



BSES RAJDHANI POWER LIMITED (BRPL)
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Sr No	Section Number	Page Number	Clause No	Clause Details	BRPL Clarification
1	3	58	24 / 24.2	Force Majeure	Clarified as Electricity being the essential services, the relaxation of Pandemic , as sought , may not be considered as it is. Whereas in special circumstances relaxation can be given on need basis and upon submission of evidence to this regard.
2	-	-	General	Board resolution	Clarified As Board resolution stands deleted, ignore if any clause referring to board resolution
3	5	80	2.6	The Framework agreement will be executed for 3 Million Smart Meters with committed number of 6 Lac Meters in Phase 1, BRPL will issue Notice to Proceed for phase 2 beyond 6 Lacs as and when required.	Clarified as Commitment is for phase 1 only and further execution of phase 2 shall be based on outcome of phase 1 rollout as well as necessary statutory and regulatory approvals.
4	6	120	8.4.3	For smooth functioning of the entire system, it is essential that the details of such algorithm including the mechanism of security key generation be kept in a secured escrow account which shall be used by the BRPL only in case of	Clarified As Jurisdiction shall be place to Delhi



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				default or contract termination	
5	1	26	4.2	<p>Each of the solution / component providers shall sign an agreement with the sole/ lead bidder, provided the solution/ component provider is not the sole/ lead bidder, in the format as specified in MAF, clearly mentioning:</p> <p>a) their intent to comply with the terms and conditions of the Contract Agreement in the event the solution/ component provider is selected to undertake the Project</p> <p>b) their willingness to work with the said sole/ lead bidder;</p> <p>c) and their proposed roles and responsibilities;</p>	<p>Clarified As</p> <p>MAF is attached in Amendment, refer MAF format</p>
6	1	26	4.2	<p>The Sole / lead bidder has to mandatorily mention at least one vendor for each of the solution/ component providers given below in Form 1 of section 4</p>	<p>Clarified As</p> <p>Please refer Form 1 in Section 8 on page no. 524. Bid evaluation shall be done for the Bid Submitted on the date of bid submission subject to QR, responses to clause wise compliance & other requirements. Replacement of solution/ component provider may be considered post award of contract, subject to meeting qualifying requirement & necessary</p>



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					approval in writing from the BRPL.
7	6	107	I (c)	“Any other software/hardware/services for the project”	Clarified as AMISP is expected to include all software / hardware / services (Subject to BSES Approval) that may be required for smooth project execution and SLA compliance within the defined scope and cost.
8	6	313	Clause No. 1.0, Meter Box Type	Flush type with Completely transparent top cover and base.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
9	6	316	Clause No. 5.0, Padlocking	The box shall also have padlocking facility.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
10	6	375	Clause No. 1.0, Meter Box Type	Flush type with Completely transparent top cover and base.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design



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					finalization.
11	6	377	METER Enclosure for 3P smart Meter box, Construction.	Thickness of meter box shall be minimum 3 MM.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
12	6	378	Clause No. 5.0, Padlocking	The box shall also have padlocking facility.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
13	6	378	Clause no 6,METER Enclosure for 3P smart Meter box, Cable entry.	(C.) Minimum 125 mm vertical space shall be provided from the terminals of meter to centre of cable gland to provide sufficient bending radius and working space.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
14		106	5.2 Brief Scope of Work:	c. Meter Management System (MDMS) with prepaid functionality as integrated facility using separate Smart prepaid billing application (SPBM) module and deployment on cloud as per	Clarified As AMISP to comply the SLA and NIT requirement for Prepaid Functionality. Any additional features may be considered at



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				clause 8.5 of this section	the time of evaluation,
15	6	122	8.4.6 Integration	<p>c. Integration with BRPL Existing HES / AMR</p> <p>i. Unified HES should integrate with existing HES / AMR to collect meter readings and execute commands (if possible)</p> <p>e. UHES shall integrate with minimum 5 meter makes and their types of existing smart meters or new meters to be supplied in future. (new meter integration shall be completed within 1 months after intimation by BRPL)</p>	Clarified as AMISP shall be responsible to meet SLA requirement and smooth execution of the project, AMISP to decide best implementation methodology (UHES/HES).
16	6	281	Load survey Parameters	Temperature: The meter should have capability to measure meter temperature and can log high temperature events if it is more than 60 deg C with date and time.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
17	6	282	Daily load profile	<p>e. MD KW with date and time</p> <p>f. MD KVA with date and time</p>	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these



