.00A Active Current -R 00.00A Active Current -Y 00.00A Active Current -B 00.00A Reactive Current-R 00.00A Reactive Current-Y 00.00A Reactive Current-B 00.00A Power factor-R 0.00 Power factor-Y 0.00 Power factor-B 0.00 Average Power factor 0.00 Instantaneous Frequency 00.00Hz Instantaneous Load Active, Reactive Lag/Lead, Apparent Present Cumulative Energy Active, Reactive Lag/Lead, Apparent Cumulative Power Off Duration 00000 Cumulative Power ON Duration 00000 Cumulative Tamper count 00000 Cumulative Billing Count 00000 Billing date DD:MM:YYYY No of Power failure Vector/Phasor diagram (also showing neutral current) in case one of the voltage is missing, vector should be made with 2 phase voltage and all currents	Specification to be complied
52	INSTANTANEOUS PARAMETERS	Reactive Current-B 00.000A Power factor-R 0.000 Power factor-Y 0.000 Power factor-B 0.000 Average Power factor 0.000 Instantaneous Frequency 00.000Hz Instantaneous Load Active, Reactive Lag/Lead, Apparent Present Cumulative Energy Active, Reactive Lag/Lead, Apparent Cumulative Power Off Duration 00000 Cumulative Power ON Duration 00000 Cumulative Tamper count 00000 Cumulative Billing Count 00000 Billing date DD:MM:YYYY No of Power failure Vector/Phasor diagram (also showing neutral current) in case one of the voltage is missing, vector should be made with 2 phase voltage and all currents	Billing date : Same will be available in Billing Parameter.	Specification to be complied
53	GENERAL INFORMATION	Meter shall be capable for providing below mentioned general parameters in memory 1. Meter Serial number 2. Firmware Version 3. Manufacture Name 4. Manufacture Date (YYYY) 5. Meter Type 6. Meter Class 7. Meter Constant 8. Meter Voltage Rating 9. Meter Current Rating 10. TOD profile showing timing and seasons 11. NIC Sr. No. 12. NIC Make # If any additional key is required to see this value, it should be provided without any additional cost to TPWODL.	NIC serial number is not available as NIC serial no will be same as meter serial no with prefix 'H' NIC make is Secure make, so it will not be available separately. In TOD profile time and seasons are not available on meter display/ BCS.	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
54	Billing Parameters	<p>1) Cumulative kWh, kVAh (lag only), kVArh lead, lag (all import and export) and TOD1kWh,TOD2 kWh, ,TOD1 kVAh (lag only),TOD2 kVAh (lag only),. For present and last 06 Resets (reset date for all resets/history, time zone register wise)</p> <p>2) Maximum Demand Absolute Active Load and Absolute Apparent load and TOD1 kW,TOD2 kW,TOD3 kW,TOD1 kVA (lag only),TOD2 kVA (lag only), for present and last 06 Resets (reset date for all resets/history, time zone register wise) along with date and time stamp.</p> <p>3) Billing Dates (6 History)</p> <p>4) Cumulative Billing count</p> <p>5) TOD details with day time and season wise.</p> <p>6) Monthly power On/Off hours</p> <p>Last five modes with date & time of switching with cumulative energy parameters kWh, kVAh (lag only), kVArh lead, lag (all import and export) and TOD1 kWh,TOD2 kWh,TOD1 kVAh (lag only),TOD2 kVAh (lag only),.</p>	In TOD profile time and seasons are not available on meter display / BCS..	Specification to be complied
55	DISPLAY UNITS	<p>The display unit shall be Pin type built-in liquid crystal display (Permanently backlit type LCD). The LCD shall be of STN (Super Twisted Nematic) construction suitable for maximum temperature withstands 65°C and minimum temperature withstands 0°C during normal operating condition. The LCD display shall have a wide viewing angle of 120 degree. When the meter is not energized the electronic display need not be visible. The display shall not be affected by electrical, magnetic disturbances and ESD. The display should be readable in direct sunlight. The back lit must be green in color for good visibility of digits in sunlight. The kWh & kVAh register shall have minimum 8 digits LCD display and size of the digits shall be minimum 10mmx5mm. Cumulative energy (kWh & kVAh) shall be displayed without decimal in auto scroll mode. (However decimal shall be available in push button mode for high resolution display for testing)</p>	<p>viewing angle will be :</p> <p>50 degree from 6 o'clock</p> <p>30 degree from 3 o'clock</p> <p>10 degree from 12 o'clock</p> <p>30 degree from 9 o'clock</p> <p>Kindly accept the same.</p>	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
56	Auto Scroll mode	<p>Values followed by header shall be avoided. (I.e. if MD1 is displayed in Auto scroll mode, Header (MD1) and value (say 025.238 kW) shall be shown simultaneously; it shall not be shown in successive displays. Off time shall not be available in auto scroll mode between each cycle. Auto scroll mode is restored after 10 sec, if push button is not operated.</p> <p>Display should not be stuck for any tamper events. The cumulative energies shall not have any decimal value.</p> <p>Following shall be continuously displayed in auto scroll and push button mode in the given order;</p> <p>Sr. No. Auto Scroll Display</p> <p>1 LCD CHECK</p> <p>2 Meter Sr. No.* > Complete Meter Serial no. should be there in single shot.</p> <p>3 dd:mm:yy Date</p> <p>4 hh:mm:ss Time</p> <p>5 C (T1+T2) kWh Current Cumulative kWh</p> <p>6 C (T1+T2) kVAh (lag only) Current Cumulative kVAh</p> <p>7 C kVArh lag Current Cumulative kVArh(lag).</p> <p>8 C kVArh lead Current Cumulative KVArh(lead).</p> <p>9 Individual cumulative kWh for T1,T2</p> <p>10 Individual cumulative kVAh (lag only) for T1,T2</p> <p>11 Current MD – kW</p> <p>12 Current MD - kVA</p> <p>13 b 1 KWh kWh reading on 1st of last month at 00.00 hrs.</p> <p>14 b 1 Individual cumulative kWh for T1,T2 for last month</p> <p>15 b 1 MD in kW on 1st of last month at 00.00 hrs</p>	<p>Phase sequence voltage is available instead of Voltage Sequence (R-Y-B) and Current Sequence (R-Y-B).</p> <p>Kindly accept the same.</p>	<p>Specification to be complied</p>
