BSES Rajdhani Power Limited

Volume - I

Tender Notification for

RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

CMC/BR/22-23/RB/PR/SN/1010

Due Date for Submission of Bids: 28.03.2022

BSES RAJDHANI POWER LTD (BRPL)
BSES Bhawan, Nehru Place, New Delhi-110019
Corporate Identification Number:
U74899DL2001PLC111527
Telephone Number: +91 11 3009 9999
Fax Number: +91 11 2641 9833
Website: www.bsesdelhi.com

BSES Rajdhani Power Limited

SECTION - I

REQUEST FOR QUOTATION

Tender Notification: CMC/BR/22-23/RB/PR/SN/1010

Event: RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

BSES Rajdhani Power Limited

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SECTION – I: REQUEST FOR QUOTATION

1.00 Event Information

1.01 BSES RAJDHANI POWER LTD invites sealed tenders for supply of Single Phase Meter from reputed manufacturers. The bidder must qualify the technical requirements as specified in clause 2.0 stated below. The sealed envelopes shall be duly superscribed as — **"RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX (TENDER NOTICE CMC/BR/22-23/RB/PR/SN/1010 DUE FOR SUBMISSION ON 28.03.2022").**

Sl. No.	Item Description	Specification	Requirement Total Qty. (Nos.)	Estimated Cost
BRPL,DELHI				
1	Single Phase 4G Smart Meter with configurable for Net Metering and Box	SECTION V & VI	12500	9.20 Cr
	Three Phase 4G Smart Meter with configurable for Net Metering and Box		5500	

Note:

- **Quantity may vary to any extent of +/- 30% of above mentioned total quantity.**
- **The rates quoted shall remain valid for one year from the date of LOI/RC.**

1.02 The schedule of specifications with detail terms & conditions can be obtained from address given below against demand draft/Pay Order of **Rs.1180/-** drawn in favour of **BSES RAJDHANI POWER LTD,** payable at New Delhi. The sale of tender documents will be issued from **08.03.2022** onwards on all working days. The tender documents can also be downloaded from the website **"www.bsesdelhi.com"**.

In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft covering the cost of bid documents as stated above in a separate envelope with suitable superscription —"Cost of Bid Documents: Tender **Notice Ref: CMC/BR/22-23/RB/PR/SN/1010".**This envelope should accompany the Bid Documents.

1.03 Offers can be received **up to 28.03.2022 (1500 Hrs)** and will be opened on **28.03.2022 at 1715 Hrs** in the presence of authorized representatives of the bidder's (Incase present on the schedule time of opening) **.**The schedule of specifications with detail terms & conditions are enclosed. It is the sole responsibility of the bidder to ensure that the bid documents reach this office on or before the due date.

HEAD OF THE DEPARTMENT,
1st FLOOR, 'C' BLOCK,
CONTRACTS & MATERIALS DEPARTMENT,
BSES RAJDHANI POWER LTD,
BSES BHAWAN,
NEHRU PLACE, NEW DELHI-110019.

1.04 BSES RAJDHANI POWER LTD reserves the right to accept/reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents at the time of placing purchase orders. Tender will be summarily rejected if:
(i). Earnest Money Deposit (EMD) @ 1% (One percent) of the Tender value i.e **Rs 9,20,000/-**is not deposited in shape of Bank Draft in favor of BSES RAJDHANI POWER LTD, payable at Delhi or Bank Guarantee executed in favor of BSES RAJDHANI POWER LTD.
(i) The offer does not contain "FOR, NEW DELHI price indicating break-up towards all taxes & duties".
(ii). Complete Technical details are not enclosed.
(iii). Sample is not submitted along with the offer.
(iv). Tender is received after due time due to any reason**.**

1.05 BSES RAJDHANI POWER LTD reserves the right to reject any or all bids or cancel/withdraw the invitation for bids without assigning any reason whatsoever and in such case no bidder/intending bidder shall have any claim arising out of such action. time of placing purchase orders.

2.0 Qualification Criteria:-

The prospective bidder must qualify all of the following requirements to be eligible to participate in the bidding Bidders who meet following requirements will be considered as successful bidder and management has a right to disqualify those bidders who do not meet these requirements.

1. Bidder shall be the OEM of the equipment offered, having manufacturing base in India for Smart Meters, having an in-house testing lab for acceptance tests as per latest IS standards.

2. Bidder should have supplied at least 5000 smart meters with connect disconnect facility, electronic display and communication facility in last three years. The manufacturer should have experience of supplying to Electricity Distribution Utility / Reputed Organization in India. This should be supported by enclosing the copies of purchase orders from the SEBs / Power utilities/Organization.

3. Bidder should certify that at least 3000 nos. is in successful operation since last 2 years as on the date of opening of Bid. This should be supported by enclosing the copies of performance reports from the SEBs / Power utilities/Organization from an authorized signatory duly signed and stamped.

4. The Bidder should have average turnover of Rs. 20 Crores for the last three financial years (i.e. 2018-19, 2019-20 & 2020-21) related to metering item only.

5. Net worth in last two (2) financial years should be positive for metering items.

6. The bidder must possess valid ISO 9001:2000 certification for meter manufacturing and must possess valid BIS License.

7. Firms who are debarred /blacklisted in other utilities in India will not be considered.

8. The audited financial statements of accounts for the last three years submitted by bidder shall be evaluated and last year of audited accounts should show positive net worth.

9. Bidder should have complete volume of type test reports as per IS 13779 (Including latest amendments if any),IS 15884 and as per CBIP-325 from any NABL accredited lab. The type test report should not be older than 3 years as on the date of opening of tender.

10. The manufacturer should have following facility to meet both quality and quantity requirement of supplies.

a) **Computerized test bench**: The manufacturer should have sufficient Nos of Computerized test benches. The benches should have electronic supply, Isolated CT/ PT system and data should be directly stored in central server.

b) **Seal tracking system:** The manufacturer has to put both his own seal and BSES seal on the meter. He should have a seal tracking software to ensure tracking of seal and no duplication of seals and meter nos.

c) **Meter Burn In system:** In order to ensure the reliability of components and that there is no drift in meter accuracy with time; the manufacturer should have burn in facility --- Running meter with load at elevated temperature.

d) **Routine test data** : During lot acceptance , all routine test data should be made available to inspector. In fact as per BIS, STI all test data should be offered to inspector for verification. **Routine test report should be packed with each meter**.

e) **Test benches:** During the lot acceptance, BSES inspector can test up to 5% of offered quantity .The manufacturer should agree to provide all test facility to do so. Further he should allow BSES inspector to check shop floor process. The place of inspection should be clearly marked in tender and same should be well equipped.

f) **Test equipments:** Since the meters has lot of anti theft features, the manufacturer should have test set up too check the working of all anti theft features. Same should be available during lot inspection; otherwise inspector has a right to withdraw inspection.

g) **PCB assembly facility:** - The PCB facility should have auto- pick n place machine, in-circuit tester, Protection against static charge/ dust etc.; and process to ensure no corrosion of solder points/ tracks. Incase service is taken from other vendor than bidder shall arrange inspection of facility. The bidder should be taking the service from the vendor since last two years and so far have procured one million meter PCB from vendor.

h) The manufacturer should send the compliance of above mentioned parameters in technical offer and has to give an undertaking about No Objection to verify his manufacturing facility as a part of tender process. Further in relevance to above clause vendor should submit details of facilities.

3.00 Bidding and Award Process

Bidders are requested to submit their questions regarding the RFQ or the bidding process after review of this RFQ. BSES RAJDHANI POWER LTD response to the questions raised by various bidders will be distributed to all participating bidders through website.

a. Time schedule of the bidding process

The bidders on this RFQ package should complete the following within the dates specified as under:

S. No.	Steps	Activity description	Due date
1	Technical Queries	▪ All Queries related to RFQ	On or before 28.03.2022

S. No.	Steps	Activity description	Due date
2	Technical Offer	• EMD of requisite amount • Non-refundable DD for Rs 1180/- in case tender documents downloaded from website • It include clause by clause commentary, GTP, Type test report from CPRI / ERDA/NABL Lab (Not more than 2 year old), BIS report, Quality assurance plan, Deviation from the technical specifications, component deviation, undertaking of software protocol ,List of Plant and machinery, Testing facilities available at works and drawings, catalogues, manual and spare parts list etc. mentioned in our technical specifications enclosed • Compliance of Qualification criterion (cl 2.0) and Documentary evidence in support of qualifying criterion as per format attached in Annexure V. • Acceptance of delivery, commercial terms and conditions. • Deviation from the General Conditions of the contract/commercial terms and condtions. • Original Tender documents duly stamped and signed on each page as token of acceptance • Unpriced Quoted Items	28.03.2022, At 1500 Hrs
3	Commercial Officer	• Price for Single Phase meter with & without Box • Break up regarding basic price and taxes as per format enclosed vide Annexure III • Delivery commitment	28.03.2022, At 1500 Hrs
4	Samples (3 nos. of each type)	• Submission of Sample with meter routine report as per bidder offer. • Samples will be submitted at BRPL Laboratory Near substation no .15 , sector – 7 , Pushpa Vihar , Saket ,New Delhi – 110017 on or before the due date. • Sample of optical cord to be submitted with meter – 2 nos. • Optical cord to be demonstrated for mechanical fixing & downloading.	28.03.2022, At 1500 Hrs
5	Performance guarantee quality system report	• As per RFQ	Only for successful bidders.
6	Opening of technical bid	• As per RFQ	28.03.2022 , 17:15 Hrs

This is a two part bid process. Bidders are to submit the bids a) Technical Bid b) Financial Bid. Both these parts should be furnished in separate sealed covers superscribing specification no. validity etc, with particulars as **Part-I Technical Particulars & Commercial Terms & Conditions** and **Part-II "Financial bid"**and these sealed envelopes should again be placed in another sealed cover which shall be submitted before the due date & time specified.

Bidders are requested to submit the bid in one Original plus one copy in duplicate

The Part – I Eligibility and Technical Bid should not contain any cost information whatsoever. In case of Bids where the qualification requirements, technical suitability and other requirements are found to be inadequate, Part-II"Financial Bid'will be returned unopened.
b). Qualified bidders will be intimated after technical evaluation of all the bids is completed.

Part –II Financial Bid: This envelope will be opened after techno commercial evaluation and only of the qualified bidders. The date and time of same shall be intimated in due course to the qualified bidders. Prices strictly in the format enclosed in Annexure III indicating break up of basic prices, taxes, duties, freight etc.

Part –III: E- Bidding and Reverse Auction through SAP-SRM Module

Purchase reserves the right to use the reverse auction through SAP-SRM tool as an integral part of the entire tendering process. All the bidders who are techno-commercial qualified on the basis of tender requirements shall participate in reverse auction.

Notwithstanding anything stated above, the Purchaser reserves the right to assess bidders capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

4.00 Award Decision

Purchaser intends to award the business on a lowest bid basis, so suppliers are encouraged to bid competitively. The decision to place purchase order / letter of acceptance solely depends on purchaser on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that Purchaser may deem relevant.

The purchaser reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without any reason.

BSES reserves the right to split the tender quantity amongst techno commercially qualified bidders on account of delivery requirement in tender, quantity under procurement etc.

Spilitting of tender quantity amongst more than one bidder shall be governed by below mentioned guidelines:

- **If the quantity is to be split among 2 bidders, it will be done in the ratio of 70:30 on L1 price.**
- **If the quantity is to be split among 3 bidders, it will be done in the ratio of 60:25:15 on L1 price.**

In the event of your bid being selected by purchaser (and / or its affiliates) and your subsequent DEFAULT on your bid; you will be required to pay purchaser (and / or its affiliates) an amount equal to the difference in your bid and the next lowest bid on the quantity declared in RFQ.

In case any supplier is found unsatisfactory during the delivery process, the award will be cancelled and BRPL reserves the right to award other suppliers who are found fit.

Qty Variation: The purchaser reserves the rights to vary the quantity by +/- 30% of the tender quantity.

Repeat Order: BRPL reserves the right to place repeat order at the same rates & terms and

conditions as per this tender against additional requirement subject to mutual agreement between BRPL & supplier.

5.00 Market Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the Terms & Conditions. Bidders must agree to these rules prior to participating. In addition to other remedies available, we reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the Terms & Condition. Bidders who violate the marketplace rules or engage in behavior that disrupts the fair execution of the marketplace restricts a bidder to length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace.
- Breach of the terms of the published in Request For Quotation.

6.00 Supplier Confidentiality

All information contained in this RFQ is confidential and may not be disclosed, published or advertised in any manner without written authorization from BSES RAJDHANI POWER LTD. This includes all bidding information submitted .All RFQ documents remain the property of BSES RAJDHANI POWER LTD and all suppliers are required to return these documents to BSES RAJDHANI POWER LTD upon request.

Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

7.0 Contact Information

All communication as regards this RFQ shall be made (i) in English, (ii) in writing and (iii) sent by mail, facsimile to

	Technical	Commercial
Contact Name	**Mr. Rishi Goyal** **Copy to Mr. Mr. Gopal Nariya**	**Mr. Sarveshwar Nautiyal** **Copy to Mr. Pankaj Goyal**
Address	2nd Floor , B-Block, BSES Bhawan Nehru Place , New Delhi -111019	1st Floor , D-Block, BSES Bhawan Nehru Place , New Delhi -111019
Email Id	Rishi.Goyal@relianceada.com, Goap.Nariya@relianceada.com,	Sarveshwar.Nautiyal@relianceada.com, Pankaj.goyal@relianceada.com,

Note: Those who are downloading tender notice from website. It is advisable to inform BRPL technical Deptt, so as they can be contacted in case of any amendment in tender.

BSES Rajdhani Power Limited

SECTION – II

INSTRUCTION TO BIDDERS (ITB)

RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

CMC/BR/22-23/RB/PR/SN/1010

A. GENERAL

1.0 BSES RAJDHANI POWER LTD hereinafter referred to as the Purchaser "are desirous of implementing the various Systems Improvement/Repair & Maintenance works at their respective licensed area in Delhi The Purchaser has now floated this tender for procurement Single Phase meter with & without Box as notified earlier in this bid Document.

2.0 SCOPE OF WORK

The scope shall include Design, Manufacture, Testing at works conforming to the Technical Specifications enclosed along with Packing, Forwarding, Freight and Unloading and proper stacking at Purchaser's stores.

3.0 DISCLAIMER

3.01 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/Bidding Consortium should conduct its own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.

3.02 Neither Purchaser nor its employees will have any liability whatsoever to any Bidder or any other person under the law or contract, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage whatsoever which may arise from or be incurred or suffered in connection with anything contained in this Document, any matter deemed to form part of this Document, provision of Services and any other information supplied by or on behalf of Purchaser or its employees, or otherwise a rising in anyway from the selection process for the Supply.

3.03 Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy itself that Documents are complete in all respects. Intimation of any discrepancy shall be given to this office immediately.

3.04 This Document and the information contained herein are Strictly Confidential and are for the use of only the person(s) to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors).

4.0 **COST OF BIDDING**

The Bidder shall bear all cost associated with the preparation and submission of its Bid and Purchaser will in no case be responsible or liable for those costs. **Further the Purchaser has a right to get Sample Meter's tested by any reputed independent lab like CPRI/ERDA/NABL at the cost of bidder.**

5.0 **BIDDING DOCUMENTS**

5.01 The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding

Documents. In addition to the covering letter accompanying Bidding Documents, the Bidding Documents include:

Volume -I

(a) Request for Quotation (RFQ) - Section - I
(b) Instructions to Bidders (ITB) - Section – II
(c) General Conditions of Contract - Section -III
(d) Quantity and delivery requirement - Section –IV
(e) Technical Specifications (TS) - Section –V

Volume - II

(a) Acceptance form for Reverse Auction - Annexure –A
(b) Bid Form - Annexure –I
(c) Bid Format - Annexure -II
(d) Price Schedule - Annexure –III
(e) Commercial Terms & Conditions - Annexure -IV
(f) No Deviation Sheet - Annexure –V
(g) Qualification Criterion - Annexure –VI

5.02 The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms, Term and Specifications. Failure to furnish all information required by the Bidding documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will may result in the rejection of the Bid.

6.00 **AMENDMENT OF BIDDING DOCUMENTS**

6.01 At any time prior to the deadline for submission of Bids, the Purchaser may for any reasons, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by Amendment.

6.02 The Amendment shall be part of the Bidding Documents, pursuant to Clause 5.01,and it will be notified in writing by Fax/e-mail to all the Bidders who have received the Bidding Documents and confirmed their participation to Bid, and will be binding on them .

6.03 In order to afford prospective Bidders reasonable time in which to take the Amendment into account in preparing their Bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids.

C. **PREPARATION OF BIDS**

7.0 **LANGUAGE OF BID**

The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser, shall be written in the English Language. Any printed literature furnished by the Bidder may be written in another Language, provided that this literature is accompanied by an English translation, in which case, for purposes of interpretation of the Bid, the English translation shall govern.

8.0 **DOCUMENTS COMPRISING THE BID**

The Bid prepared and submitted by the Bidder shall comprise the following components:

(a) Bid Form ,Price & other Schedules (STRICTLY AS PER FORMAT)and Technical Data Sheets completed in accordance with Clause 9.0, 10.0, 11.0 and Technical Specification ;

(b) All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.

(c) Tender documents duly signed and stamped on each page by authorized signatory.

9.0 **BID FORM**

9.01 The Bidder shall complete an "Original' and another one "Copy' of the Bid Form and the appropriate Price & Other Schedules and Technical Data Sheets.

9.02 **EMD**

Pursuant to Clause 8.0(b) above ,the bidder shall furnish, as part of its bid, a EMD amounting to 1 % of the total bid value(FOR Destination) i.e **Rs 9,20,000 /**. The EMD is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture.
The EMD shall be denominated in the currency of the bid, and shall be in the following form**:**

(a) A bank guarantee issued by any scheduled bank strictly as per the form at enclosed and shall be valid for a period of thirty (30) days beyond the validity of the bid

(b) Bank Draft in favour of BSES RAJDHANI POWER LTD, payable at Delhi.

Unsuccessful bidders'EMD will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of bid validity.

The successful bidder's EMD will be discharged upon furnishing the performance security. The EMD may be forfeited:

(a) If the Bidder:

(i) Withdraws its bid during the period of bid validity specified by the Bidder in the Bid Form ; or

(b) In the case of a successful Bidder, if the Bidder fails:

(i) to sign the Contractor

(ii) to furnish the required performance security.

10.0 **BID PRICES**

10.01 Bidders shall quote for the entire Scope of Supply with a break-up of prices for individual items. The total Bid Price shall also cover all the Supplier's obligations mentioned in or reasonably to be inferred from the Bidding Documents in respect of Design, Supply, Transportation to site, all in accordance with the requirement of Bidding Documents The Bidder shall complete the appropriate Price Schedules included herein , stating the Unit Price for each item & total Price.

10.02 The prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during execution of the supply work , breakup of price constituents, should be there.

Prices quoted by the Bidder shall be—Firm "and not subject to any price adjustment during the performance of the Contract. A Bid submitted with an adjustable price quotation will be treated as non -responsive and rejected.

11.0 **BID CURRENCIES**

Prices shall be quoted **in Indian Rupees (RS) Only.**

12.0 **PERIOD OF VALIDITY OF BIDS**

12.01 Bids shall remain valid for **120 days** post bid date.

12.02 Not withstanding Clause12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing by Fax/e-mail.

13.0 **ALERNATIVE BIDS**

Bidders shall submit Bids, which comply with the Bidding Documents. Alternative Bids will not be considered. The attention of Bidders is drawn to the provisions of Clause 22.03 & 22.04 regarding the rejection of Bids, which are not substantially responsive to the requirements of the Bidding Documents.

14.0 **FORMAT AND SIGNING OF BID**

14.01 The original Bid Form and accompanying documents (as specified in Clause9.0),clearly marked "Original Bid", plus one duplicate copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses15.0 and16.0. In the event of any discrepancy between the original and the copies, the original shall govern.

14.02 The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to sign on behalf of the Bidder. Such authorization shall be indicated by written Power-of-Attorney accompanying the Bid.

14.03 The Bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D. SUBMISSION OF BIDS

15.0 **SEALING AND MARKING OF BIDS**

15.01 Bid submission: One original & one duplicate Copy (hard copies) of all the Bid Documents shall be sealed and submitted to the Purchaser before the closing time for submission of the bid.

15.02 The Technical Documents and the EMD shall be enclosed in a sealed envelope and the said envelope shall be superscribed with —**Technical & EMD**". The Financial bid shall be inside another sealed envelope with superscription — **Financial Bid** ".Both these envelopes shall be sealed inside another big envelope. All the envelopes should bear the Name and Address of the Bidder and marking for the Original and Copy. The envelopes should be superscribed with —**"Tender Notice No, Due date of submission, Tender opening date**.

15.03 The Bidder has the option of sending the Bids in person. Bids submitted by Telex/Telegram /Fax will not be accepted. No request from any Bidder to the Purchaser to collect the proposals from Airlines/Cargo Agents etc shall be entertained by the Purchaser.

15.04 The Bidder, along with the bid documents has to submit two samples along with detailed GTP & Drawings. The sample should clearly indicate (i) Name of the bidder (ii)TenderNo.,(iii) Group & Item Sr.N o.etc. Samples will be submitted at BRPL Laboratory Near substation no .15 , sector – 7 , Pushpa Vihar , Saket ,New Delhi – 110017 on or before the due date of tender submission. Bidders are required to submit the receipt of sample submission along with the technical bid. The samples shall not be returned back to the bidder. Sample submission is not applicable for existing vendor and for vendor who has supplied meter in the past 6 months(unless supplier wants to it)

16.0 **DEADLINE FOR SUBMISSION OF BIDS**

16.01 The original Bid, together with the required copies, must be received by the Purchaser at the address specified **at 1500 Hrs on 28.03.2022**

16.02 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause9.0,in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

17.0 **ONE BID PER BIDDER**

Each Bidder shall submit only one Bid either by itself, or as a partner in a Joint Venture. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.0 **LATE BIDS**

Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 16.0, will be declared "Late" and rejected and returned unopened to the Bidder.

19.0 **MODIFICATIONS AND WITHDRAWAL OF BIDS**

19.01 The Bidder is not allowed to modify or withdraw its Bid after the Bid's submission.

E. EVALUATION OF BID

20.0 **PROCESS TO BE CONFIDENTIAL**

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

21.0 **CLARIFICATION OF BIDS**

To assist in the examination, evaluation and comparison of Bids, the Purchaser may, at its discretion, ask the bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

22.0 **PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS**

22.01 Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.

22.02 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item , the sum of the total price per item shall prevail and the Total Amount will be corrected.

22.03 Prior to the detailed evaluation, Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

22.04 Bid determined as not substantially responsive will be rejected by the Purchaser and/or the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non - conformity.

23.0 **EVALUATION AND COMPARISON OF BIDS**

23.01 The evaluation of Bids shall be done based on the delivered cost competitiveness basis.

23.02 The evaluation of the Bids shall be a stage-wise procedure. The following stages are identified for evaluation purposes: In the first stage, the Bids would be subjected to a responsiveness check. The Technical Proposals and the Conditional ties of the Bidders would be evaluated.

Subsequently, the Financial Proposals along with Supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids shall be considered for final evaluation .

23.03 The Purchaser's evaluation of a Bid will take into account, in addition to the Bid price, the following factors, in the manner and to the extent indicated in this Clause:

(a) Supply Schedule

(b) Deviations from Bidding Documents

Bidders shall base their Bid price on the terms and conditions specified in the Bidding Documents. The cost of all quantifiable deviations and omissions from the specification , terms and conditions specified in Bidding Documents shall be evaluated. The Purchaser will make its own assessment of the cost of any deviation for the purpose of ensuring fair comparison of Bids.

23.04 Any adjustments in price, which result from the above procedures, shall be added for the purposes of comparative evaluation only to arrive at an "Evaluated Bid Price". Bid Prices quoted by Bidders shall remain unaltered.

F. AWARD OF CONTRACT

24.0 **CONTACTING THE PURCHASER**

24.01 From the time of Bid submission to the time of contract award, if any Bidder wishes to contact the Purchaser on any matter related to the Bid, it should do so in writing.

24.02 Any effort by a Bidder to influence the Purchaser and/or in the Purchaser‘s decisions in respect of Bid evaluation, Bid comparison or Contract Award, will result in the rejection of the Bidder‘s Bid.

25.0 **THE PURCHASER ’S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR A LL BIDS**

The Purchaser reserves the right to accept or reject any Bid and to annul the Bidding process and reject all Bids at anytime prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser's action.

26.0 AWARD OF CONTRACT

The Purchaser will award the Contract to the successful Bidder whose Bid has been Determined to be the lowest-evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to satisfactorily perform the Contract. Purchaser reserves the right to award order other bidders in the tender, provided it is required for progress of project & provided he agrees to come to the lowest rate.

27.0 THE PURCHASER 'S RIGHT TO VARY QUANTITIES

The Purchaser reserves the right to vary the quantity i.e. increase or decrease the numbers/quantities without any change in terms and conditions during the execution of the Order.

28.0 LETTER OF INTENT/ NOTIFICATION OF AWARD

The letter of intent/ Notification of Award shall be issued to the successful Bidder whose bids have been considered responsive, techno-commercially acceptable and evaluated to be the lowest (L1). The successful Bidder shall be required to furnish a letter of acceptance with in 7 days of issue of the letter of intent /Notification of Award by Purchaser.

29.0 PERFORMANCE BANK GUARANTEE

The successful Bidder shall furnish the Performance Bank Guarantee for an amount of 5% (Five percent) of the Contract Price in accordance with the format provided. The Performance Bond shall be valid for a period of Sixty months (60) from the date of the commissioning or Sixty six months (66) from the last date of receipt of material (last consignment) at site/stores whichever is earlier plus 3 months towards claim period. Upon submission of the performance security, the EMD shall be released.