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					may be considered at the time of design finalization.
18	3	66	34 Documentation	34.1 The Bidder's shall procure all equipment & components of meter and associated accessories from BRPL approved sources as per attached copy of Material/Type Test Certificates, O&M Manuals and GTP etc.	Clarified As Submission of one Hardcopy along with soft copy is allowed
19	6	119	8.4.2 Configuration	r) Record temperature, generate alert and provision for disconnection if above threshold value (configurable) s) Configuration of Smart Meters based on difference in neutral and phase current to ensure disconnection in case difference is more than the threshold value (configurable) to ensure safety	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
20	6	119	8.4.2 Configuration	v). Factory Configuration of events threshold like Voltage, Current, PF etc.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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21	6	265	Appendix2: Scope of Supply	Specification is for Single Phase 240 V, 10A-60A Static Watt hour smart meters of accuracy class 1.0 with plug in communication modules (RF Mesh/Cellular/Hybrid) and integrated load control switches Rated Current: Ib-10A and I _{max} -60 A	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
22	6	269	Appendix2: Meter constant	Meter constant Imp/ kWh (default LED setting), Imp/KVAh(Calibration LED shall be field configurable from kWh/KVAh)	Clarified As Configuration of LED required for testing meter in KVAh at site.
23	6	270	Appendix2:	Base Body Material - Opaque and UV stabilized polycarbonate of grade LEXAN 143/ 9 or Equivalent with V0inflammability level at Terminal block. Material- Transparent/Opaque and UV stabilized polycarbonate of grad LEXAN 143/ 943 or Equivalent with V0 inflammability level at Terminal block.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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24	6		Appendix2: Terminal cover	Terminal cover Baffle wall shall be provided above the cable entry base wall so that access to the terminals is not possible (even with thin metallic wire) without breaking the seal.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
25	6		Appendix2: Terminal cover	Two Nos Grub phillip head screws (size M8) or Zinc Plated MS (M6) Slotted head screw per terminal shall be provided.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
26	6		Appendix2: Terminal cover	Terminals Material of terminals, screws should be extruded Brass or Tinned Coppe Terminals shall be tested for continuous current of 150 %-ml ax.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
27	6	274	Appendix2:	Performance requirement for load switching : Utilization category of the load switch shall be UC1 as per clause no. 4.6.6.2 of IS 15884 and IS	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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				16444(Part 1)	
28	6	274-275	Appendix2:	Communication Module Interface (NIC) Meter shall support RF Mesh/Cellular Communication Module and will b Interoperable. Meter should have the additional provision of RS23 (electrically isolated) for communication incase NIC card is not used.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
29	6	289	Appendix2:	Programmable parameters	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
30	6	295	Appendix2:	Tampers and event	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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31	6	296	Appendix2:	Size of LCD Minimum 10 mm X 6 mm	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
32	6	310	Appendix2:	Test reports Routine test report to be provided with each meter Test report for all meters through softcopy on cloud linked with BRPL website and should be downloadable by BRPL Mobile APP should have access to this report	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
33	6	314	Meter Enclosure for 1 Phase smart meter	2.4 Ingress protection The meter box shall be completely dust and vermin proof. Ingress protection rating of the box shall be minimum IP55.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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Sr No	Section Number	Page Number	Clause No	Clause Details	BRPL Clarification
34	6	314	Meter Enclosure for 1 Phase smart meter	2.5 Collar of base and cover 2.6 Fixing of 'O' ring 3.1 Box material 3.3 Cable glands 4.2 Base 4.3.1 Hinge type 8.2 Meter box mounting 8.3 Gap- Meter to meter Box 8.4 Box Mounting spacers 8.5 Box Mounting accessories 9.0 Data Downloading arrangement	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
35	6	318	10.0 Marking	Following marking shall be provided on both top cover and base by indelible laser printing/ screen printing or embossed from inside of the box. a. BRPL insignia shall be embossed on the base & cover of meter box. b. Meter serial no. (Both on base and cover of meter box) c. Purchaser's PO no. and date. d. Purchaser's Name. e. Name or trade mark of seller f. Any other detail required at the time of approval. g. Danger sign.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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36	6	323	Appendix3:	Meter constant Imp/ kWh (default LED setting), Imp/KVah (Calibration LED shall be field configurable from kWh /KVah)	Clarified As Configuration of LED required for testing meter in KVAh at site.
37	6	325	Appendix3:	Terminals b. Two no's grub phillip head screws (size M8) per terminal shall be provided.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
38	6	326	Appendix3:	Terminals c. Material of terminals, screws should be extruded Brass or Tinned Copper. Terminals shall be tested for continuous current of 150 % Imax.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
39	6	328	Appendix3:	Performance requirement for load switching a. Utilization category of the load switch shall be UC1 as per clause no. 4.6.6.2 of IS 15884 and IS16444 (Part 1).	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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40	6	334	Appendix3:	Load survey Data	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.					
41	6	349	Appendix3:	<table border="1"> <tr> <td>R Phase voltage Harmonics</td> <td rowspan="3">Meter should log occurrence of high voltage harmonic event when % THD in voltage of phase will be more than threshold value. Threshold value shall be configurable.</td> <td rowspan="3">Occurrence: If % THD in $I_{h>5\%}$ of fundamental. Restoration: If % THD in $I_{h<5\%}$ of fundamental.</td> </tr> <tr> <td>Y Phase Voltage Harmonics</td> </tr> <tr> <td>B Phase Voltage Harmonics</td> </tr> </table>	R Phase voltage Harmonics	Meter should log occurrence of high voltage harmonic event when % THD in voltage of phase will be more than threshold value. Threshold value shall be configurable.	Occurrence: If % THD in $I_{h>5\%}$ of fundamental. Restoration: If % THD in $I_{h<5\%}$ of fundamental.	Y Phase Voltage Harmonics	B Phase Voltage Harmonics	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
R Phase voltage Harmonics	Meter should log occurrence of high voltage harmonic event when % THD in voltage of phase will be more than threshold value. Threshold value shall be configurable.	Occurrence: If % THD in $I_{h>5\%}$ of fundamental. Restoration: If % THD in $I_{h<5\%}$ of fundamental.								
Y Phase Voltage Harmonics										
B Phase Voltage Harmonics										
42	6	351	Appendix3:	R Phase high Current Harmonics Y Phase high Current Harmonics B Phase high Current Harmonics	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.					
43	6	356	Appendix3:	Meter Display Size of LCD Minimum 10X5mm Character size-	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.					