57	Auto Scroll mode	<p>16 b 1 kVAh(lag only) reading on 1st of last month at 00.00 hrs.</p> <p>17 b 1 Individual cumulative kVAh (lag only) for T1,T2 for last month</p> <p>18 b 1 MD in kVA reading on 1st of last month at 00.00 hrs</p> <p>19 b 1 Avg. pf</p> <p>20 Cumulative Billing count</p> <p>21 U1 V R Phase Voltage (Instantaneous value).</p> <p>22 U2 V Y Phase Voltage (Instantaneous value).</p> <p>23 U3 V B Phase Voltage (Instantaneous value).</p> <p>24 A1 A R Phase Current (Instantaneous value).</p> <p>25 A2 A Y Phase Current (Instantaneous value).</p> <p>26 A3 A B Phase Current (Instantaneous value).</p> <p>27 Instantaneous power factor</p> <p>28 Instantaneous load in KW</p> <p>29 Instantaneous load in KVA</p> <p>30 Voltage Sequence R,Y,B</p> <p>31 Current Sequence R,Y,B</p>	<p>Phase sequence voltage is available instead of Voltage Sequence (R-Y-B) and Current Sequence (R-Y-B).</p> <p>Kindly accept the same.</p>	<p>Specification to be complied</p>

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
58	Push button Scroll mode	<p>Following parameters shall be displayed in Push button mode in the given order.</p> <p>Sr. No. Push Button Display</p> <p>1 LCD CHECK</p> <p>2 Meter Sr. No.* > Complete Meter Serial no. should be there in single shot.</p> <p>3 dd:mm:yy Date</p> <p>4 hh:mm:ss Time</p> <p>5 C (T1+T2) kWh Current Cumulative kWh</p> <p>6 C (T1+T2) kVAh (Lag only) Current Cumulative kVAh</p> <p>7 C kVArh lag Current Cumulative kVArh(lag).</p> <p>8 C kVArh lead Current Cumulative kVArh(lead).</p> <p>9 Individual cumulative kWh for T1,T2</p> <p>10 Individual cumulative kVAh(Lag only) for T1,T2</p> <p>11 Current MD – kW</p> <p>12 Current MD - kVA (lag only)</p> <p>13 b 1 kWh kWh reading on 1st of last month at 00.00 hrs.</p> <p>14 b 1 Individual cumulative kWh for T1,T2 for last month</p> <p>15 b 1 MD in kW on 1st of last month at 00.00 hrs.</p> <p>16 b 1 kVAh (Lag only) reading on 1st of last month at 00.00 hrs.</p> <p>17 b 1 Individual cumulative kVAh(Lag only) for T1,T2 for last month</p> <p>18 b 1 MD in KVA on 1st of last month at 00.00 hrs</p>		Specification to be complied
59	Push button Scroll mode	<p>19 b 1 Avg. pf</p> <p>20 Cumulative Billing count</p> <p>21 U1 V R Phase Voltage (Instantaneous value).</p> <p>22 U2 V Y Phase Voltage (Instantaneous value).</p> <p>23 U3 V B Phase Voltage (Instantaneous value).</p> <p>24 A1 A R Phase Current (Instantaneous value).</p> <p>25 A2 A Y Phase Current (Instantaneous value).</p> <p>26 A3 A B Phase Current (Instantaneous value).</p> <p>27 Pr PF Instantaneous power factor for individual phases R,Y,B</p> <p>28 Pr kW Instantaneous load in kW</p> <p>29 Pr kVA Instantaneous load in kVA</p> <p>30 Voltage phase sequence R, Y, B</p> <p>31 Current phase sequence R, Y, B</p> <p>32 In High resolution Cumulative kWh</p>	Phase sequence voltage is available instead of Voltage Sequence (R-Y-B) and Current Sequence (R-Y-B) Kindly accept the same.	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
60	Push button Scroll mode	33 In High resolution Cumulative kVAh (lag only) 34 In High resolution Cumulative kVArh Lag 35 In High resolution Cumulative kVArh Lead 36 MAG 00 (cumulative count) 36a Date of last occurrence 36b Time of last occurrence 37 ESD 00 (cumulative count) 37a Date of last occurrence 37b Time of last occurrence 38 TC OPEN 00 (cumulative count) 38a First occurrence date 38b First occurrence time 39 Total tamper count 0000	Following displays are not available: 36a Date of last occurrence 36b Time of last occurrence 37 ESD 00 (cumulative count) 37a Date of last occurrence 37b Time of last occurrence 38 TC OPEN 00 (cumulative count) 38a First occurrence date 38b First occurrence time However meter have separate display to show status of present tamper . Kindly accept the same.	Specification to be complied
61	OUTPUT DEVICE	5.9.1 Pulse Rate: The meters shall have a suitable test output device. 2 nos. of Red color blinking LED (marked as imp/kWh and imp/kVArh) shall be provided in the front. This device shall be suitable for using with sensing probe used with test benches or reference standard meters. The test output device shall have constant pulse rate of (preferred value- 400) pulse / kWh & pulse/kVArh. Meter constant shall be indelibly printed on the name plate as imp / kWh & imp/kVArh. Meter constant shall be as per actual without multiplying factor. 5.9.2 Communication LCD indicator: The meter shall be provided with with suitable LCD indication for communication in progress. 5.9.3 Phase Indication: Individual phases should be displayed on LCD display of meter	5.9.1 The offered meter is a CT meter, the pulse count/meter constant depends on CT commissioning. 5.9.2 The communication indicator may have any suitable icon.	Specification to be complied
62	NAME PLATE AND MARKING	Meters shall have a name plate clearly visible and effectively secured against removal. The name plate data should be laser printed. The base color of Name plate shall be blue (as of TPWODL logo) indelibly and distinctly marked with all essential particulars as per relevant standards along with the following, i. Manufacturer's name ii. Type designation iii. Number of phases and wires iv. Serial number (Meter serial number shall be laser printed on name plate instead of sticker). v. Month and Year of manufacture (MM/YYYY) vi. Unit of Measurement vii. Reference Voltage & Frequency viii. Ref. temperature if different from 27 deg. C ix. Rated Basic and Maximum Current x. Meter Constant (imp/kWh & Imp/kVArh) xi. 'BIS' Mark xii. Class index of Meter xiii. "Property of TPWODL" xiv. Purchase Order No. & date xv. Guarantee period	The name plate information is laser printed on meter case . In black color. Communication Tech for WAN (with carrier frequency) will be printed on comms module. Barcode will have meter serial number only. NIC have following information printed in it's body: 1. Type Code 2. Gateway Number 3. Communication technology with carrier frequency.	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