30.0 CORRUPT OR FRADULENT PRACTICES

30.01 The Purchaser requires that the Bidders observe the highest standard of ethics during the procurement and execution of the Project. In pursuance of this policy, the Purchaser:

(a) Defines, for the purposes of this provision , the terms set forth below as follows:

(i) "Corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them ,or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and

(ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or
the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders(prior to or after Bid submission) designed to establish Bid prices at artificial non -competitive levels and to deprive the Purchaser of the benefits of free and open competition .

(b) Will reject a proposal foraward if it determines that the Bidder recommended for award has

engaged in corrupt or fraudulent practices in competing for the contract in question;

(c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

30.02 Furthermore, Bidders shall be aware of the provision stated in the General Conditions of Contract.

SECTION- III

GENERAL CONDITIONS OF CONTRACT (GCC)

RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

CMC/BR/22-23/RB/PR/SN/1010

GENERAL TERMS AND CONDITION

1.0 General Instructions

1.01 All the Bids shall be prepared and submitted in accordance with these instructions.

1.02 Bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Purchaser will in no case shall be responsible or liable for these costs.

1.03 The Bid should be submitted by the Bidder in whose name the bid document has been issued and under no circumstances it shall be transferred/sold to the other party.

1.04 The Purchaser reserves the right to request for any additional information and also reserves the right to reject the proposal of any Bidder, if in the opinion of the Purchaser, the data in support of RFQ requirement is incomplete.

1.05 The Bidder is expected to examine all instructions, forms, terms & conditions and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a Bid not substantially responsive to the Bid Documents in every respect may result in rejection of the Bid. However, the Purchaser's decision in regard to the responsiveness and rejection of bids shall be final and binding without any obligation, financial or otherwise, on the Purchaser.

2.0 Definition Of Terms

2.01 "Purchaser" shall mean BSES RAJDHANI POWER LTD Limited, on whose behalf this bid enquiry is issued by its authorized representative / officers.

2.02 "Bidder" shall mean the firm who quotes against this bid enquiry issued by the Purchaser. "Supplier" or "Supplier" shall mean the successful Bidder and/or Bidders whose bid has been accepted by the Purchaser and on whom the "Letter of Acceptance" is placed by the Purchaser and shall include his heirs, legal representatives, successors and permitted assigns wherever the context so admits.

2.03 "Supply" and " shall mean the Scope of Contract as described.

2.04 "Specification" shall mean collectively all the terms and stipulations contained in those portions of this bid document known as RFQ, Commercial Terms & Condition, Instructions to Bidders,

Technical Specifications and the Amendments, Revisions, Deletions or Additions, as may be made by the Purchaser from time to time.

2.05 "Letter of Acceptance" shall mean the official notice issued by the Purchaser notifying the Supplier that his proposal has been accepted and it shall include amendments thereto, if any, issued by the Purchaser. The "Letter of Acceptance" issued by the Purchaser shall be binding on the "Supplier" The date of Letter of Acceptance shall be taken as the effective date of the commencement of contract.

2.06 "Month" shall mean the calendar month and "Day" shall mean the calendar day.

2.07 "Codes and Standards" shall mean all the applicable codes and standards as indicated in the Specification.

2.08 "Offer Sheet" shall mean Bidder's firm offer submitted to BSES RAJDHANI POWER LTD in accordance with the specification.

2.09 "Contract" shall mean the "Letter of Acceptance" issued by the Purchaser.

2.10 "Contract Price" shall mean the price referred to in the "Letter of Acceptance".

2.11 "Contract Period" shall mean the period during which the "Contract" shall be executed as agreed between the Supplier and the Purchaser in the Contract inclusive of extended contract period for reason beyond the control of the Supplier and/or Purchaser due to force majeure.

2.12 "Acceptance" shall mean and deemed to include one or more of the following as will be stipulated in the specification:

a) The written acceptance of material by the inspector at suppliers works to ship the materials.
b) Acceptance of material at Purchaser site stores after its receipt and due inspection/ testing and release of material acceptance voucher.
c) Where the scope of the contract includes supply, acceptance shall mean issue of necessary equipment / material takeover receipt after installation & commissioning and final acceptance.

3.0 Contract Documents & Priority

3.01 Contract Documents: The terms and conditions of the contract shall consist solely of these RFQ conditions and the offer sheet.

3.02 Priority: Should there be any discrepancy between any term hereof and any term of the Offer Sheet, the terms of these RFQ shall prevail.

4.0 Scope Of Supply -General

4.01 The "Scope of Supply" shall be on the basis of Bidder's responsibility, completely covering the obligations, responsibility and supplies provided in this Bid enquiry whether implicit or explicit.

4.02 Bidder shall have to quote for the Bill of quantities as listed in Section – IV of this RFQ.

4.03 Quantity variation and additional requirement if any shall be communicated to successful bidder during project execution.

4.04 All relevant drawings, data and instruction manuals.

5.0 Quality Assurance and Inspection

5.01 Immediately on award of contract, the bidder shall prepare detailed quality assurance plan / test procedure identifying the various stages of manufacture, quality checks performed at each stage, raw material inspection and the Customer hold points. The document shall also furnish details of method of checking, inspection and acceptance standards / values and get the approval of Purchaser before proceeding with manufacturing. However, Purchaser shall have right to review the inspection reports, quality checks and results of suppliers in house inspection department which are not Customer hold points and the supplier shall comply with the remarks made by purchaser or his representative on such reviews with regards to further testing, rectification or rejection, etc.

5.02 Witness and Hold points are critical steps in manufacturing, inspection and testing where the supplier is obliged to notify the Purchaser in advance so that it may be witnessed by the Purchaser. Final inspection is a mandatory hold point. The supplier to proceed with the work past a hold point only after clearance by purchaser or a witness waiver letter from **BSES RAJDHANI POWER LTD.**

5.03 The performance of waiver of QA activity by Purchaser at any stage of manufacturing does not relieve the supplier of any obligation to perform in accordance with and meet all the requirements of the procurement documents and also all the codes & reference documents

Mentioned in the procurement document nor shall it preclude subsequent rejection by the purchaser.

5.04 On completion of manufacturing the items can be dispatched only after issue of shipping release by the Purchaser.

5.05 All testing and inspection shall be done without any extra cost.

5.06 Purchaser reserve the right to send any material out of the supply to any recognized laboratory for testing and the cost of testing shall be borne by the Purchaser. In case the material is found not in order with the technical requirement / specification, the charges along with any other penalty which may be levied is to be borne by the bidder. To avoid any complaint the supplier is advised to send his representative to the stores to see that the material sent for testing is being sealed in the presence of bidders representative.

5.07 Bidder has to sign quality agreement before supply of the material.

6.0 Packing, Packing List & Marking

6.01 **Packing:** Supplier shall pack or shall cause to be packed all Commodities in boxes and containers and otherwise in such a manner as shall be reasonably suitable for shipment by road or rail to BSES RAJDHANI POWER LTD without undue risk of damage in transit.

6.02 **Packing List:** The contents of each package shall be itemized on a detailed list showing the exact weight and the extreme outside dimensions (length, width and eight) of each container or box. One copy of the packing list shall be enclosed in each package delivered. There shall also be enclosed in one package a master packing list identifying each individual package, which is part of the shipment. On any packaging where it is not feasible to place the packing list inside the container, all pertinent information shall be stenciled on the outside and will thus constitute a packing list.

7.01 Prices basis for supply of materials

Bidder to quote their prices on Landed Cost Basis.
For Supply to BSES RAJDHANI POWER LTD Delhi the price shall be inclusive of packing, forwarding, Freight & Goods & Service Tax (GST).

The above supply prices shall also **include unloading** at site stores.
Transit and storage insurance will be arranged by BSES RAJDHANI POWER LTD, however bidder to furnish required details in advance for arranging the same by BSES RAJDHANI POWER LTD.

8.0 Variation in taxes, duties & levies:

8.01 The total order value shall be adjusted on account of any variations in Statutory Levies imposed by Competent Authorities by way of fresh notification(s) within the stipulated delivery period only. However, in case of reduction in taxes, duties and levies, the benefits of the same shall be passed on to BUYER.

8.02 No other Taxes, Duties & Levies other than those specified above will be payable by BUYER except in case of new Levies, Taxes & Duties imposed by the Competent Authorities by way of fresh notification(s) subsequent to the issue of PURCHASE ORDER but within the stipulated delivery period.

8.03 Notwithstanding what is stated above, changes in Taxes, Duties & Levies shall apply only to that portion of PURCHASE ORDER not executed on the date of notification by Competent Authority. Further, changes in taxes, Duties & Levies after due date of Delivery shall not affect PURCHASE ORDER Terms and value.

8.04 PURCHASE ORDER value shall not be subject to any variation on account of variation in Exchange rate(s).

9.0 Taxes & Duties on raw materials & bought out components:

9.01 Taxes & Duties on raw materials & bought out components are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

9.02 Taxes & Duties on raw materials & bought out components procured indigenously are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

10.0 Terms of payment and billing

10.01 For Supply of Equipments:

- 100% payment shall be made within 45 days from the date of receipt of material at store/ site against submission of 5 % performance bank guarantee. (Refer 12.01)

10.02 Bidder to submit the following documents against dispatch of each consignment:

i. Consignee copy of LR
ii. Supplier detailed invoice showing commodity description, quantity, unit price, total price and basis of delivery.
iii. Original certificate issued by BSES RAJDHANI POWER LTD confirming receipt of material at site and acceptance of the same.
iv. Dispatch clearance / inspection report in original issued by the inspection authority
v. Packing List.
vi. Test Reports
vii. Guarantee Certificate.

11.0 Price Validity

11.01 All bids submitted shall remain valid, firm and subject to unconditional acceptance by BSES RAJDHANI POWER LTD Delhi for 120 days post bid-date. For awarded suppliers, the prices shall remain valid and firm till contract completion.

12.0 Performance Guarantee

12.01 Supplier shall establish a performance bond in favor of BSES RAJDHANI POWER LTD in an amount not less than Five percent (5%) of the total price of the Contract (the "Performance Bond"). The Performance Bond shall be valid for a period of Sixty months (60) from the date of the commissioning or Sixty six months (66) from the last date of receipt of material (last consignment) at site/stores whichever is earlier plus 3 months towards claim period. It shall be in accordance with one of the following terms:

(a) Depositing pay order /demand draft of the relevant amount directly with BSES RAJDHANI POWER LTD at the address listed above or as otherwise specified by BSES RAJDHANI POWER LTD, either of which shall constitute the Performance Bond hereunder; or

(b) Bank guarantee from any nationalized bank in favour of BSES RAJDHANI POWER LTD. The performance Bank guarantee shall be in the format as specified by BSES RAJDHANI POWER LTD.

13.0 Forfeiture

13.01 Each Performance Bond established under Clause 10.0 shall contain a statement that it shall be automatically and unconditionally forfeited without recourse and payable against the presentation by BSES RAJDHANI POWER LTD of this Performance Bond to the ICICI Bank at Mumbai, or to the relevant company/ correspondent bank referred to above, as the case may be, together with a simple statement that supplier has failed to comply with any term or condition set forth in the Contract.

13.02 Each Performance Bond established under will be automatically and unconditionally forfeited without recourse if BSES RAJDHANI POWER LTD in its sole discretion determines that supplier has failed to comply with any term or condition set forth in the contract.

14.0 Release

All Performance Bonds will be released without interest within seven (7) days from the last date up to which the Performance Bond has to be kept valid (as defined in Clause 10.0) except for the case set forth in Clause 21.0.

15.0 Guarantee Period

15.01 The bidder to Guarantee the Meter with Box supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 60 months from the date of commissioning or 66 months from the last date of delivery whichever is earlier. If during the Guarantee period any materials / items are found to be defective, these shall be replaced with New Meter with Box free of cost by the bidder at his own cost within 30 days from the date of receipt of intimation.

The analysis of defective meter within Guarantee period shall be provided by meter OEM's to BRPL. OEM shall ensure to establish a system where he will visit BRPL premises, in every 15 days or on accumulation of 250 defective meter (whichever comes first) and provide the detailed analysis report of faulty meters .

16.0 Return, Replacement or Substitution.

BSES RAJDHANI POWER LTD shall give Supplier notice of any defective Commodity promptly after becoming aware thereof. BSES RAJDHANI POWER LTD may in its discretion elect to return defective Commodities to Supplier for replacement, free of charge to BSES RAJDHANI POWER LTD, or may reject such Commodities and purchase the same or similar Commodities from any third party. In the latter case BSES RAJDHANI POWER LTD shall furnish proof to Supplier of the cost of such substitute purchase. In either case, all costs of any replacement, substitution, shipping, labour and other related expenses incurred in connection with the return and replacement or for the substitute purchase of a Commodity hereunder should be for the account of Supplier. BSES RAJDHANI POWER LTD may set off such costs against any amounts payable by BSES RAJDHANI POWER LTD to Supplier. Supplier shall reimburse BSES RAJDHANI POWER LTD for the amount, if any, by which the price of a substitute Commodity exceeds the price for such Commodity as quoted in the Bid.

17.0 Effective Date of Commencement of Contract:

17.01 The date of the issue of the Letter of Acceptance shall be treated as the effective date of the commencement of Contract.