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44	6	356	Appendix3:	Display Parameters 12. Phase wise Relay Status (On/OFF) 5 Sec 19. Temperature 5 sec 21. Error Code 5 Sec 22. Signal Strength 5 sec 24. Top cover open date & time 5 sec 25. Mode (Prepaid/Postpaid/Net) 5 sec	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
45	6	370	Appendix3: Test Reports	Routine test report to be provided with each meter Test report for all meters through softcopy on cloud linked with BRPL website and should be downloadable by BRPL Mobile APP should have access to this report	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
46	6	390	Appendix 4, Appendix 5, Appendix 6	c. Terminal block shall be capable of passing the tests as per ISO-75 for a temperature of 135C and pressure of 1.8MPa.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
47	6	391	Appendix 4, Appendix 5, Appendix 6	6.4 Terminal cover e. Diagram of external connections should be embossed on terminal cover. Sticker is not	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design



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				acceptable	finalization.
48	6	391	Appendix 4, Appendix 5, Appendix 6	6.5 Terminals c. Material of terminals, screws and washers should be brass or tinned copper. Terminals shall be tested for continuous current of 150 % I _{max} .	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
49	6	403	Appendix 4, Appendix 5, Appendix 6	7.21 Digital Output (DO), Digital Input (DI) , Analog Input (AI) a) Meter should have 2 no. of Digital Output (DO) ports to remotely connect/ disconnect the load via suitable mechanism. b) Meter should have 2 no. of Digital Input (DI) and 2 no. of AI ports for measurement of various sensor parameters like ambient temperature, oil temperature, oil level etc.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
50	6	404	Appendix 4, Appendix 5, Appendix 6	8.3 Size of LCD Minimum 10X6mm PIN Type	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design



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51	6	406	Appendix 4, Appendix 5, Appendix 6	11. Component Specification	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
52	6	238	Under Clause 16.5	<p>The AMISP shall prepare the readiness environment for Stress UAT before commencing. The Stress UAT shall be conducted in accordance with the test scripts approved by BRPL. The AMISP, with support from the Bidder and BRPL, shall develop the necessary test cases for Stress UAT. The Bidder shall provide the test scripts. The Stress testing boundaries include:</p> <ul style="list-style-type: none">> Smart Meters - 2 million for phase 1 and 10million for phase 2> Interval data for 15 min> 8 years of data> All billing and reconciliations	Clarified As AMISP Shall prepare the environment, test script (according to BSES approved use cases) as per the requirement and perform Stress Testing and submit the report to BSES representative.