63	NAME PLATE AND MARKING	<p>xvi.Rated frequency xvii.Sign of double square xviii.Country of manufacture. xix.Firmware version for meter xx.Category xxi.Communication Tech for WAN and NAN(with carrier frequency) xxii.Communication Technology is IHD supported (with carrier frequency). However the following shall be printed in bar code on the meter nameplate.(shall be laser printed on name plate instead of any sticker). 1) Manufacturer's code No.(given by TPWODL) 2) Meter Sr. No 3) TPWODL Property 4) Month/Year of manufacture. The PCB Serial number should be printed on PCB instead of sticker. Content Format for barcode: TPWODLMMYXXXXXXXXXX(9-digitSerialno.) Bidder should ensure that each NIC provided in meters are having laser printed Sr. No., MFG date, 'Property of TPWODL' marked, PO date and no. (same as that of meter PO)</p>	<p>xxii.Communication Technology IHD supported (with carrier frequency) is not available as meter does not support IHD.</p> <p>There is no provision of printing PCB serial no. Kindly accept the same.</p>	Specification to be complied
64	TYPE TEST	<p>1) All tests as defined in IS 16444 part-2 and IS 15959(Part-3):2016 2) Test against abnormal magnetic influence as per CBIP TR 325. 3) Smart meter communicability as per 15959 part-3 4) Meter shall be type tested as per BIS16444 part-2</p>	<p>We have type test report as per IS16444 and IS15959 only. CBIP 325 report is not available. For abnormal magnetic influence both IS14697 and CBIP have same limits and thresholds so there is no need to have separate report as per CBIP325. Kindly accept the same.</p>	Specification to be complied
65	ROUTINE TEST	<p>1) AC High Voltage test 2) Insulation test 3) Test on limits of error 4) Test of starting current 5) Test of no load condition 6) Communication check of NIC</p>	<p>Communication check of NIC is not covered in routine test. It is the part of final quality test. Kindly accept the same.</p>	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
66	TYPE TEST CERTIFICATE	<p>The bidder shall furnish the Type Test & BIS Certificates of the meter for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at CPRI/ ERDA/ UL laboratory as per BIS 16444 part-2. For communication testing any national approved laboratory or international acclaimed lab or equivalent will also suffice at the discretion of TPWODL.</p> <p>For technical evaluation of the tender, Type Test Report as per IS 14697 may be considered. In such case the Bidder should provide IS16444-2 compliant Type Test Report & BIS Certificate before starting of supply of meters. Type test should have been conducted in certified Test Laboratories during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPWODL.</p>	We have type test report as per IS16444 and IS15959 from NABL accredited laboratory YMPL. Kindly accept the same.	Noted
67	GUARANTEE	<p>Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the TPWODL up to a period of at least 60 months from the date of commissioning or 66 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Company, failing which the TPWODL will be at liberty to get it replaced/rectified at bidder's risks and costs and recover all such expenses plus the Company's own charges (@ 20% of expenses incurred), from the bidder or from the "Security cum Performance Deposit" as the case may be.</p>	Warranty of meters will be 66 month from the date of supply. Kindly accept the same.	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
68	PACKING	<p>1. Bidder shall ensure that all material covered under this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit. The material used for packing shall be environmentally friendly. Packing and transportation shall be as per IS 15707:206 clauses 9.1 and 9.2.</p> <p>2. Individual meter should be packed in separate box. Routine test report (with manufacturing company logo) of the individual meter shall be kept inside each card board carton of the meter.</p> <p>3. On back side of routine test certificate(RTC) the bidder shall print a picture of the meter with its small details like for consumer to know about meter or display parameters sheet.</p> <p>4. The softcopy of the routine test certificate of each meter to be provided with each lot to TPWODL, MMG stores.</p>	RTC dos not have any picture however it have information about meter serial no.	Routine test certificate hard copy & sft copy to be provided
69	Quality control	<p>The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished.</p> <p>Quality should been sured at the following stages: At PCB manufacturing stage, each board shall be subjected to computerizedbare board testing. At insertion stage, all components should under go computerized testing for conforming to design parameter and orientation. CompleteassembledandsolderedPCBshouldundergofunction altestingusing Automatic Test Equipment (ATEs). Prior to final testing and calibration, sample meters shall be subjected to aging test (i.e. meters will be kept in ovens for 24 hours at 55 Deg. C temperature and atmospheric humidity under real-life condition at its full load current. After 24 hours meter should work satisfactorily.</p>	Aging test is not performed in our manufacturing process. However we are following our standard manufacturing practices for production.	Specification to be complied