18.0 Time – The Essence Of Contract

18.01 The time and the date of completion of the "Supply"" as stipulated in the Letter Of Acceptance / Purchase order issued to the Supplier shall be deemed to be the essence of the "Contract". The Supply has to be completed not later than the aforesaid Schedule and date of completion of supply .

19.0 The Laws and Jurisdiction of Contract:

19.01 The laws applicable to this Contract shall be the Laws in force in India.

19.02 All disputes arising in connection with the present Contract shall be settled amicably by mutual consultation failing which shall be finally settled as per the rules of Arbitration and Conciliation Act, 1996 at the discretion of Purchaser. The venue of arbitration shall be at Mumbai in India

20.0 Events of Default

20.01 Events of Default. Each of the following events or occurrences shall constitute an event of default ("Event of Default") under the Contract:

(a) Supplier fails or refuses to pay any amounts due under the Contract;

(b) Supplier fails or refuses to deliver Commodities conforming to this RFQ/ specifications, or fails to deliver Commodities within the period specified in P.O. or any extension thereof

(c) Supplier becomes insolvent or unable to pay its debts when due, or commits any act of bankruptcy, such as filing any petition in any bankruptcy, winding-up or reorganization proceeding, or acknowledges in writing its insolvency or inability to pay its debts; or the Supplier's creditors file any petition relating to bankruptcy of Supplier;

(d) Supplier otherwise fails or refuses to perform or observe any term or condition of the Contract and such failure is not remediable or, if remediable, continues for a period of 30 days after receipt by the Supplier of notice of such failure from BSES RAJDHANI POWER LTD

21.0 Consequences of Default.

(a) If an Event of Default shall occur and be continuing, BSES RAJDHANI POWER LTD may forthwith terminate the Contract by written notice.

(b) In the event of an Event of Default, BSES RAJDHANI POWER LTD may, without prejudice to any other right granted to it by law, or the Contract, take any or all of the following actions;

(i) present for payment to the relevant bank the Performance Bond;
(ii) purchase the same or similar Commodities from any third party; and/or recover any losses and/or additional expenses BSES RAJDHANI POWER LTD may incur as a result of Supplier's default.

22.0 Penalty for Delay

22.01 If supply of items / equipments is delayed beyond the supply schedule as stipulated in purchase order then the Supplier shall be liable to pay to the Purchaser as penalty for delay, a sum of 1% (one percent) of the Basic price for every week delay or part thereof for individual mile stone deliveries.

22.02 The total amount of penalty for delay under the contract will be subject to a maximum of ten percent (10%) of the total basic price of pending quantity.

22.03 The Purchaser may, without prejudice to any method of recovery, deduct the amount for such damages from any amount due or which may become due to the Supplier or from the Performance Bond or file a claim against the supplier.

23.0 Force Majeure

23.01 General

An "Event of Force Majeure" shall mean any event or circumstance not within the reasonable control directly or indirectly, of the Party affected, but only if and to the extent that:

(i) Such event or circumstance materially and adversely affects the ability of the affected Party to perform its obligations under this Contract, and the affected Party has taken all reasonable precautions, due care and reasonable alternative measures in order to prevent or avoid the effect of such event on the affected party's ability to perform its obligations under this Contract and to mitigate the consequences thereof.

(ii) For the avoidance of doubt, if such event or circumstance would not have materially and adversely affected the performance of the affected party had such affected party followed good industry practice, such event or circumstance shall not constitute force majeure.

(iii) Such event is not the direct or indirect result of the failure of such Party to perform any of its obligations under this Contract.

(iv) Such Party has given the other Party prompt notice describing such events, the effect thereof and the actions being taken in order to comply with above clause.

23.02 Specific Events of Force Majeure subject to the provisions of above clause, Events of Force Majeure shall include only the following to the extent that they or their consequences satisfy the above requirements :

(i) The following events and circumstances:

a) Effect of any natural element or other acts of God, including but not limited to storm, flood, earthquake, lightning, cyclone, landslides or other natural disasters.

b) Explosions or fires

(ii) War declared by the Government of India, provided that the ports at Mumbai are declared as a war zone.

(iii) Dangers of navigation, perils of the sea.

23.03 Notice of Events of Force Majeure If a force majeure event prevents a party from performing any obligations under the Contract in part or in full, that party shall:

i) Immediately notify the other party in writing of the force majeure events within 7(seven) working days of the occurrence of the force majeure event

ii) Be entitled to suspend performance of the obligation under the Contract which is affected by force majeure event for the duration of the force majeure event.

iii) Use all reasonable efforts to resume full performance of the obligation as soon as practicable

iv) Keep the other party informed of all such efforts to resume full performance of the obligation on a regular basis.

v) Provide prompt notice of the resumption of full performance or obligation to the other party.

23.04 Mitigation of Events of Force Majeure Each Party shall:

(i) Make all reasonable efforts to prevent and reduce to a minimum and mitigate the effect of any delay occasioned by an Event of Force Majeure including recourse to alternate methods of satisfying its obligations under the Contract;

(ii) Use its best efforts to ensure resumption of normal performance after the termination of any Event of Force Majeure and shall perform its obligations to the maximum extent practicable as agreed between the Parties; and

(iii) Keep the other Party informed at regular intervals of the circumstances concerning the event of Force Majeure, with best estimates as to its likely continuation and what measures or contingency planning it is taking to mitigate and or terminate the Event of Force Majeure.

23.05 Burden of Proof In the event that the Parties are unable in good faith to agree that a Force Majeure event has occurred to an affected party, the parties shall resolve their dispute in accordance with the provisions of this Agreement. The burden of proof as to whether or not a force majeure event has occurred shall be upon the party claiming that the force majeure event has occurred and that it is the affected party.

23.06 Termination for Certain Events of Force Majeure. If any obligation of any Party under the Contract is or is reasonably expected to be delayed or prevented by a Force Majeure event for a continuous period of more than 3 months, the Parties shall promptly discuss in good faith how to proceed with a view to reaching a solution on mutually agreed basis. If a solution on mutually agreed basis cannot be arrived at within a period of 30 days after the expiry of the period of three months, the Contract shall be terminated after the said period of 30 days and neither Party shall be liable to the other for any consequences arising on account of such termination.

23.07 Limitation of Force Majeure event. The Supplier shall not be relieved of any obligation under the Contract solely because cost of performance is increased, whether as a consequence of adverse economic consequences or otherwise.

23.08 Extension of Contract Period due to Force Majeure event The Contract period may be extended by mutual agreement of Parties by way of an adjustment on account of any period during which an obligation of either Party is suspended due to a Force Majeure event.

23.09 Effect of Events of Force Majeure. Except as otherwise provided herein or may further be agreed between the Parties, either Party shall be excused from performance and neither Party shall be construed to be in default in respect of any obligations hereunder, for so long as failure to perform such obligations shall be due to and event of Force Majeure."

24.0 Transfer And Sub-Letting

24.01 The Supplier shall not sublet, transfer, assign or otherwise part with the Contract or any part thereof, either directly or indirectly, without prior written permission of the Purchaser.

25.0 Recoveries

25.01 When ever under this contract any money is recoverable from and payable by the bidder, the purchaser shall be entitled to recover such sum by appropriating in part or in whole by detecting any sum due to which any time thereafter may become due from the supplier in this or any other contract. Should the sum be not sufficient to cover the full amount recoverable the bidder shall pay to the purchaser on demand the remaining balance.

26.0 Waiver

26.01 Failure to enforce any condition herein contained shall not operate as a waiver of the condition itself or any subsequent breach thereof.

27.0 Indemnification

27.01 Notwithstanding contrary to anything contained in this RFQ, Supplier shall at his costs and risks make good any loss or damage to the property of the Purchaser and/or the other Supplier engaged by the Purchaser and/or the employees of the Purchaser and/or employees of the other Supplier engaged by the Purchaser whatsoever arising out of the negligence of the Supplier while performing the obligations under this contract.

SECTION – IV:

QUANTITY AND DELIVERY REQUIREMENT

Sr. No.	Item Description	Specification	Requirement		Location
			Total Qty.	Delivery Schedule	
BSES RAJDHANI POWER LIMITED					
1	Single Phase 4G Smart Meter with configurable for Net Metering and Box	SECTION V & VI	12500 Nos	As per BSES Requirement	Stores BSES RAJDHANI POWER LTD Delhi
	Three Phase 4G Smart Meter with configurable for Net Metering and Box		5500 Nos		

BSES Rajdhani Power Limited

SECTION – V:

Technical Specifications for Single Phase Smart Meters (direct connected), Rating 10A – 60A with modular communication module (4G/NB-IoT) and software

RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

CMC/BR/22-23/RB/PR/SN/1010

Detailed Meter Specification No. : GN101-03-SP-221-00

Technical Specifications for Single Phase Smart Meters (direct connected), Rating 10A – 60A with modular communication module (4G/NB-IoT) and software

Document number: GN101-03-SP-221-00

Prepared By	Reviewed by	Approved By	
Rishi Goyal	Rishi Goyal Vikas Srivastava	Rajesh Doshi Gopal Nariya	**Revision : R0** **Rev. No.: 0** **Date: 06.12.21**

Version

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Revision

SN	Revision No.	Clause No.	Change	Approver
1	NA	NA	NA	NA

Contents

1. Scope

This specification covers design, manufacture testing, supply and delivery of Smart Single Phase two wire whole current meters, 240V, accuracy class 1, Current rating 10A-60A, with plug in cellular communication module (4G with fallback on 2G / NBIoT with fallback on 2G), related Head End Software and accessories required for successful operation of the meter in post paid, prepaid mode or special application such as bidirectional net meters (configurable remotely).

2. Standards

The meter shall be ISI marked (vendor shall be BIS certified) and conform to CEA Metering (Installation and Operation of Meters) Regulation 2006 or latest amendments, Indian Electricity Acts and Indian Electricity Rules.

SN	Standard	Title
a.	IS: 13779	AC Static Watt-hour Meters, Class 1 and 2 – Specification
b.	IS- 16444 (Part 1)	AC Static Transformer Operated Watt-hour Smart Meters, Class 1.0 and 2.0 Part 1 Specification
c.	IS 15959 and its latest amendment	Data Exchange for Electricity Meter, Reading, Tariff and Load Control – Companion Specification
d.	CBIP Manual (Pub no.-325)	Standardization of AC Static Electrical Energy Meters
e.	IS 11731	Method of test for determination of flammability of solid electrical insulating material when exposed to an igniting source
f.	IEC 61000-4-2	Electromagnetic compatibility
g.	IS 4249	Classification and methods of test for non-ignitable and self extinguishing properties of solid electrical insulating materials
h.	IS 15884	AC direct connected static prepayment meters for active energy class 1 and 2

3. Functional Specifications

1.	Rated Voltage	240V with variation of +20% & -40%.
2.	Rated Current	Ib: 10A and Imax: 60 A
3.	Starting current	0.2 % of base current
4.	Rated Frequency	50Hz +/- 5%
5.	Power Consumption	As per IS 16444 (Part 1)

		Meter with lowest power consumption shall be preferred.
6.	Meter constant	Imp/ unit (Bidder to specify meter constant) for all three energies (kWh, kVAh, kVArh), separate calibration LED for all energies or configurable at field for testing.
7.	Calibration	Meter shall be software calibrated at factory and modification in calibration shall not be possible at site by any means or external influence.
8.	Insulation Level	Meter shall withstand an AC voltage test of 4 KV and impulse test at 8 KV
9.	Power Factor Range	Zero lag –unity- zero lead
10.	kVAh definition	kVAh is computed based on kVArh and kWH value. If PF=1, or leading, then kVAh = kWH. At no instance kVAh < kWh.
11.	Climatic Conditions	Refer IS: 13779 for climatic conditions.
12.	Battery	In case of battery removal or total discharge same should not affect the working & memory of the meter. Shelf life of RTC battery should be 3 years, operating life of 10 years.
13.	Memory	Non volatile memory independent of battery backup, memory should be retained up to 10 year in case of power failure
14.	MD Registration	Meter shall store MD for active & apparent energy in every 30 min. period along with date & time. At the end of every 30 min, new MD shall be computed & compared with previous MD and store whichever is higher and the same shall be displayed. It is preferred that MD is computed using separate counter rather by difference of initial and final energy counter.
15.	Auto Reset of MD	Auto reset date for MD shall be indicated at the time of finalizing GTP. Default resetting date is 00:00 hrs, 1st of every month.
16.	TOD Metering	Meter shall be capable doing TOD metering with date and time stamp for kWh, kVAh, kVArh, Active energy, reactive (lag & lead), apparent, MD in kW, MD in kVA with date & time. Signed PF value TOD shall be as per latest DERC tariff order at the time of supply. The TOD shall be programmable remotely through HES and also on-site through handheld device (such as CMRI) if required.
17.	RTC	a. The meter shall have internal real time crystal clock to set date and time. b. Drift in time of this clock shall not be more than ±10minutes/ year at a reference temperature of 27°C. c. Meter should have capability of Time synchronization automatically. d. HES will keep record of all meters for RTC update / failed.