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53	6	205	12.4 - Meter Installation	Installation of 1Ph and 3Ph electronics Smart Energy Meters and associated accessories such as Network Interface Card, SIM Card, Meter Box, Isolators/MCBs, Saddles, Sealing, as per SOP of BRPL at consumer premises. All materials like meter etc. shall be delivered by meter supplier to AMISP warehouse, coordination with suppliers shall be responsibility of AMISP for timely delivery of items.	Clarified as MCB/Isolator shall be provided by BSES
54	6	206	12.4 - Meter Installation	16 Return of all type of scrap generated from site/left over material (including any 2/4 core cable / copper cable removed from site, Bus Bars, Meter boxes, Terminal covers & screws, Site Removed seals etc) & old meter with/without gunny bags to the assigned BRPL stores	Clarified as Reconciliation of scrap shall be done on monthly basis, SOP shall be prepared at the time of Scope finalization post award.
55	7	516	Section 7, Price Format	Three phase LT CT operated Smart Meter (with Net-Metering) – DT Meter with Meter Box, without CTs, Communication, AMI Solution, and Back-end IT Infra with associated works and requisite no. of polycarbonate Seal	Clarified as Clear Site location, Pin Insulators and Power Cable is in the scope of BSES



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56	7	516	Section 7, Price Format	Single phase whole current Smart Meter (with Net-Metering) – Consumer Meter with Meter Box, Communication, AMI Solution, and Back-end IT Infra with associated works and requisite no. of polycarbonate Seal	Clarified as Existing cable (without cut) shall be reused
57	6	194	10. Consumer Engagement	10.3 The BRPL shall implement consumer engagement plan with support of AMISP. This would include running media campaign to raise awareness and counter myths around smart metering prior to installation, etc.	Clarified As Please refer to Clause 7 (j) in Section 6
58	6	113	8.1 Smart Meters	III. Supply & Integration of Smart Meters with Cellular Communication – The Bidder shall supply Smart Meters with pluggable Network Interface Card (4G /NB IOT) with provision for e-SIM as per latest Indian Standards. The bidder shall share protocols and all necessary technical information with BYPL. The Pluggable NIC module shall be replaceable.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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59	6	259	Appendix2: Technical Specifications for Single Phase Smart Meters : Electrical/ Power Supply Requirements for RF Mesh NAN Module	NIC module shall have LED for visual indication for Power ON, Traffic status. Antenna interface and LED visualization should be without removing the card from the smart meter slot.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
60	6	269	Appendix2: Electromagnetic Compatibility	Meter along with (NIC) shall remain immune to electrostatic discharge (upto and including 35KV), electromagnetic HF field and fast transient burst along-with NIC.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
61	6	271	Appendix2: Terminals	The terminal cover shall be short type with 2 no's holes.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
62	6	271	Appendix2:	Material of terminals, screws should be extruded Brass or Tinned Copper. Terminals Shall be	AMISP shall meet BIS compliance along with utility technical requirements /



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			Terminals	tested for continuous current of 150 % I-max.	specifications, deviations beyond these may be considered at the time of design finalization.
63	6	272	Appendix2: RTC	In case Date is found to be same for two separate days for any instantaneous parameters or any other profile then RTC event to be logged and alert to be sent at back end for syncing with server time and if condition persists after syncing then alert to be Sent.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
64	6	275	Appendix2: Communication Module Interface(NIC)	Meter shall have separate indications on display/ for remote and local communication.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
65	6	276	Appendix2: Name Plate and marking	Meter should have clearly visible, indelible and distinctly marked name plate in accordance with IS 16444 (Part 1) All markings and details shall be printed by laser only.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
66	6	276	Appendix2: Meter	Meter shall be factory fitted in meter enclosure by	AMISP shall meet BIS compliance along with utility technical requirements /