70	SPARES, ACCESSORIES ANDTOOLS	<p>1. Bidder to be provide free of cost 02 nos of jig (irrespective of order lot)forretrieving data from memory of meter with every new design of meter in whichprevious jig is supplied cannot be used. Jig should be such that NVM can be push fit on this jig and data can be retrieve from this NVM.</p> <p>2. Five (5) nos. of optical cord againsteach 100 meter lot pro-rata basis for retrieving the data of meter through optical port should be provided, if design of optical port is changed from those of previously supplied meters</p>	We are not recommending opening of meters on field and we will not providing zig to TPNODL. Data retrieval can be done at our works.	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
71	SCOPE	This specification covers the technical requirements of design, manufacturing, testing at manufacturer's works ,packing, forwarding, supply and unloading at store/site of Three phase four Wire, 100/5A, 200/5A and 400/5A all types of LTCT Meter Boxes along with respective resin cast CT with bar primary,		
72	For Polycarbonate enclosure	Material a) Base : Virgin Polycarbonate equivalent to Lexan 943 A or Makrolon 6457/6557,transparent b) Cover: Polycarbonate equivalent to Lexan 943 A or Makrolon 6457/6557, clear transparent For 400/5A LTCT Meter box: SMC/ Virgin Polycarbonate equivalent to Lexan 943A (subject to prior sample approval)	We will offer the SMC type Double Compartment Meter Box having one compartment to accommodate meter and the other compartment will accommodate the ring type resin cast CT's, SMC Box Dimension: 850±50 x 350±50 x 250±20 mm	Meter Box & CTs are not covered in the scope
73	For Polycarbonate enclosure	Dimensions For LTCT Non-smart Meter Boxes: 100/5A and 200/5A: Length- 350mm+2%, Depth- 230 ± 2% mm and Breadth- 650 ±2% mm 400/5A: Length- 860mm+2%, Depth- 250 ± 2% mm and Breadth- 450 ±2% mm For LTCT Smart Meter Boxes: 100/5A and 200/5A: Length- 350mm+2%, Depth- 260 ± 2% mm and Breadth- 700 ±2% mm 400/5A: Length- 860mm+2%, Depth- 270 ± 2% mm and Breadth- 450 ±2% mm		
74	For Current Transformers	Pin-configuration For LTCT Non-smart Meter Boxes: 100/5A, 200/5A and 400/5A: 12-pin zigzag (dimension should be as per the meter sample) For LTCT Smart Meter Boxes: 100/5A and 200/5A: 12-pin zigzag (dimension should be as per the meter sample) 400/5A: 12-pin zigzag (dimension should be as per the meter sample)	We will offer the thread through type, ring type resin cast LTCT's.	Meter Box & CTs are not covered in the scope
75	For Current Transformers	Bus-bar size 100/5A: 20mmX5mm (100 sq. mm min). 200/5A: 25mmX8mm (200 sq. mm min). 400/5A: 40mmX8mm (320 sq. mm min). All bus-bars shall have extended length of 50 mm at top, above box and 70 mm at lower end, below box.		

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
76	NAME PLATE AND MARKING	<p>The equipment shall be provided with durable and legible name plate, effectively secured against removal. Name plate shall be embossed with "RC/PO & RO No. with date", "PROPERTY OF TPWODL", "ITEM CODE NUMBER".</p> <p>The name plate shall be indelibly and distinctly marked with all essential particulars as per the relevant standards along with the following information :</p> <p>a. Manufacturer's name b. Unique Serial number c. Month and Year of manufacture (MM/YYYY) d. Guarantee period e. Rated CT ratio f. No supply number : 19124 / 1800-208-9124 g. Property of TPWODL</p>	<p>Name Plate Marking: For Meter Box a. Manufacturer's name b. Guarantee period c. No supply number : 19124 / 1800-208-9124 d. Property of TPWODL</p> <p>For LTCT : All the mentioned information will be available.</p>	Meter Box & CTs are not covered in the scope
77	(TPCODL/CCG/24-25/100000629) / Cl. No. 1 / Pg no. 29 of 321	<p>SCOPE: This specification covers the technical requirements of design, manufacturing, testing at meter manufacturer's works ,packing, forwarding, supply and unloading at store/site of three phase four Wire,3x230 voltage, 100/5A, 200/5A current transformer</p>	Kindly accept the tender samples with current rating -/5A. Kindly also provide clarity on meter current ratio requirements.	Noted. The different current ratio requirement is required to match with that of the external CTs, to ensure Multiplying factor 1 for billing purpose.
78	(TPCODL/CCG/24-25/100000629) / Cl. No. 4(4.38) & 5.7.1 / Pg no. 34 & 49 of 321	<p>General Technical requirements: Harmonics recording: The meter should record the current and voltage THD. The meter should record harmonics up to 20th harmonic Average THD of all phase for voltage THD and current THD. THD values shall have 30 minutes integration period in load survey. Accuracy of harmonics recording shall be as per meter accuracy class.</p> <p>Load survey (for pre-paid & postpaid meter mode): The meter shall be capable of recording 15 minutes average of the following parameters for at least last 45 power ON days</p>	As per clause 4(4.38) Load Survey data required with 30 minutes interval, but in clause 5.7.1 it is mentioned as 15 minutes. Both the requirements are conflicting and you are requested to clarify which value is to be considered for Load Survey interval.	Load survey Integration period is 30mins/15mins programmable.
79	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.1 / Pg no. 35 of 321	<p>NIC module details & integration: m) Attributes such as Firmware version, Hardware version, Signal strength values, packet error rate, should be pushed periodically to HES for effective communication management. n) Data must be encrypted with AES-256 bit. o) LED indication for System, Power ON indicator. p) Colour coded LED (a) For latching on to the network (b) For latched on to the network (c) For data flow indication.</p>	<p>m) Kindly provide the detailed Data Model for implementation of specification requirements n) Data encryption shall be provided with AES-CGM-128. Kindly accept. o) LCD backlit Green color shall work as System, Power on indicator. Kindly accept p) NIC module will have Network LED, Data flow Tx & Rx LEDs. Kindly accept.</p>	There are different HES at Odisha Discoms. The bidder has to integrate with the HES & ensure the data model /profiles according to the requirement shared during detailed engineering.