18.	Self Diagnostic feature	Meter shall have self diagnostic for the following a. Date and RTC. b. Battery. c. Non volatile memory. d. Display e. Communication card status f. Neutral removal indication
19.	Electromagnetic compatibility	a. Meter along with (NIC) shall remain immune to electrostatic discharge (upto and including 35KV), electromagnetic HF field and fast transient burst along-with NIC. b. The meter shall be designed in such a way that conducted or radiated electromagnetic disturbances as well as electrostatic discharge do not influence the meter. c. Meter shall be type tested for electromagnetic compatibility.
20.	Data Exchange protocol	a. Meter should comply Indian companion of data exchange and tariff control specification IS 15959 b. Bidder shall explain in detail the additional parameters/ services/ methods used in meters from IS 15959 and its reference to DLMS books/ IEC. c. Prior to manufacturing of meters bidder shall provide a detailed specification explaining all parameters/ services/ methods used in meter in addition to IS 15959.
21.	Load Control Switch	a. Smart meter shall be equipped with integrated load control switches to control flow of electricity to the load at the instance of connect/ disconnect commands as per functional need of the system. b. Load switch for connect/ disconnect purpose shall be mounted inside the meter with suitable arrangement. c. The rating of switches used shall be in line with meter rating. d. Utilization category of the load switch shall be UC2 as per IS 15884. e. Bidder to provide details of load switch (make, type) with technical document.
22.	Communication Module Interface	a. Meter should have the provision for plug-in communication module for connectivity. b. Interface shall support data transfer between meter and network interface card over UART/ RS232. Bidder shall explain its pin out, voltage and current standard in detail at the time of bid submission.

		c. Meter shall have mechanism to log communication module removal & insertion as an event in its memory with date and time stamp. d. Communication module shall be held in a casing which can be directly plugged in the meter. Sealing screw shall be provided. e. Module shall be hot swappable on field.
23.	Local Meter reading using HHU	The manufacturer has to provide software capable of downloading all the data stored in meter memory through handheld device such as CMRI. Bidder to support BRPL IT team to integrate with any other handheld device in future (android operating system). HHU software should have option for selection of parameters to be downloaded from meter. Meter data consisting of all parameters and complete load survey for all parameters shall be read by HHU and uploaded on HES in minimum possible time (not more than 5 minutes).
24.	Programmable parameters	a. The parameters can be programmed remotely by HES using proper access rights according to IS. b. Every transaction shall be logged in non volatile memory of the meter with date and time stamp. c. Programming of any of the parameters shall increment the 'Cumulative programmable count' value.
25.	Firmware upgrade	a. Smart meter shall support remote firmware upgrade feature for meter firmware without loss of any data and metrology for a part or complete firmware of meter. b. Firmware upgrade feature shall be provided with proper security. The design shall take into account field scenarios such as power failure during F/W upgrade. c. Once the firmware is upgraded, meter shall send an acknowledgment to HES. It shall also log it as an event in its memory. d. Meter shall support capability to self register the meter with new firmware. e. Meter shall keep and send to HES the record of previous version and present version and failed firmware events. f. The execution time of the change of the firmware within the meter should be below 5 minutes. g. Bidder to submit details of firmware upgrade process with technical

		document.
26.	Display Parameters	Display shall be as per table in this specification. 1. LCD test, cumulative kWh and kVAh and kVArh, MD in kW and kVA, Date & Time, phase Voltage, phase Current, Instantaneous Load, instantaneous and phase wise PF, temperature, and signal strength. 2. Meter shall have separate indications on display for remote and local communication. 3. Flags, connection check, legends to be available on display.
27.	Parameters	1. Parameters are as follows: a. Meter Serial no. b. Date & time c. Cumulative kWh d. Cumulative kVAh e. Cumulative kVArh f. MD in kW, kVAr, kVA with date & time g. MD with occurrence detail for minimum last 6 months h. Billing power on & power off duration for current & billing period i. Billing count j. No. of tamper events k. Power up count l. Phase Voltage & current m. Neutral current (Instantaneous value) n. Power Factor o. Temperature p. Signal Strength q. History of billing of above parameters with occurrence details for last 06 months along with ToD parameters 2. Tamper occurrence & restoration with date & time with snapshots for Phase wise Voltage, current (line,active & reactive),power factor,THD Voltage, THD current, THD Active power, Neutral current, Readings active, reactive & apparent **3.** In case of issues with remote communication, all this data shall be accessible for reading and recording billing by downloading through optical port with handheld device at site.
28.	Mid night data	Mid night data: The meter should record midnight parameter as below for last 60 days:

		Cumulative kWh, kVAh and kVArh
29.	Load Survey	30 min integration period, load profile for energy and demand for active, reactive and apparent, PF, voltage and current, frequency, temperature.
30.	Other Features	a. Temperature: The meter should have capability to measure inside temperature and can log high temperature events & send alert to HES if it is more than 60 deg C. b. Provision to change TOD in future. c. Meter shall measure the signal Strength & send to HES d. Meter shall capture the GPS coordinates and send to HES e. Meter shall have separate indications on display for remote and local communication. f. Smart meter shall automatically notify events to the HES.
31.	Connection/Reconnection	a. The Smart meter shall support disconnection, switches shall operate simultaneously as per relevant clause of IS 16444 (Part 1). b. Load limit function shall be disabled by default until other specified. c. Meter shall be able to reconnect load switches locally only for Overload and load control limit disconnections. d. The meter will try to reconnect the load up to predefined time, with predefined interval (Time and interval is programmable). e. It shall be possible to remotely connect/disconnect the relay via commands from HES. The remote reconnect shall not interrupt the normal connect/disconnect cycle. f. In case of relay malfunction i.e., connect/disconnect action of relay is not taking place due to welding of contacts or any other reason, then it shall be logged as an event in the Non-rollover compartment. Same shall be sent as an alert to HES.
32.	Name Plate	a. Meter should have clearly visible, indelible and distinctly marked name plate in accordance with IS 16444 (Part 1) & also with clause of this specification. b. All markings and details shall be printed by laser only.
33.	Test reports	a. Type test report to be submitted at the time of BID submission b. Routine test report to be provided with each meter
34.	Deviations	a. Deviations from this specification can be acceptable, only where the Seller has listed in his quotation the requirements he cannot, or does not, wish to comply with and which deviations the Buyer has agreed to in

		writing, before any order is placed. b. In the absence of any list of deviations from the Seller, it will be assumed by the Buyer that the Seller complies with the Specification fully.

4. Meter Construction

SN	Parameters	Technical Requirements
1.	Base Body	Material - Opaque and UV stabilized polycarbonate of grade LEXAN 143/ 943 or Equivalent with V0 inflammability level.
2.	Top Cover	Material – Transparent/Opaque and UV stabilized polycarbonate of grade LEXAN 143/ 943 or Equivalent with V0 inflammability level. Top cover and base should be Ultrasonically/Chemically welded. Mechanism shall be provided to log event in case of top cover is opened.
3.	Terminal Block	Material - Flame retardant glass filled polycarbonate of grade 500 R or equivalent. Terminal block shall be capable of passing the tests as per ISO-75 for a temperature of 135 Deg C and pressure of 1.8MPa. The terminals shall be designed so as to ensure adequate and durable contact such that there is no risk of loosening or undue heating.
4.	Terminals	a. Terminal cable entry hole should be suitable for 50 Sqmm PVC cable. b. Two no's flat head screws per terminal shall be provided c. Material of terminals, screws and washers should be brass or tinned copper. Terminals shall be tested for continuous current of 150 % Imax. d. Terminals shall be clearly marked for phase / neutral / outgoing etc. e. Clearances and creep age shall be as per IS 13779.
5.	Terminal cover	Material - UV stabilized transparent polycarbonate cover. Provision of sealing through sealing screws. The sealing screws shall be held captive in the terminal cover. Terminal cover should have provision for cable entry from bottom. Diagram of external connections should be embossed on terminal cover. Sticker is not acceptable. The terminal cover shall be provided with separation wall

6.	Marking on name plates	Meter should have clearly visible, indelible and distinctly name plate marked in accordance with IS & BRPL specifications. Prior approval of name plate design to be taken before product supply.
7.	Meter Sealing	As per IS 13779 and Metering Regulation 2006 or latest amendment, Supplier will fix its seal on meter. In addition, supplier shall affix buyer seal(s) on side of meter body as advised by buyer and record should be forwarded to Buyer. Supplier seal type: Minimum one seal as Hologram type, numbered with hologram transfer on tamper proof paper seal.
8.	Guarantee	66 months from the date of dispatch or 60 months from date of commissioning, whichever is earlier.
9.	Resistance of heat and fire	The terminal block and meter case shall have safety against the spread of fire. They shall not be ignited by thermal overload of live parts in contact with them as per the relevant IS 13779.
10.	Ingress Protection	IP 51 but without suction in the meter.

5. Tamper

Following tampers shall be recorded in meter and alerts will be available at HES:

Tamper logging:-

1. Low Voltage Logging below 180V – Event shall be logged in memory along with Occurrence and restoration event data. Manufacturer to define how meter will behave below 120 V. (Also refer CBIP guide for Power off definition).
2. Protection against HV spark: Meter shall continue to record energy and log the event, in case it is disturbed externally using a spark gun/ ignition coil. Up to 35 kV meter should be immune.
3. External Magnetic tampers: Meter should log on the events of attempt of tampering by external magnetic field as mentioned in the relevant IS. The Meter shall record as per actual load once the external abnormal magnetic field is removed. In such conditions the Meter shall log the event for presence of abnormal external magnetic field and its restoration. If meter switch to Imax, MD calculation should as per actual current and actual current shall be displayed on display of the meter
4. Power On / Off: Meter shall detect power OFF (minimum power off period 5 minutes) if all of phase voltages are not present. This event shall be recorded at the time of each power OFF. At the

same time power 'ON 'event shall be recorded. This logging shall be available in Tamper details along with cumulative time of failure.

5. Influence Parameters - The meter shall work satisfactorily with guaranteed accuracy limit under the presence of the following influence quantities as per CBIP Technical Report No 325 with latest amendment:
    a. External magnetic field *
    b. Electromagnetic field induction,
    c. Radio frequency interference
    d. Vibration etc,
    e. Waveform 10% of 3rd harmonics,
    f. Voltage variation,
    g. Electro-magnetic H.F. Field
    h. DC Immunity Test
6. Low power factor: The meter shall have feature to record low power factor as a separate event Logic: Load > 10% of rated, pf range --- 0.2 to 0.5, duration 15 minutes.
7. Transactions: Other than RTC and TOU zone timing, no other parameter should be programmable/ resettable in field. Regarding RTC and TOU, all transactions should be logged.
8. Top cover Open: The meter shall have top cover opening detection mechanism. The top cover opening event shall be indicated on display/LED continuously in auto scroll mode with kWh, kVAh. The detection and logging mechanism shall work even when meter is not energized. In case of indication of display, meter display shall get reset in 150 days, cumulative tamper count to be maintained.
9. High Temperature – Meter shall record temperature if greater than 60 deg, also temperature value shall be configurable through HES.

Event Logging:

The meter should log all the following events with snapshots, submit tamper logic of each event, it is required to log 20 events for each tamper listed below except power on/off that should have 100 events on rollover basis:-

1. Events Top cover opening
2. Magnetic event
3. Abnormal external field/ ESD
4. Low voltage (Below 180V)
5. Power On/Off hours
6. Abnormal power on/off
7. Abnormal voltage
8. Neutral Dist
9. Low PF
10. High Temperature
11. Cover open
12. High voltage
13. Low voltage
14. Invalid voltage
15. Overcurrent
16. THD voltage
17. THD current
18. Low PF

19. High Neutral
20. Communication module removal and restoration
21. Relay position
22. Faulty Relay
23. Firmware upgrade(OTA)
24. Write operation performed remotely (e.g. ToD update, Tariff update, Firmware update etc)

Note: The vendor will provide s/w to download all these data for PDS, CMRI, android based devices. The reports of all the above events shall be available in HES.