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			Box	unidirectional screws.	specifications, deviations beyond these may be considered at the time of design finalization.
67	6	278	Appendix2: TOU Metering	Meter shall be capable of doing TOD metering in minimum 3 tariff rate registers programmable for minimum 8 time zones and 4 seasonal profiles.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
68	6	279	Appendix2: Instantaneous Parameters	All the parameters mentioned in table 'A1' of IS 15959 (Part 2) along with following additional parameters shall be supported by meter: RF Mesh/Cellular signal Strength Displacement PF. Temperature in Deg C. kVArh kVAh	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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69	6	280	Appendix2: Load survey Parameters	All the parameters mentioned in table 'A2' of IS 15959 (Part 2) shall be supported by meter along with following additional parameters: I. Average Neutral Current ii. Average PF iii. Block kVArh- Q1* iv. Block kVArh- Q2* v. Block kVArh- Q3* vi. Block kVArh- Q4* Parameter mentioned on 'V' and 'VI' will be applicable in bidirectional mode only.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
70	6	280	Load survey Parameters	Temperature: The meter should have capability to measure meter temperature and can log high temperature events if it is more than 60 deg C with date and time.	Obis code and other details will be provided at the time of scope finalization post award
71	6	281	Appendix2: Load survey Parameters	Load survey: Load survey for min 35 days for voltage, phase and Neutral current, active, apparent energy, reactive lag and lead energy, active, apparent and reactive load, power factor, temperature. Power off duration in integration period Cumulative power interruption count in all history data * Meter should support these parameters for	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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				future requirement. These parameters can be configured through firmware upgrade during project duration.	
72	6	281	Appendix2: Daily load profile	<p>All the parameters mentioned in table 'A3' of IS 15959 (Part 2) shall be supported by meter as Daily load profile parameters along with following additional parameters:</p> <ul style="list-style-type: none">a. Cumulative kVArh- Q1*b. Cumulative kVArh- Q2*c. Cumulative kVArh- Q3*d. Cumulative kVArh- Q4*e. MD KW with date and timef. MD KVA with date and time <p>Parameter mentioned on 'c; and 'd' will be applicable in bidirectional mode only.</p> <p>* Meter should support these parameter for future requirement. These parameters can be configured through firmware upgrade</p>	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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73	6	281	Appendix2: Daily load profile	Provision for TOD parameters (8) for kWh, kVAh in both import and export mode Mid night data: The meter should record midnight Cumulative kWh, kVAh and KVAh (lag & lead) reading for last min 35 days	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
74	6	289	Appendix2: Programmable Parameters	8. Temperature related events 12. Unauthorized access	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
75	6	289	Appendix2: Programmable Parameters	14. If incoming Voltage is available and Neutral current and Phase current values are absolute zero continuously for more than 1 min (configurable) and consumer raises a no current complaint on mobile app then alert to be sent to Consumer to check his MCB position.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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76	6	290	Appendix2: Tamper Conditions	Meter should record energy if the neutral supply to the meter is disconnected from incoming and outgoing terminals. Phase terminal of the meter are connected to phase and neutral terminal of meter. Both neutral & phase outgoing terminals are connected with Different load of the meter and earth. The min current to record energy shall be 250mA in any of terminal (P or N). In this condition meter should record energy at $V_{ref} * (I_p + I_n) * UPF$.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
77	6	290	Appendix2: Additional features	If temperature exceed above threshold value (configurable). Then BRPL can disconnect the meter and log as an alert and notification to consumer on Mobile/SMS/Whatsapp XXIX. Total OFF duration on hourly basis and report to be generated at backend. XXX. Fundamental energy Vs total energy XXXI. Displacement PF and true PF	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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78	6	291	Appendix2: XXIV. Compartments of Events	XV. Meter shall be able to log events in following compartments XXXVI. Voltage Related Events XXXVII. Current Related Events XXXVIII. Power Related Events XXXIX. Others Events XL. Non Roll Over Events XLI. Transaction related events XLII. Control Events XLIII. Meter should send alerts for only those events that are configured. All events shall be configurable (time, electrical parameters in percent or absolute value)	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
79	6	292	Appendix2: XLIX. Parameter Snapshot	. Captured parameters mentioned above are to be captured when event occurrence and restoration is logged as per IS 15959 (Part 2). LI. Date and time of event LII. Event code LIII. Active Current LIV. Voltage LV. Power factor LVI. Cumulative energy- kWh, kVAh, kVARh	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
80	6	293	Appendix2: XLIX. Parameter	XIII. Meter should log all read and write	AMISP shall meet BIS compliance along with utility technical requirements /