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response				
80	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.3.10, 4.3.14, 4.3.19 / Pg no. 37 of 321	<p><u>Communication capabilities and software feasibility:</u> 4.3.10: Power Restoration (First Breath) as event. Additional exceptional events should also be communicated to HES by meter immediately after the occurrence through RF / RF Mesh. 4.3.14: Also, the Bidder must ensure that, the mode of communication used for RF shall be consistent with the Government of India stipulations 4.3.19: Meter once powered up with NIC card should be self-detected by RF network and its basic name plate details & current readings are transferred to HES</p>	We understood that communication requirement is 4G fall back 2G only. Kindly confirm.	4G fall back to 2G.				
81	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.3.1 / Pg no. 38 of 321	<p><u>Immunity against external influencing signals:</u> Magnetic field: a) Continuous DC magnetic induction: >0.20 Tesla ± 5% (Value of the magneto motive force to be applied shall be generally >10000 AT. b) AC magnetic induction: >10 milli Tesla (if produced with circular metal core with square cross section as specified in CBIP latest report with 2800 AT) c) Permanent Magnet: Immune up to 0.5T and Event logging >0.5T</p>	Kindly accept the magnetic influence requirement as per the CBIP - 325	As per CBIP 325				
82	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.3.2 / Pg no. 39 of 321	<p><u>Electrostatic Discharge (ESD):</u> Meter, inside meter box, shall be immune up to 50 kV and shall record accurate energy as per IS 13779:1999 / CBIP-325. Meter shall log the event into memory as ‘ESD’ with date & time stamp for any ESD greater than 50 kV with snap shot the event logging threshold values as per table no. 1 in 4.5.</p>	Kindly note that meter shall be immune with application of ESD up to 35kV in line with CBIP-325. Kindly accept.	As per CBIP 325				
83	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.3.4 / Pg no. 39 of 321	<p>Meter inside meter box should be immune to high / low frequency Jammer devices. Meter shall log the event in its memory as ‘JAMMER’ with date and time stamp, the threshold values as per table no. 1 in 4.5.</p>	Kindly note that meter shall be immune to Jammer device, hence event logging is not required. Kindly accept.	Logging not required if immune				
84	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.5.6 Table no. 1 / Pg no. 41 of 321	<table border="1" data-bbox="481 1150 900 1225"> <tr> <td data-bbox="481 1150 645 1225">Low Power Factor = 0 Hr 30 Min 0 sec (LPF)</td> <td data-bbox="645 1150 763 1225">Low Power Factor = 0 Hr 2 Min 0sec</td> <td data-bbox="763 1150 900 1225">I >1% of Ib and Power Factor ≤ 0.5 in any phase</td> <td data-bbox="900 1150 1064 1225">I >1% of Ib and Power Factor ≤ 0.7 in respective phase</td> </tr> </table>	Low Power Factor = 0 Hr 30 Min 0 sec (LPF)	Low Power Factor = 0 Hr 2 Min 0sec	I >1% of Ib and Power Factor ≤ 0.5 in any phase	I >1% of Ib and Power Factor ≤ 0.7 in respective phase	We understood that power factor logic for 'Low Power factor' event restoration is 'Power Factor ≥ 0.7'. Kindly confirm.	There are different HES at Odisha Discoms. The bidder has to integrate with the HES & ensure the data model /profiles according to the requirement shared during detailed engineering.
Low Power Factor = 0 Hr 30 Min 0 sec (LPF)	Low Power Factor = 0 Hr 2 Min 0sec	I >1% of Ib and Power Factor ≤ 0.5 in any phase	I >1% of Ib and Power Factor ≤ 0.7 in respective phase					
85	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.3.5 / Pg no. 39 of 321 (TPCODL/CCG/24-25/100000629) / Cl. No. 4.5.6 Table no. 1 / Pg no. 42 of 321	<p>The meter inside meter box should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc. the threshold values as per table no. 1 in 4.5.</p> <p><u>Abnormal and Tamper conditions:</u> Microwave tamper : immediate (record only 1 event on first application & only one event for next 1min)</p>	Kindly note that magnetron is a non-standard device and behavior of meter with application of magnetron cannot be guaranteed. Also it may be hazardous to the person who perform the testing. Kindly accept the same.	Microwave - Not required				

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response					
86	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.5.6 Table no. 1 / Pg no. 42 of 321	<p>Abnormal and Tamper conditions: No display</p> <table border="1" data-bbox="488 300 1077 384"> <tr> <td data-bbox="488 300 636 384">No Display 0 Hr 30 Min 0 sec</td> <td data-bbox="636 300 741 384">On restoration of display</td> <td data-bbox="741 300 1010 384">Energy Meter power up (circuit charged) and display non functioning</td> <td data-bbox="1010 300 1077 384">Display working</td> <td data-bbox="1077 300 1099 384">5</td> </tr> </table>	No Display 0 Hr 30 Min 0 sec	On restoration of display	Energy Meter power up (circuit charged) and display non functioning	Display working	5	Kindly note that this requirement of logging event for non-functional display is not clear. Kindly elaborate the same.	This clause is deleted
No Display 0 Hr 30 Min 0 sec	On restoration of display	Energy Meter power up (circuit charged) and display non functioning	Display working	5					
87	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.5.3 / Pg no. 39 of 321	<p>Abnormal and Tamper conditions: During abnormal & tamper conditions, the current shall be recorded as active current and line current.</p>	Kindly accept currents in snapshot parameters as per the captured parameter list given in IS 15959 Part-3.	Specification to be complied					
88	(TPCODL/CCG/24-25/100000629) / Cl. No. 4.5.13 / Pg no. 43 of 321	The Cover Open tamper detection should be through heavy duty, sturdy two number micro switches with OR gate logic such that it should not log false event on vibration or impact during handling or testing	Kindly accept the push button switch alternatively which is heavy duty, sturdy, withstands vibration and serves the purpose of utility.	Specification to be complied					