6. Component Specifications

SN	Component Function	Requirement	Makes and Origin
1.	Current Transformers	The Meters should be with the current transformers as measuring elements.	The current transformer should withstand as per specification/standards.
2.	Measurement or computing chips	The Measurement or computing chips used in the Meter should be with the Surface mount type along with the ASICs.	Freescale, Renesas, Analog Devices, Texas Instruments, Free scale, Maxim, ST or equivalent, to be specified by meter manufacturer before hand
3.	Memory chips	The memory chips should not be affected by the external parameters like sparking, high voltage spikes or electrostatic discharges.	Atmel, ST, Renasas, Onsemi, ROHM, Microchip or equivalent, to be specified by meter manufacturer before hand
4.	Display modules	a) The display modules should be well protected from the external UV radiations. b) The display visibility should be sufficient to read the Meter mounted at height of 0.5 meter as well as at the height of 2 meters (refer 3.2.d for Viewing angle). c) The construction of the modules shall be such that the displayed quantity	Truly semiconductor, Tianma/ Haijing Electronics, China

		should not disturbed with the life of display (PIN Type). d) It should be trans-reflective HTN or STN type industrial grade with extended temperature range min 70 ºC.	
5.	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.	Everlight, Osram, Agillent, NFC, Liteon
6.	Power Supply	The power supply should be with the capabilities as per the relevant standards. The power supply unit of the meter should not be affected in case the maximum voltage of the system appears to the terminals due to faults or due to wrong connections.	As per BRPL specification.
7.	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. LED	National Semiconductors, Atmel, Phillips, Texas Instruments, TDK, Hitachi, Oki, AVX or Ricoh, Rohm, Toshiba, Samsung, Siemens, EPCOS, Vishay Everlight, Agillent, Panasonic
8.	Mechanical parts	a) The internal electrical components should be of electrolytic copper & should be protected from corrosion, rust etc. b) The other mechanical components should be protected from rust, corrosion etc. by suitable plating/painting methods	
9.	Battery	Lithium with guaranteed shelf life of 3 years and operating life of 10 years.	Tekcell, SAFT, Varta, Mitsubishi, EVE, Entracell

10.	RTC & Micro controller	The accuracy of RTC shall be as per relevant IEC / IS standards	Texas Instruments, Atmel, Freescale, Maxim, Renasas, Prolific, ST, EPSON, to be specified by meter manufacturer before hand
11.	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm	(BBT test is must)
12.	Plastic Material		GE Plastics, Bayer India, Mitsubishi, PI Polymer to be specified
13.	Relay	Can withstand 120% of Vref and Imax	Gruner, KG

Note:

a. All the components shall have operating Life of more than 10 years.

b. Incase vendor want to use other make components; same shall be approved by BRPL before use.

c. For existing supplier – fresh approval is needed for all deviations.

7. Drawings and Documents

Following drawings & Documents shall be submitted with the bid:

a. Completely filled-in Technical Parameters.
b. General arrangement drawing of the meter
c. Rating plate
d. Terminal Block dimensional drawing `
e. Mounting arrangement drawings
f. Component list
g. Display parameter
h. Type Test Certificates from NABL approved laboratories.
i. Tamper details
j. PIN configuration, voltage and current of Module
k. Manual and SOP/DWI for operation

8. Rating Plate

- Meter name-plate:
  1. Manufacturer name and place of manufacturing
  2. Meter rating and Class
  3. Property of BRPL
  4. BIS registration mark (ISI mark)
  5. Manufacturing date (mm/yyyy)
  6. Guaranty period: 5.5 years
  7. Meter constant (imp/kWh, kVAh)
  8. PO no. and date
  9. Meter serial number should be of 8 digits
  10. Size of the digit of the meter serial number should be minimum 5mm X 3mm (Laser printing shall be preferred)
  11. Symbol of load switch
  12. QR code of fine quality should be printed contains meter serial number, mm/yyyy.
- Module Name plate
  a. Manufacturer name and place of manufacturing
  b. Serial no of NIC along/ IMEI no/MAC address
  c. Property of BRPL
  d. Manufacturing date (mm/yyyy)
  e. Guarantee period

9. General Requirements

1. Meter Sr. Nos. to be printed in black on the name plate, instead of embossing (Good quality of printing)
2. The supplier should seal the meter cover. The Buyer shall approve the method of sealing.
3. Deliverable with Meters.
   a. Meter accuracy test report for each meter
   b. Copies for Routine test certificates with each meter till alternate is provided by vendor and approved by BRPL.
   c. Report of seal & initial reading record (soft copy).
4. Bidder shall mention no. of meters per box, box number, Meter serial number, type and rating on cartons.
5. The supplier should seal the meter cover. The Buyer shall approve the method of sealing.
6. Individual meter should be packed in separate box and bidder shall take adequate care in packing to ensure there is no damage to the meters during transit. Vendor shall replace all meters and boxes if any breakage is found during transit.

7. Meters shall be suitably packed with environmental friendly material in order to avoid damage or disturbance during transit or handling and to prevent ingress of moisture/dust.
8. Meter shall have manufacturing month and year in the memory and should be downloadable.
9. GTP and necessary points shall be signed and approved at the time of purchase order and any changes subsequently shall be done through change management process.
10. Bidder shall demonstrate that at any point of time, the pre -paid meter shall be configurable from remote to a Post-paid meter and vice –versa or bidirectional Net meter as desired, by BRPL without any loss of data. In these cases, released specifications of such meters shall be followed wherever applicable in addition to the existing specifications. Method of conversion shall be documented and approved by BRPL before implementation to avoid any loss of data. The HES shall have the capability to identify such cases and report shall be generated from HES.
11. Delivery of software for CMRI and approval of BCS software is required at the time of inspection and before meter delivery.
12. Bidder shall provide software to download data using handheld device such as PDS and android based devices as and when required by BRPL in agreed timeline
13. Bidder shall submit two samples, login details for HES (on cloud/server), configuration details, manual (meter & HES) to Smartgrid & Meter Technical team for approval. In case of any shortcomings bidder shall be responsible to either re-submit or upgrade existing samples for approval.
14. Acceptance testing shall include tests as per relevant IS along with Two way communication, Load control features, Firmware upgrade, Last gasp, Postpaid to prepaid to Net & vice versa, ToD update, Relay configuration, RTC related events, alerts, Communication module related from remote or local as desired.
15. Bidder shall provide complete support for troubleshooting communication and software issue without any additional costs during the guarantee period.
16. Bidder shall be responsible to ensure proper communication of the meters with HES & ensure 100% billing is achieved in time every month.
17. The Solution will ensure 90% of the smart meters are read within 4 hours & 99% within 8 hour.
18. The supplier shall give 15 days advanced intimation to enable BRPL to depute representative for lot inspection.
19. Bidder shall update the ToD for all meters in case of any changes by DERC within 4 weeks of such intimation without any charges. Bidder shall give an undertaking in this regard signed by suitable authority.
20. Bidder shall ensure integration of meters with third party HES if procured by BRPL in future. Bidder shall give an undertaking in this regard signed by suitable authority.
21. For any false events recorded in meter, vendor shall depute their representative for field visit within one week and provide the root cause analysis in 4 weeks time.

22. Bidder shall provide mobile app to monitor energy, alerts, load curve, instantaneous parameters etc.

23. Two nos. of meter samples, RJ11/Micro USB cord, meter box, software, optical cable, screws, wall plug and other accessories as per GTP shall be submitted along with the tender bid to Meter Technical Team on non-returnable basis.

24. For Prepaid Solution:

a. Meter manufacturer shall comply with DERC tariff regulation (latest) for smart prepaid metering system.

b. Meter shall communicate with HES as per defined configuration as desired by BSES. However, billing data shall be uploaded on daily basis.

c. Meter remaining balance shall be updated into meter on daily basis. A meter wise log/Ledger shall be prepared for reconciliation purpose.

d. The credit shall be debited by the meter based on the electricity consumption according to the rate including the fixed charges as defined in tariff configuration.

e. An Alert facility shall be provided to consumers on their registered mobile nos./email linked with the system. Alert message shall initiate on every Recharge, Low credit and Load connection/disconnection.

f. Emergency credit limit configuration facility shall be available in Rs and Days that will be used as reserve amount. The emergency credit amount shall be adjusted in next recharge transaction.

g. The meter shall not disconnect consumers supply even if their credit falls down to emergency credit limit during night hours, on Weekly-off or pre-defined public holidays (Friendly credits). During meter recharge the adjustment for credited amount shall be done first.

h. HES shall calculate the consumption amount as per uploaded billing data (kWh/kVAh consumption and MD) and applicable tariff; so that remaining balance can further be calculated and updated into meter.

i. A visible low credit warning shall be provided in form of LED/ LCD, for low credit when the credit falls below defined alarm limit.

j. Bidder shall ensure that the meter shall not disconnect even unless an authorized command is executed from the HES and report of such connect/disconnect actions will be available.

10. Display Sequence for the Parameters (prepaid & postpaid)

Sr No.	Parameter	Display Time
1	Meter Sr. No.(8 digits)	5 Sec
2	Date	5 Sec
3	Real time	5 Sec
4	Current balance in INR (for prepaid mode)	5 sec

5	Last Recharge Amount in INR	5 sec
6	Last Recharge Date	5 sec
7	Relay Status- Relay On/Relay OFF	5 sec
8	Cumulative kWh	15 Sec
9	Cumulative kVAh	15 Sec
10	Current month MD kW	10 Sec
11	Current month MD kVA	5 Sec
12	Neutral current (Instantaneous value)	5 Sec
13	Instantaneous PF	5 Sec
14	Instantaneous kW	10 Sec
15	Instantaneous kVA	10 Sec
16	Temperature	5 sec
17	High Resolution value (kWh, KVAh)	5 sec
18	Error Type	5 sec
19	Signal Strength	5 sec
20	TOD active and apparent energy	5 sec
21	Top cover open date & time	5 sec

On Demand Display

1. LCD test
2. Date
3. Time
4. Credit balance in INR (for prepaid mode)
5. Cumulative Active energy
6. Cumulative Apparent Energy
7. Neutral Current
8. Instantaneous Load Active
9. Instantaneous Load Apparent
10. Last month billing Date & Time
11. Last month billing Active energy
12. Last month billing Apparent energy
13. Last month billing Maximum Demand in Active
14. Last month billing Maximum Demand in Active occurrence Date and Time
15. Last month billing Maximum Demand in Apparent
16. Last month billing Maximum Demand in Apparent occurrence Date
17. Last month billing Maximum Demand in Apparent occurrence Time
18. Last Occurrence Tamper ID
19. Date of Last Tamper Occurrence

20. Time of Last Tamper Occurrence
21. Last Restoration Tamper ID
22. Date & time of Last Tamper Restoration
23. Cumulative Tamper Count
24. Front Cover Open Count
25. Last Cover open date & time
26. Self Diagnostic Flags
27. Connection check
28. Signal strength
29. Temperature
30. Status of Communication module
31. Relay status
32. Error Code
33. Last recharge amount with date and time

11. Head End Software

1. The bidder shall provide HES license free of cost for remote reading of data with BRPL logo in the website and reports generated.
2. Bidder shall install the HES within BRPL premises and integrate the HES with BRPL billing system without any cost.
3. HES shall be developed based on open platform and distributed architecture for scalability without degradation of the performance.
4. HES shall also manage the module on field, have user access rights management, dashboard for viewing in graphical mode, analysis & reporting, Security features and audit trail.
5. HES system shall have user friendly GUI to monitor communication status, energy, demand, MD, instantaneous parameters, tampers, parameters like voltages, current, active power, power factor, events, consumption, balance in Rs. etc.
6. HES system shall support TCP/IP, UDP, HTTP, FTP, SMTP etc; HES system should be compatible to RDBMS Oracle 12C/My SQL database.
7. HES shall have option to export CDF as per MIOS standard as well as user defined report generation in format of Excel, PDF, XML and CSV for further integration with system.
8. Alerts (for Alarms and Events) shall be displayed in HES for further action and shall be configurable
9. HES shall have facility for On Demand acquisition of meter data and at user selectable periodicity
10. HES system shall display phasor diagram as applicable, consumption/load profiles by configurable period (15/30 min, hour, day, month, year etc.) day type, tariff, customer type, or any user specified collection of meters.

11. HES system shall provide energy usage profile for a single meter or group of meters. The load profile shall illustrate energy consumption and peak demand in user defined intervals for a user-specified time period.
12. HES will pop up alerts for tampers & events, non communication of meters, non billed meters, RTC issues of meters or modems etc.
13. HES shall be capable of accessing complete data stored in modem through remote or have provision to upload meter data of CMRI/PDS or android based devices.
14. HES shall maintain data of at least 12 months according to desired hierarchy. Archival policy shall be decided along with IT at the time of award of contract.
15. HES shall manage geographical, administrative, regional, and the network hierarchy of the utility. These hierarchies shall be imported from external source and / or shall be configurable in the system.
16. HES system shall have necessary security features as per existing and comply in future to cyber laws as mandated by Government of India. HES shall have mechanism to identify fraud, data breach and manipulation of data. All configurations of User Management / Access Rights shall be as per the requirements of BRPL.
17. System should be able to generate user specific reports for billing, monitoring and export in excel, pdf, csv formats.
18. HES must have built-in redundancy & fail over architecture to ensure seamless system recovery.
19. Supplier shall agree to integrate devices from other manufacturers in future.
20. Supplier shall be responsible to ensure 100% billing is done each month.
21. Supplier shall troubleshoot in case of non communication, erratic behavior and non receipt of alerts for both field and back end activities.
22. The Supplier shall also provide training for the use of software, installation, downloading and troubleshooting free of cost to BRPL.
23. HES shall be integrated with other applications of BRPL such as analytics, SAP, GIS etc.