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			Snapshot	operations	specifications, deviations beyond these may be considered at the time of design finalization.
81	6	294	Appendix2: Tampers and event	c) Persistence time for occurrence and restoration will be 5 min (configurable) in all below tampers except: a. Module cover open – immediate b. Top cover open – immediate c. Relay related events – immediate	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
82	6	295	Appendix2: Tamper threshold table	Occurrence and restoration threshold values of the tamers should be configurable as per given table.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
83	6	294	Appendix2: Tampers and event	Neutral missing - $V_x < 40\%$ of V_{ref} Current drawn 250mA Voltage and current (All values are configurable)	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
84	6	296	Appendix2: Meter	Size of LCD Minimum 10 mm X 6 mm	AMISP shall meet BIS compliance along with utility technical requirements /



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			Display		specifications, deviations beyond these may be considered at the time of design finalization.
85	6	298	Appendix2: Meter Display	Meter display should have following error code- Error code list	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
86	6	299	Appendix2: Display indications	Appropriate indications/flags for all tampers and self diagnostic features should be provided such as earth leakage, reverse current, relay status, local and remote reading etc. All bidders to have common display icon in consultation with BRPL	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
87	6		Appendix2: Parts of the box	e. Earthing bolt shall be provided at left side at the height of 10-20 mm from bottom as per construction requirement	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
88	6	308	Appendix2: Packing, Marking, Shipping,	The box must be designed for multiple use and be robust, with wall thickness of at least 4 mm.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these



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			Handling and Storage Packing		may be considered at the time of design finalization.
89	6	309	Appendix2: Packing, Marking, Shipping, Handling and Storage Packing	Each pallet should contain between 70 and 300 meters. The actual number of meters on each pallet will be agreed with the BRPL in the event of order.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
90	6	315	Appendix2: 2.6 Fixing of 'O' ring	a. Rubber 'O' Ring should be fixed with suitable adhesive so that the same does not get removed.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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91	6	316	Appendix2: 6.1 Cable Gland	<p>a. Two nos. of 2 hole (I/D 20 mm), separator wall thickness min 3mm, 2 nos washer required made out of Polyamide Nylon-66 suitable for 2CX25 sq mm aluminium armoured cable shall be provided on both cable entries in the box.</p> <p>b. Glands shall be designed in such a manner that the same cannot be unscrewed / removed from the box from outside. Manufacturer may either supply two nos. of check nuts or any other alternate design to meet this requirement.</p>	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
92	6	316	Appendix2: 7.0 Earthing bolt	<p>a. Earthing bolt of M6 (Length 30 MM) with nut and washer shall be provided on left side of the body at the height of 10-20 mm from bottom of meter box.</p> <p>b. The arrangement shall be such that one earth point shall be available for customer and external earthing provided by BRPL can be terminated.</p>	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
93	6	323	Appendix3: Electrical and Accuracy Requirement Meter constant	Imp/ kWh (default LED setting), Imp/KVah (Calibration LED shall be field configurable from kWh /KVah)	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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94	6	325	Appendix3: Terminals	Two no's Grub Phillip head screws (size M8) or Zinc Plated MS (M8) Slotted head screw per terminal shall be provided.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
95	6	326	Appendix3: Terminals	Terminals shall be tested for continuous current of 150 % I _{max} .	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
96	6	328	Appendix3: Performance requirement for load Switching	Utilization category of the load switch shall be UC1 as per clause no. 4.6.6.2 of IS 15884 and IS:16444 (Part 1).	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
97	6	332	Appendix3: TOU Metering	Meter shall be capable of doing TOD metering in minimum 4 tariff rate registers programmable for minimum 8 time zones and 4 seasonal profiles	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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98	6	348	Appendix3: Tamper and Fraud Detection Events	Occurrence: If $V_{pn} < 10\% V_{ref}$	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
99	6	357	Appendix3: Auto display	High Resolution value (kWh, KVAh, kVArh) 5 sec 21. Error Code 5 Sec 22. Signal Strength 5 sec	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
100	6	368	Appendix3: Packing	The box must be designed for multiple use and be robust, with wall thickness of at least 4 mm.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
101	6	375	Appendix3: 2.3 Parts of the box	e. Earthing bolt shall be provided at bottom between incoming and outgoing gland as per construction requirement.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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102	6	379	Appendix3: 7.0 Earthing bolt	a. Earthing bolt of M6, length 30 MM with nut and washer shall be provided bottom between incoming and outgoing glands of meter box. c. Necessary symbol shall be provided for earth terminal.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
103	6	379	Appendix3: 8.3 Gap Meter to meter box	a. From left and right side between meter and meter box:- 10 mm with +/- 1% deviation. b. At upper side: - 20 mm with +/- 1% deviation. c. At lower side (from meter terminal to central of the cable gland):- 125 mm +/- 1% deviation	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
104	6	381	Appendix 4 and Appendix 5 Scope of Supply	This specification covers the design, manufacture, assembly, inspection, testing and delivery of Smart CT operated 3 phase 4 wire, Accuracy Class 0.5s, 3 x 240 V and -/5 A meter with plug in communication module (Cellular (4G/NBIOT)	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
105	6	387	Appendix 4 and Appendix 5 5.23 display Sequence for the	xl. Signal strength in RSSI i. Error code	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design