89	(TPCODL/CCG/24-25/100000629) / Cl. No. 5 / Pg no. 44 & 45 of 321	<p>General construction: 1. Measurement / computing chip: USA:Analog Devices, Cyrus Logic, Atmel, Phillips, Freescale semiconductor South Africa: SAMES Japan: NEC</p> <p>3. Display modules makes: Taiwan: Holtek Singapore: Bonafied Technologies Korea: Advantek China: Xiamen, Trullysemiconductor</p> <p>7. Battery: Varta / Tedirun/Vitzrocell / Sanyo or equivalent</p> <p>8. Micro controller and RTC having separate battery: USA: Philips , Dallas, Atmel, Motorola Japan: NEC or Oki</p> <p>9. Temperature sensor: SA: Philips , Dallas, Atmel, Motorola Japan: NEC or Oki</p>	<p>Kindly include the below mentioned reputed equivalent components</p> <ol style="list-style-type: none"> 1. Renesas, Texas intruments 3. Holitek, Pixel 7. EVE, Panasonic, Mitsubishi 8. Renesas, Texas instruments 9. The temperature sensor is in-built Micro controller. 	Noted					
90	(TPCODL/CCG/24-25/100000629) / Cl. No. 5 / Pg no. 45 of 321	Temperature sensor shall be internal to the meter and its accuracy shall be as per relevant IEC / IS standards. The OEM test report to be furnished. With good performance till life of meter.	Temperature sensor is in-built Microcontroller. Kindly accept.	Noted					
91	(TPCODL/CCG/24-25/100000629) / Cl. No. 5.9.1 / Pg no. 55 of 321	<p>Output device: 1. Pulse rate: The test output device shall have constant pulse rate of (preferred value- 400) pulse / kWh & pulse/kVArh. Meter constant shall be indelibly printed on the name plate as imp / kWh & imp/kVArh.</p>	1. Kindly note that pulse rate shall be manufacturer specific. Kindly accept the same.	Noted					

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
92	(TPCODL/CCG/24-25/100000629) / Cl. No. 6.0 / Pg no. 56 of 321	<p>Name plate and Marking: The name plate data shall be laser printed iv. Serial number (Meter serial number shall be laser printed on name plate instead of sticker). However the following shall be printed in bar code on the meter nameplate (shall be laser printed on name plate instead of sticker) All data shall be laser printed on meter along with Sr. NO and date of manufacturing. No sticker to be used to avoid loss of data in event of fire.</p>	Kindly accept Name plate details with indelible pad printing alternatively which serves the purpose of utility	Specification to be complied
93	(TPCODL/CCG/24-25/100000629) / Cl. No. 6.0 / Pg no. 56 of 321	Bidder should ensure that each NIC provided in meter is having laser printed Sr. No., MFG date, 'Property of TPWODL' marking, PO / RO no.& date (same as that of meter PO)	Kindly accept details on NIC with Sticker / indelible pad printing alternatively which serves the purpose of utility	Specification to be complied
94	(TPCODL/CCG/24-25/100000629) / Cl. No. 7.3 / Pg no. 57 of 308	<p>Acceptance Test: 12. Error measurements with all abnormal condition along with magnet, ESD</p>	Kindly accept the error measurement with all abnormal conditions without magnet, ESD.	Specification to be complied
95	Technical Specification for 100/5A, 200/5A & 400/5A LTCT Meter Boxes	This specification covers the technical requirements of design, manufacturing, testing at manufacturer's works ,packing, forwarding, supply and unloading at store/site of Three phase four Wire, 100/5A, 200/5A and 400/5A all types of LTCT Meter Boxes along with respective resin cast CT with bar primary, complete with all accessories for efficient and trouble free operation	Kindly clarify whether the SMC box and CT's are in bidder scope of Meter	Meter boxes & CTs are not in the scope
96	Clause No. 13 of Technical specification Sample	<p>Tendering stage : Bidders are required to manufacture 03 nos. of sample meters as per TPWODL specifications. Address for dispatch : Meter testing lab, MMG, Tata Power Dharvi Receiving station, Near Shalimar Industrial Estate, Matunga, Mumbai-400706</p>	As the Smart LTCT meters are required in 6 different ratio's so we understand only 3 nos. samples of any type/ratio can be submitted for testing kindly clarify.	3nos. Sample of any ratio is acceptable. Address: MRT Division, TP Central Odisha Distribution Limited Power House Colony, Unit-8, Bhubaneswar, Pin-751012, Odisha.
97	Scope of work (Clause No. 1.1)	Rate contract for procurement for Three Phase LTCT Smart Energy Meters for Tata Power Odisha Discom's.	We understand that the scope is only for the supply of Three Phase LTCT Smart Meters without meter box kindly clarify.	Meter box is not included in the scope
98	Extension for date of submission	17-05-2024	We request you to extend the date of submission of the bid and samples by about 2 weeks required for preparation of competitive bid and samples complying TPCODL specifications.	As per Corrigendum-I
99	Clause No. 4.04	Reference Conditions for testing the performance of the <u>meter</u> : Vref = 230 V	Meter may kindly be accepted with reference voltage of 240V however shall be suitable for 230V.	240V(Complying with 230V)
100	Cl 4.23 Self Diagonos	The meter shall have indications on meter display, for anomaly/ unsatisfactory / non-functioning of (i) Real Time Clock (ii) RTC battery (iv) NIC card status	The meter will have indications on meter display, for anomaly/ unsatisfactory / non-functioning of (i) Real Time Clock (ii) RTC battery.... single status of RTC OK/fail for Real time clock & RTC battery (iii) Memory status (iv) Battery status	The meter will have indications on meter display & dump, for anomaly/ unsatisfactory / non-functioning of (i) Real Time Clock (ii) RTC battery.... single status of RTC OK/fail for Real time clock & RTC battery (iii) Memory status (iv) Battery status (v) NIC card status

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
101	Cl 4.27 Minimum Internal diameter of the terminal holes & minimum Depth of the terminal holes	5mm(minimum) 20mm (minimum)	Minimum Depth of the terminal holes : 16mm.	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
102	4.31 software and communication compatibility	Post-paid to pre-paid vice versa	Pre-paid facility is not comply as per ISA-16444.kindly remove the clause.	This clause is deleted
103	Cl 4.34 Ultrasonic welding / Chemical Bonding	Meter cover and body should be continuous & seamless ultrasonically welded only or should be chemically bonded.	Meter will be chemically welded with break to open type.	Specification to be complied