12. Meter Replacement

a) Manufacturer shall undertake to replace meter in case of failure within the guarantee period.
b) Faulty meters under Guarantee shall be verified by manufacturer at site and rectify wherever possible.
c) Manufacturer will replace the meters with the Serial numbers provided by BRPL and manufacturer shall provide an excel sheet with details of returned meters, replaced meter, PO no., PO date, seals etc for mapping purpose by BRPL. Format of the same can be taken from Stores if required.
d) Manufacturer will bear the cost of replacement of faulty meter and site verification.
e) Manufacturer shall lift the Faulty Meters from BSES Stores within 30 days of intimation.
f) Manufacturer shall inspect the meter within 10 days of intimation at Stores and inform authorized representative of BRPL of any observation in writing. If manufacturer fails to inform BRPL then all meters will be considered for replacement.

g) The meters which are found defective/inoperative within the guarantee period, shall be replaced within six weeks of receipt of report for such defective/inoperative meters.

h) If the defective meters are not replaced within the specified period then the same shall be treated as breach of performance and shall be liable for penalty.

i) Following are minimum conditions for replacement of meters and boxes under Guarantee:

Vendor return Cases for Meters	
Sr no	**Case**
1.	Display faulty, back lit not glowing
2.	Erratic pulse
3.	Meter data not downloaded through optical port
4.	No Pulse
5.	Abnormal active energy (jump in reading)
6.	Data Corruption of any type, MD courruption
7.	Tamper not restored
8.	RTC Fail
9.	Wrong or No serial number download
10.	Communication module failure & replacement not possible
11.	Voltage/current missing
12.	Abnormal voltage
13.	Meter stop/counter reset
14.	Meter burnt internally
15.	Water and rust mark
16.	Reverse reset
17.	Clock fail flag, cover open flag, memory failure
18.	Push button not working

Notwithstanding anything stated above, BRPL reserves the right to assess bidder's capability to carry out the work stated and add, modify or delete part or whole of the specifications in the overall interest of the purchaser. In this regard the decision of the purchaser is final and binding.

13. METER BOX

13.1 GENERAL REQUIREMENTS

a. The meter box shall be IP54 rating and bidder shall provide compliance certificate for IP54 rating of meter box.

b. The meter box shall have danger symbol, manufacturer details/symbol, PO number, meter serial no. and Property of BRPL printed on it.

c. Meter box will have Earthing bolt of Length: - 30 mm, width: - 6 mm) with nuts and washers on right hand side of box. Earthing sign has to be provided near the Earthing bolt.

d. There shall be no mismatch in alignment of meter terminal & cable entry points to insert 2x25 sqmm cable without any difficulty.

e. The material of box shall be virgin polycarbonate and grade of the box should be such that it is fire retardant and self extinguishing. The material for meter box for base and cover shall be Lexan 943A with minimum 2.5 mm thickness. The flammability rating of the material as per

UL 94 should be V0. The base and cover must be UV stabilized to ensure that it does not get 'Yellow' over a period of time.

f. Box will have two IP 66 nylon cable glands and design shall be two hole type such that there is no space to insert any illegal material and to be provided with double washer inside to avoid any slipping issue.

g. Supplier shall provide meter box drawing and box mounting arrangement.

h. The box should have four numbers of back pillar at back (Two eye holes and two holes types) with their screw and plastic wall plug (gitti). Bidder shall discuss the specifications of the screws and wall plug with BRPL representative before supply.

i. In case of meter box is found broken the Bidder shall replace the box with meter.

13.2 Tests for Meter box

The meter box to be supplied against this specification shall be suitable for satisfactory continuous operation under outdoor environment. Following are the climatic condition:

a) Standards

The meter box shall generally conform to IS: 14772-2000(latest amendment) and material of construction i.e. Polycarbonate shall conform to IS: 14434 and requirements of this specification. Type test reports from NABL accredited lab done in the last 3 years to be submitted.

b) GTP of Pre fit Meter Box

SN	Parameters	Requirement
1.	Maximum ambient temp. - 55°C Min ambient temp. - (-)5°C Max. relative humidity - 95% Average annual rainfall – 650 mm	
2.	Visual examination	As per GTP/approved drawing - The meter box surface appearance shall be smooth, non-porous and homogeneous, free from ripples, defects and marks.
3.	Verification of dimensions & marking	As per GTP/approved drawing
4.	Protection against electric shock - IS:14772 Resistance to ingress of solid object & to harmful ingress of water (IP-54) - IS:14772 Test of mechanical strength/impact resistance test - IS:14772 Resistance to Abnormal heat and fire - IS:14772 Glow wire test at 950 degree centigrade - IS 11000 (Part 2) :2008/IEC 60695-2-10 Flammability Test – UL 94-V0 / IS:11731 II Verification of dielectric properties at 5kV - IS:8623 Heat deflection Temperature (HDT) HDT / Ae, 1.8MPa edge(100mm) As per ISO 75/Ae Test for self extinguishing properties - IS:4249 UV test as per ASTMD 53 The thickness of the box should be capable of	Bidder to provide test report from NABL accredited lab

	withstanding boiling water for 10 minutes without deformation of box material.	
5.	Name and place of manufacturing	Bidder to provide
6.	Details on box	Danger symbol, Manufacturer details/symbol, PO number, Meter serial no. and Property of BRPL
7.	Type of box/model	Single Phase meter box
8.	IP rating	Min IP 54
9.	Material used for box (base and cover)	U V resistant Fire retardant Polycarbonate (Transparent), Lexan 943A
10.	Thickness of Base and cover minimum	Min 2.5 mm+-0.1mm
11.	Locking arrangement	Push fit type required
12.	Sealing arrangement	Two Nos. at diagonal opposite corner
13.	Earthing bolt on right hand side of box	Nuts and washers
14.	Meter mounting arrangement and accessories	Each box (Four numbers plastic wall plug and screws) Screw size shall be suitable for Box with pillar Eye holes for fixing at base with pillar - 2 nos Round holes for fixing at base with pillar-2 nos Rubber 'O' ring – 1set
15.	Superior Nylon 66 Glands	Two hole type 2 Nos. glands

--End of Document--

BSES Rajdhani Power Limited

SECTION – VI:

Technical Specifications for Three Phase Smart Meters (direct connected), Rating 20A – 100A with modular communication module (4G/NB-IoT) and software

RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

CMC/BR/22-23/RB/PR/SN/1010

Detailed Meter Specification No. : GN101-03-SP-234-00

Technical Specifications for Three Phase Smart Meters (direct connected), Rating 20A – 100A with modular communication module (4G/NB-IoT) and software

Document number: GN101-03-SP-234-00

Prepared By	Reviewed by	Approved By	
Rishi Goyal	Rishi Goyal Vikas Srivastava	Rajesh Doshi Gopal Nariya	**Revision : R0** **Rev. No.: 0** **Date: 29.11.21**

Version

SN	Date	Previous Version No.	Current Version No.	Author
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Revision

SN	Revision No.	Clause No.	Change	Approver
1	NA	NA	NA	NA

Contents

1. Scope

This specification covers design, manufacture testing, supply and delivery of Smart Three Phase four wire whole current meters, 3x240V, accuracy class 1, Current rating 20A-100A or 10-100A, with plug in cellular communication module (4G with fallback on 2G / NBIoT with fallback on 2G), related Head End Software and accessories required for successful operation of the meter in post paid, prepaid mode or special application such as bidirectional net meters (configurable remotely).

2. Standards

The meter shall be ISI marked (vendor shall be BIS certified) and conform to CEA Metering (Installation and Operation of Meters) Regulation 2006 or latest amendments, Indian Electricity Acts and Indian Electricity Rules.

SN	Standard	Title
i.	IS: 13779	AC Static Watt-hour Meters, Class 1 and 2 – Specification
j.	IS- 16444 (Part 1)	AC Static Transformer Operated Watt-hour Smart Meters, Class 1.0 and 2.0 Part 1 Specification
k.	IS 15959 and its latest amendment	Data Exchange for Electricity Meter, Reading, Tariff and Load Control – Companion Specification
l.	CBIP Manual (Pub no.-325)	Standardization of AC Static Electrical Energy Meters
m.	IS 11731	Method of test for determination of flammability of solid electrical insulating material when exposed to an igniting source
n.	IEC 61000-4-2	Electromagnetic compatibility
o.	IS 4249	Classification and methods of test for non-ignitable and self extinguishing properties of solid electrical insulating materials
p.	IS 15884	AC direct connected static prepayment meters for active energy class 1 and 2

3. Functional Specifications

35.	Rated Voltage	3x240V with variation of +30% & -40%.
36.	Rated Current	Ib: 20A and Imax- 100 A
37.	Starting current	0.2 % of base current
38.	Rated Frequency	50Hz +/- 5%
39.	Power Consumption	As per IS 16444 (Part 1) Meter with lowest power consumption shall be preferred.

40.	Meter constant	Imp/ unit (Bidder to specify meter constant) for all three energies (kWh, kVAh, kVArh), separate calibration LED for all energies or configurable at field for testing.
41.	Calibration	Meter shall be software calibrated at factory and modification in calibration shall not be possible at site by any means or external influence.
42.	Insulation Level	Meter shall withstand an insulation test of 4 KV and impulse test at 8 KV
43.	Power Factor Range	Zero lag –unity- zero lead
44.	kVAh definition	kVAh is computed based on kVArh and kWH value. If PF=1, or leading, then kVAh = kWH. At no instance kVAh < kWh.
45.	Climatic Conditions	Refer IS: 13779 for climatic conditions.
46.	Battery	In case of battery removal or total discharge same should not affect the working & memory of the meter. Shelf life of RTC battery should be 3 years, operating life of 10 years.
47.	Memory	Non volatile memory independent of battery backup, memory should be retained up to 10 year in case of power failure
48.	MD Registration	Meter shall store MD for active & apparent energy in every 30 min. period along with date & time. At the end of every 30 min, new MD shall be computed & compared with previous MD and store whichever is higher and the same shall be displayed. It is preferred that MD is computed using separate counter rather by difference of initial and final energy counter.
49.	Auto Reset of MD	Auto reset date for MD shall be indicated at the time of finalizing GTP. Default resetting date is 00:00 hrs, 1st of every month.
50.	TOD Metering	Meter shall be capable doing TOD metering with date and time stamp for kWh, kVAh, kVArh, Active energy, reactive (lag & lead), apparent, MD in kW, MD in kVA with date & time. Signed PF value TOD shall be as per latest DERC tariff order at the time of supply. The TOD shall be programmable remotely through HES and also on-site through handheld device (such as CMRI) if required.
51.	RTC	e. The meter shall have internal real time crystal clock to set date and time. f. Drift in time of this clock shall not be more than ±10minutes/ year at a reference temperature of 27°C.

		g. Meter should have capability of Time synchronization automatically. h. HES will keep record of all meters for RTC update / failed.
52.	Self Diagnostic feature	Meter shall have self diagnostic for the following g. Date and RTC. h. Battery. i. Non volatile memory. j. Display k. Communication card status l. Neutral removal indication
53.	Electromagnetic compatibility	d. Meter along with (NIC) shall remain immune to electrostatic discharge (upto and including 35KV), electromagnetic HF field and fast transient burst along-with NIC. e. The meter shall be designed in such a way that conducted or radiated electromagnetic disturbances as well as electrostatic discharge do not influence the meter. f. Meter shall be type tested for electromagnetic compatibility.
54.	Data Exchange protocol	d. Meter should comply Indian companion of data exchange and tariff control specification IS 15959 e. Bidder shall explain in detail the additional parameters/ services/ methods used in meters from IS 15959 and its reference to DLMS books/ IEC. f. Prior to manufacturing of meters bidder shall provide a detailed specification explaining all parameters/ services/ methods used in meter in addition to IS 15959.
55.	Load Control Switch	f. Smart meter shall be equipped with integrated load control switches to control flow of electricity to the load at the instance of connect/ disconnect commands as per functional need of the system. g. Load switch for connect/ disconnect purpose shall be mounted inside the meter with suitable arrangement. h. The rating of switches used shall be in line with meter rating. i. Utilization category of the load switch shall be UC2 as per IS 15884. j. Bidder to provide details of load switch (make, type) with technical document.
56.	Communication Module Interface	f. Meter should have the provision for plug-in communication module for connectivity. g. Interface shall support data transfer between meter and network

		interface card over UART/ RS232. Bidder shall explain its pin out, voltage and current standard in detail at the time of bid submission. h. Meter shall have mechanism to log communication module removal & insertion as an event in its memory with date and time stamp. i. Communication module shall be held in a casing which can be directly plugged in the meter. Sealing screw shall be provided. j. Module shall be hot swappable on field.
57.	Local Meter reading using HHU	The manufacturer has to provide software capable of downloading all the data stored in meter memory through handheld device such as CMRI. Bidder to support BRPL IT team to integrate with any other handheld device in future (android operating system). HHU software should have option for selection of parameters to be downloaded from meter. Meter data consisting of all parameters and complete load survey for all parameters shall be read by HHU and uploaded on HES in minimum possible time (not more than 5 minutes).
58.	Programmable parameters	d. The parameters can be programmed remotely by HES using proper access rights according to IS. e. Every transaction shall be logged in non volatile memory of the meter with date and time stamp. f. Programming of any of the parameters shall increment the 'Cumulative programmable count' value.
59.	Firmware upgrade	h. Smart meter shall support remote firmware upgrade feature for meter firmware without loss of any data and metrology for a part or complete firmware of meter. i. Firmware upgrade feature shall be provided with proper security. The design shall take into account field scenarios such as power failure during F/W upgrade. j. Once the firmware is upgraded, meter shall send an acknowledgment to HES. It shall also log it as an event in its memory. k. Meter shall support capability to self register the meter with new firmware. l. Meter shall keep and send to HES the record of previous version and present version and failed firmware events. m. The execution time of the change of the firmware within the meter