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			parameters auto mode display		finalization.
106	6	387	Appendix 4 and Appendix 5 5.23 display Sequence for the parameters push mode display	xviii. MD in kVAR	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
107	6	391	Appendix 4 and Appendix 5 6.5 Terminals	c. Material of terminals, screws and washers should be brass or tinned copper. Terminals shall be tested for continuous current of 150 % I _{max} .	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
108	6	395	Appendix 4 and Appendix 5 7.5 TOD metering	a. Meter shall be capable of doing TOD metering in minimum 4 tariff rate registers programmable for minimum 8 time zones and 4 seasonal Profiles	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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109	6	403	Appendix 4 and Appendix 5 7.2	b) When ever meter experiences a sudden change in load i.e. sudden reduction by 30%, it should log last 10 such events.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
110	6	404	Appendix 4 & 5 8.3 Size of LCD	Minimum 10X6mm PIN Type	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
111	6	416	Appendix 4 and Appendix 5 R Phase Voltage Missing (Occurrence/ Restoration)	Occurrence: If $V_{pn} < 10\% V_{ref}$ and $I_p > 10\% I_b$ Restoration: If $V_{pn} \geq 10\% V_{ref}$ and $I_p > 10\% I_b$	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
112	6	418	Appendix 4 and Appendix 5 Abnormal Power Off (Occurrence/	If meter micro detect power off whereas phase voltage is present than abnormal power will be recorded. Meter shall continue to record energy as per phase voltage and current.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design



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			restoration)		finalization.
113	6	419	Appendix 4 and Appendix 5 Neutral Disturbance- HF, DC and Alternating (occurrence/ Restoration)	Meter should log the event when AC/DC/ Pulsating voltage is injected in neutral circuit.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
114	6	465	Appendix6: 5.23 display Sequence for the parameters auto mode display	xl. Signal strength in RSSI i. Error code	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
115	6	466	Appendix6: 5.23 display Sequence for the parameters push	xviii. MD in kVAR	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design



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				mode display	finalization.
116	6	468	Appendix6: 6.5 Terminals	c. Material of terminals, screws and washers should be brass or tinned copper. Terminals shall be tested for continuous current of 150 % I _{max} .	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
117	6	472	Appendix6: 7.5 TOD metering	a. Meter shall be capable of doing TOD metering in minimum 4 tariff rate registers programmable for minimum 8 time zones and 4 seasonal Profiles	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
118	6	480	Appendix6: 8.3 Size of LCD	Minimum 10X6mm PIN Type	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.



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119	6	493	Appendix6: Abnormal Power Off (Occurrence/ restoration)	If meter micro detect power off whereas phase voltage is present than abnormal power will be recorded. Meter shall continue to record energy as per phase voltage and current.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.
120	6	494	Appendix6: Neutral Disturbance- HF, DC and Alternating (occurrence/ Restoration)	Meter should log the event when AC/DC/ Pulsating voltage is injected in neutral circuit.	AMISP shall meet BIS compliance along with utility technical requirements / specifications, deviations beyond these may be considered at the time of design finalization.