104	Cl 4.39 Terminal Arrangement	The terminal pin shall be 12 pin Zig zag arrangement with phase voltage terminal in between current terminals as mentioned in clause no. 5.2.11	The terminal pin shall be 11 pins with Zigzag arrangement for Phase Voltage terminals in between current	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
105	Cl 4.38 Harmonics re	The meter should record the current and voltage THD. The meter should record harmonics up to 20th harmonic Average THD of all phase for voltage THD and current THD. THD values shall have 30 minutes integration period in load survey. Accuracy of harmonics recording shall be as per meter accuracy class. The meter shall generate a flag whenever the threshold (user configurable) of the 5% THD of the load current and voltage is breached.	The meter should record the current and voltage THD. The meter should record harmonics up to 11th harmonic Average THD of all phase for voltage THD and current THD. kindly accept.	Specification to be complied
106	Cl 4.40 The preferred meter size shall be	235x300x120mm (further the bidder can check details space available in existing box at our MMG store before design)	The meter size will be as per the Genus Product	Noted
107	Cl 4.1 NIC MODULE DETAILS & INTEGRATION	TPCODL intends to leverage 4G as the primary communication technology with hot swappable 2G Interface Card as a fall back for meter data acquisition.	Meter communication module will be 4G with fall back 2G network. The communication module can not be interchanged with any other interface card.	Specification to be complied
108	Cl 4.1 NIC MODULE DETAILS & INTEGRATION	(q) Meter display should have provision for showing if NIC card if: 1. Installed, 2. Getting Network, 3. Latched with HES, 4. Communicating with HES.	Signal Strength on display and LED's on module will be provided for the communication status	NIC error codes -12nos. To be provided. Signal strength (numerical value) should be available in display & profile data
109	Cl 4.2 Communication capabilities and software feasibilities	4.3.3 It shall be possible to reconfigure the meters for RTC, TOD slots reprogramming, DIP (Demand Integration period), billing date, display parameters etc. through proper authentication process locally through MRI and remotely over the air (OTA). Meter data should remain intact with timings. And billing should be done whenever any above mentioned attribute is changed. The change should be recorded as upgrade event.	Billing will be done in case of TOD slots reprogramming only as the other parameters will not effect the calculation of the meter	Specification to be complied
110	Cl 4.3 Communication capabilities and software feasibilities	4.3.5 Optical Communication port shall be available for communication. Communication ports shall not be affected by any type of injection /unauthenticated signals and having proper sealing arrangement. The complete data shall be downloaded within 5 minutes OTA.	The timing of Data download over the air depends on the network capability	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
111	Cl 4.3 Communication capabilities and software feasibilities	4.3.18 Communication NIC/ network should be immune with any external Magnetic field/ESD/ Jammer/ HV voltage influence such that it shall not affect the normal overall functionality.	Meter immunity will be as per CBIP325	As per CBIP 325
112	Cl 4.3 Communication capabilities and software feasibilities	4.3.21 Meter display should have provision for showing if NIC card if: 1. Installed, 2. Getting Network, 3. Latched with HES, 4. Communicating with HES.	Signal Strength on display and LED's on module will be provided for the communication status	NIC error codes -12nos. To be provided. Signal strength (numerical value should be available in display & profile data
113	Cl 4.3 IMMUNITY AGAINST EXTERNAL INFLUENCING SIGNALS	4.3.1 Abnormal Magnetic field is defined as below; a) Continuous DC magnetic induction: >0.20 Tesla \pm 5% (Value of the magneto motive force to be applied shall be generally >10000 AT. b) AC magnetic induction: >10 milli Tesla (if produced with circular metal core with square cross section as specified in CBIP latest report with 2800 AT) c) Permanent Magnet: Immune up to 0.5T and Event logging >0.5T.	Meter will comply the magnet clause as per CBIP325	As per CBIP-325.
114	Cl 4.4 IMMUNITY AGAINST EXTERNAL INFLUENCING SIGNALS	4.3.2. Electrostatic Discharge (ESD) :Meter shall be immune up to 50 kV and shall record accurate energy as per IS- 13779:1999/CBIP-325. Meter shall log the event into memory as 'ESD' with date & time stamp for any ESD greater than 50 kVwith snap shot the event logging threshold values as per table no. 1 in 4.6 4.3.4 Meter should be immune to high/low frequency jammer devices. Meter shall log the event in its memory as 'JAMMER' with date and time stamp, the threshold values as per table no. 1 in 4.5 4.3.5 The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc. the threshold values as per table no. 1 in 4.5	Meter will be immune as per CBIP-325 Meter will be immune as per CBIP-325 Micro waves are not applicable on smart meters	As per CBIP-325. Microwave not required.
115	Cl 4.4 Neutral Disturbance & other tampers	4.4.1 The meter shall not saturate on passage of direct current, which can cause the meter either to stop recording/ record inaccurately. DC injection shall be tested both in phase and neutral. Measurement by meter shall not get influenced by injection of Chopped signal/ DC signal/ DC pulse upto 330V and for any value beyond this. Meter shall log the event into memory as 'Neutral Disturbance' with date & time stamp the thresholds are as per table no. 1 in 4.5	Pls provide the testing circuit diagram for chopping	This shall be shared during detailed engineering
116	Cl 4.5 ABNORMAL TAMPER CONDITIONS	4.5.3 During abnormal & tamper conditions, the current shall be recorded as active current and line current. 4.5.6 All tamper/event logging thresholds values shall be configurable from remotes.	During abnormal & tamper conditions, the current will be recorded as per IS15959 Part-3 Tamper threshold will be factory configurable	There are different HES at Odisha Discoms. The bidder has to integrate with the HES & ensure the data model /profiles according to the requirement shared during detailed engineering.

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117	Table No.1 Tamper ta	ESD/JAMMER	Meter immune as Per CBIP 325 . No tamper logging in this condition	No logging required if immune
118	Table No.1 Tamper ta	Microwave immediate	Not applicable as per IS 15959 Part-3	This clause is deleted
119	Table No.1 Tamper ta	No Display	Not applicable as per IS 15959 Part-3	No display event not required
120	Table No.1 Tamper ta	Tampers Compartment Size	Tamper Compartment size will be provide as per previous supply GTPW011A.	There are different HES at Odisha Discoms. The bidder has to integrate with the HES & ensure the data model /profiles according to the requirement shared during detailed engineering.
121	CI 4.5 ABNORMAL TAMPER CONDITIONS	4.5.8 The meter shall record in export registers in case of reversal of all CT terminals.The meters are to be used for registration of energy consumed by the consumer, as such the meters shall be programmed for import mode and in case of reversal of energy direction (reversal of all CT terminals) meter shall register energy separately in export mode i.e. in case of CT reversal, meter shall record scalar (not vector sum) sum of energy.	The meter will register the energies in export register if the meter is in Net metering mode. The meter will register the energy in the forward register in CT reversal condition if the meter is in Forward mode	The meter will register the energies in export register if the meter is in Net metering mode. The meter will register the energy in the forward register in CT reversal condition if the meter is in Forward mode.However the reversal energy shall be retrieved from the dump data.
122	CI 4.6 EVENT COMP	Transaction events compartment size shall be minimum 100 events	Transaction events compartment size shall be minimum 32 events as per IS15959 Part -3	Specification to be complied
123	CI 5 General Construc	Components make list	Component make list will be as per the the attached sheet in the mail.	Specification to be complied
124	CI 5.1 METER BODY	5.1.9 The Meter body shall be such that the liquid or chemical shall not reach the electronic parts if liquid is injected from meter body such as meter terminals, push button, display, NIC card casing etc. Necessary protection and water tight sealing to be provided at terminals and Push buttons etc.	Pls mention the testing procedure.	This shall be discussed during detailed engineering
125	CI 5.2 TERMINALS, TERMINAL BLOCK	5.2.1 Terminal block should be in single mould with meter body base. (Not separate)	Both Terminal block & meter body base are separate	Specification to be complied
126	CI 5.2 TERMINALS, TERMINAL BLOCK	5.2.9 Internal diameter of the terminal holes shall be minimum 5 mm; minimum clearance between adjacent terminals shall be 10 mm. Minimum Depth of the terminal holes shall be of 20 mm.	Internal diameter of the terminal holes shall be minimum 5 mm; minimum clearance between adjacent terminals shall be 10 mm. Minimum Depth of the terminal holes shall be of 16mm minimum	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
127	CI 5.2 TERMINALS, TERMINAL BLOCK	5.2.12 The terminal pin shall be 12 pin Zigzag arrangement	The terminal pin shall be 11 pins with Zigzag arrangement for Phase Voltage terminals in between current	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
128	CI 5.2 TERMINALS, TERMINAL BLOCK	5.2.13 Pin configuration shall be R-Cin, R volt, R-Cout, Y-Cin, Y volt, Y-Cout, B-Cin, B-volt, B-Cout, Neutral-in, N, N out	Pin configuration shall be R-Cin, R volt, R-Cout, Y-Cin, Y volt, Y-Cout, B-Cin, B-volt, B-Cout, Neutral-in,N-out	The terminal arrangement & pin configuration shall be shared by each discom according to the terminal arrangement of the LTCT Meter Boxes.
129	CI 5.2 TERMINALS, TERMINAL BLOCK	5.2.14 The preferred meter size shall be HxWxT= 235x300x	Meter size will be as per the company product	Noted
130	CI 5.3 TERMINAL COVER	5.3.1 Terminal cover shall be short type and transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the TPCODL.	Terminal cover shall be short/extended type and transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the TPCODL.	Noted

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
131	Cl 5.6 MD Integration	The MD integration period shall be 15 minutes (integration period programmable by MRI at site and also thru AMR with adequate security level). The MD resetting shall be automatic at the 1st of the month i.e. 0000 hours of 1st day of the month. Manual MD reset button shall not be available. Last six MD values shall be stored in the memory and one to be displayed in the Auto scroll mode. MD shall be recorded and displayed with minimum three digits before decimal and minimum two digits after decimal points. MD integration shall be of sliding Type at an interval of 10 min.	Sliding interval should be 5 minutes for 15 minutes MD IP and if sliding interval of 10 minutes is required then the MD IP should be 30 minutes	MD Integration period 15mins/30mins programmable. In case of sliding interval is 5 minutes for 15 minutes MD IP and sliding interval of 10 minutes for MD IP 30 minutes
132	Cl 5.7 Parameters in B	Fail to be log in memory in the following conditions only in BCS not in display a) RTC fail b) NVM memory fail c) Battery fail d) NIC card fail	Fail to be log in memory in the following conditions only in BCS not in display a) RTC fail b) NVM memory fail c) Battery fail	The meter will have indications on meter display & dump, for anomaly/ unsatisfactory / non-functioning of (i) Real Time Clock (ii) RTC battery.... single status of RTC OK/fail for Real time clock & RTC battery (iii) Memory status (iv) Battery status (v) NIC card status
133	Cl 5.7.1 Load Survey	Load Survey parameters for prepaid & postpaid mode	Parameters will be as per IS15959 Part-3	There are different HES at Odisha Discoms. The bidder has to integrate with the HES & ensure the data model /profiles according to the requirement shared during detailed engineering.
134	Cl 5.7.2 INSTANTAN	INSTANTANEOUS PARAMETERS	The Instantaneous profile parameters will be provide as per previous supply GTPW011A.	There are different HES at Odisha Discoms. The bidder has to integrate with the HES & ensure the data model /profiles according to the requirement shared during detailed engineering.
135	Cl 5.8.2 PUSH BUTTON MODE DISPLAY	Display for ESD Tamper Count Latest ESD tamper occurrence date Latest ESD tamper occurrence time	We will not provide Logging for ESD tamper; therefore the display will not be applicable	Logging not required if immune