		should be below 5 minutes. n. Bidder to submit details of firmware upgrade process with technical document.
60.	Display Parameters	Display shall be as per table in this specification. 4. LCD test, cumulative kWh and kVAh and kVArh, MD in kW and kVA, Date & Time, phase Voltage, phase Current, Instantaneous Load, instantaneous and phase wise PF, temperature, and signal strength. 5. Meter shall have separate indications on display for remote and local communication. 6. Flags, connection check, legends to be available on display.
61.	Billing parameters	4. Parameters are as follows: r. Meter Serial no. s. Date & time t. kWh u. kVAh v. kVArh w. MD in kW, kVAr, kVA with date & time x. MD with occurrence detail for last 6 months y. Billing power on & power off duration for current & billing period z. Billing count aa. No. of tamper events bb. Power up count cc. Phase Voltage & current dd. PF ee. History of billing of above parameters with occurrence details for last 06 months along with ToD parameters 5. Tamper occurrence & restoration with date & time with snapshots for Phase wise Voltage, current (line,active & reactive),power factor,THD Voltage, THD current, THD Active power, Neutral current, Readings active, reactive & apparent **6.** In case of issues with remote communication, all this data shall be accessible for reading and recording billing by downloading through optical port with handheld device at site.
62.	Instantaneous profile	In instant profile following will be available: Phase Voltage, Phase current, PF, Phase THD voltage, Phase THD current, THD active power, Active power, Neutral current, Avg PF,

		phase sequence, Frequency, Reading active, reactive, apparent power, Temperature, signal strength.
63.	Mid night data	Mid night data: The meter should record midnight parameter as below for last 60 days: Cumulative kWh, kVAh and kVArh
64.	Load Survey	30 min integration period, load profile for energy and demand for active, reactive and apparent, PF, phase voltage and current, frequency, temperature.
65.	Other Features	g. Temperature: The meter should have capability to measure inside temperature and can log high temperature events & send alert to HES if it is more than 60 deg C. h. Provision to change TOD in future. i. Meter shall measure the signal Strength & send to HES j. Meter shall capture the GPS coordinates and send to HES k. Meter shall have separate indications on display for remote and local communication. l. Smart meter shall automatically notify events to the HES.
66.	Connection/Reconnection	g. The Smart meter shall support disconnection, switches shall operate simultaneously as per relevant clause of IS 16444 (Part 1). h. Load limit function shall be disabled by default until other specified. i. Meter shall be able to reconnect load switches locally only for Overload and load control limit disconnections. j. The meter will try to reconnect the load up to predefined time, with predefined interval (Time and interval is programmable). k. It shall be possible to remotely connect/disconnect the relay via commands from HES. The remote reconnect shall not interrupt the normal connect/disconnect cycle. l. In case of relay malfunction i.e., connect/disconnect action of relay is not taking place due to welding of contacts or any other reason, then it shall be logged as an event in the Non-rollover compartment. Same shall be sent as an alert to HES.
67.	Name Plate	c. Meter should have clearly visible, indelible and distinctly marked name plate in accordance with IS 16444 (Part 1) & also with clause of this specification. d. All markings and details shall be printed by laser only.
68.	Test reports	c. Type test report to be submitted at the time of BID submission

		d. Routine test report to be provided with each meter
69.	Deviations	c. Deviations from this specification can be acceptable, only where the Seller has listed in his quotation the requirements he cannot, or does not, wish to comply with and which deviations the Buyer has agreed to in writing, before any order is placed. d. In the absence of any list of deviations from the Seller, it will be assumed by the Buyer that the Seller complies with the Specification fully.

4. Meter Construction

SN	**Parameters**	**Technical Requirements**
11.	Base Body	Material - Opaque and UV stabilized polycarbonate of grade LEXAN 143/ 943 or Equivalent with V0 inflammability level.
12.	Top Cover	Material – Transparent/Opaque and UV stabilized polycarbonate of grade LEXAN 143/ 943 or Equivalent with V0 inflammability level. Top cover and base should be Ultrasonically/Chemically welded. Mechanism shall be provided to log event in case of top cover is opened.
13.	Terminal Block	Material - Flame retardant glass filled polycarbonate of grade 500 R or equivalent. Terminal block shall be capable of passing the tests as per ISO-75 for a temperature of 135 Deg C and pressure of 1.8MPa. The terminals shall be designed so as to ensure adequate and durable contact such that there is no risk of loosening or undue heating.
14.	Terminals	f. Terminal cable entry hole should be suitable for 50 Sqmm PVC cable. g. Two no's flat head screws per terminal shall be provided h. Material of terminals, screws and washers should be brass or tinned copper. Terminals shall be tested for continuous current of 150 % Imax. i. Terminals shall be clearly marked for phase / neutral / outgoing etc. j. Clearances and creep age shall be as per IS 13779.
15.	Terminal cover	Material - UV stabilized transparent polycarbonate cover. Provision of sealing through sealing screws. The sealing screws shall be held captive in the terminal cover. Terminal cover should have provision for cable entry from bottom. Diagram of external connections should be embossed on terminal cover. Sticker is not acceptable.

		The terminal cover shall be provided with separation wall
16.	Marking on name plates	Meter should have clearly visible, indelible and distinctly name plate marked in accordance with IS & BRPL specifications. Prior approval of name plate design to be taken before product supply.
17.	Meter Sealing	As per IS 13779 and Metering Regulation 2006 or latest amendment, Supplier will fix its seal on meter. In addition, supplier shall affix buyer seal(s) on side of meter body as advised by buyer and record should be forwarded to Buyer. Supplier seal type: Minimum one seal as Hologram type, numbered with hologram transfer on tamper proof paper seal.
18.	Guarantee	66 months from the date of dispatch or 60 months from date of commissioning, whichever is earlier.
19.	Resistance of heat and fire	The terminal block and meter case shall have safety against the spread of fire. They shall not be ignited by thermal overload of live parts in contact with them as per the relevant IS 13779.
20.	Ingress Protection	IP 51 but without suction in the meter.

5. Tamper

Following tampers shall be recorded in meter and alerts will be available at HES:

Tamper logging:-

10. Phase sequence reversal: The meters shall work accurately irrespective of the phase sequence of the supply
11. Detection of missing potential: In case someone intentionally takes out a potential lead, the date and time of such occurrence shall be recorded by the Meter. The restoration of normal supply shall also be similarly recorded. The threshold for the voltages should be programmable
12. C.C. Shorting: Meter shall record C.C. Terminal shorting with time and date and time of restoration. The threshold of the current should be programmable.
13. Reversal of C.C. (Current Coil) Polarity: Meter shall record the reversal of C.C. polarity with time and date, and also the time of restoration. Meter shall however register the energy consumed correctly with any one, two or all three phase c.c. reversal.
14. Power On / Off: Meter shall detect power OFF (minimum power off period 5 minutes) if all of phase voltages are not present. This event shall be recorded at the time of each power OFF. At the same time power 'ON ' event shall be recorded. This logging shall be available in Tamper details along with cumulative time of failure.
15. External Magnetic tampers: Meter should log on the events of attempt of tampering by external magnetic field as mentioned in the relevant IS. MD shall be calculated as per actual load while maximum current to be shown on LCD display. The Meter shall record as per actual load once the

external abnormal magnetic field is removed. In such conditions the Meter shall log the event for presence of abnormal external magnetic field and its restoration.

16. Protection against HV spark: Meter shall continue to record energy or log the event, in case it is disturbed externally using a spark gun/ ignition coil. Up to 35 KV meter should be immune.
17. Influence Parameters - The meter shall work satisfactorily with guaranteed accuracy limit under the presence of the following influence quantities as per CBIP Technical Report No 325 with latest amendment:

    i. External magnetic field *
    j. Electromagnetic field induction,
    k. Radio frequency interference
    l. Vibration etc,
    m. Waveform 10% of 3rd harmonics,
    n. Voltage variation,
    o. Electro-magnetic H.F. Field
    p. DC Immunity Test
    q. Unbalanced Load
    r. Phase sequence

18. Low Voltage Logging – Meter shall have feature to log an event in case any of phase voltage is <180 V. Event shall be logged in memory along with Occurrence and restoration event data for any phase.
19. Low power factor: The meter shall have feature to record low power factor as a separate event Logic: Load > 10% of rated, pf range --- 0.2 to 0.5, duration 15 minutes.
20. 2Phase connection :- Meter shall have feature to log an event in case only two phase are connected i.e. remaining one phase & Neutral are absent.
21. Transactions: Other than RTC and TOU zone timing, no other parameter should be programmable/ resettable in field. Regarding RTC and TOU, all transactions should be logged.
22. Top cover Open: The meter shall have top cover opening detection mechanism. The top cover opening event shall be indicated on display/LED continuously in auto scroll mode with kWh, kVAh. The detection and logging mechanism shall work even when meter is not energized. In case of indication of display, meter display shall get reset in 150 days, cumulative tamper count to be maintained.
23. High Temperature – Meter shall record temperature if greater than 60 deg, also temperature value shall be configurable through HES.

Event Logging:-

The meter should log all the following events with snapshots, submit tamper logic of each event, it is required to log 20 events for each tamper listed below except power on/off that should have 100 events on rollover basis:-

25. Events Top cover opening
26. Magnetic event
27. Abnormal external field/ ESD
28. Low voltage (Below 180V)
29. Power On/Off hours
30. Abnormal power on/off
31. Abnormal voltage
32. Neutral Dist
33. Low PF
34. High Temperature
35. CC shorting
36. CT open
37. CT reversal
38. Current imbalance
39. Phase missing
40. Voltage imbalance
41. Cover open
42. High voltage
43. Low voltage
44. Invalid voltage
45. Overcurrent
46. Phase wise THD voltage
47. Phase wise THD current
48. Low PF
49. High Neutral
50. Communication module removal and restoration
51. Relay position status (phase wise)
52. Faulty Relay (phase wise)
53. Firmware upgrade(OTA)
54. Write operation performed remotely (e.g. ToD update, Tariff update, Firmware update etc)

Note: The vendor will provide s/w to download all these data for PDS, CMRI, android based devices. The reports of all the above events shall be available in HES.

6. Component Specifications

SN	Component Function	Requirement	Makes and Origin
14.	Current Transformers	The Meters should be with the current transformers as measuring elements.	The current transformer should withstand as per specification/standards.
15.	Measurement or computing chips	The Measurement or computing chips used in the Meter should be with the Surface mount type along with the ASICs.	Freescale, Renesas, Analog Devices, Texas Instruments, Free scale, Maxim, ST or equivalent, to be specified by meter manufacturer before hand
16.	Memory chips	The memory chips should not be affected by the external parameters like sparking, high voltage spikes or electrostatic discharges.	Atmel, ST, Renasas, Onsemi, ROHM, Microchip or equivalent, to be specified by meter manufacturer before hand
17.	Display modules	a) The display modules should be well protected from the external UV radiations. b) The display visibility should be sufficient to read the Meter mounted at height of 0.5 meter as well as at the height of 2 meters (refer 3.2.d for Viewing angle). c) The construction of the modules shall be such that the displayed quantity should not disturbed with the life of display (PIN Type). d) It should be trans-reflective HTN or STN type industrial grade with extended temperature range min 70 ºC.	Truly semiconductor, Tianma/ Haijing Electronics, China
18.	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.	Everlight, Osram, Agillent, NFC, Liteon
19.	Power Supply	The power supply should be with the capabilities as per the relevant standards. The power supply unit of the meter should not be affected in case the maximum voltage of the system appears to	As per BRPL specification.

		the terminals due to faults or due to wrong connections.	
20.	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. LED	National Semiconductors, Atmel, Phillips, Texas Instruments, TDK, Hitachi, Oki, AVX or Ricoh, Rohm, Toshiba, Samsung, Siemens, EPCOS, Vishay Everlight, Agillent, Panasonic
21.	Mechanical parts	a) The internal electrical components should be of electrolytic copper & should be protected from corrosion, rust etc. b) The other mechanical components should be protected from rust, corrosion etc. by suitable plating/painting methods	
22.	Battery	Lithium with guaranteed shelf life of 3 years and operating life of 10 years.	Tekcell, SAFT, Varta, Mitsubishi, EVE, Entracell
23.	RTC & Micro controller	The accuracy of RTC shall be as per relevant IEC / IS standards	Texas Instruments, Atmel, Freescale, Maxim, Renasas, Prolific, ST, EPSON, to be specified by meter manufacturer before hand
24.	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm	(BBT test is must)
25.	Plastic Material		GE Plastics, Bayer India, Mitsubishi, PI Polymer to be specified
26.	Relay	Can withstand 120% of Vref and Imax	Gruner, KG

Note:

d. All the components shall have operating Life of more than 10 years.

e. Incase vendor want to use other make components; same shall be approved by BRPL before use.

f. For existing supplier – fresh approval is needed for all deviations.

7. Drawings and Documents

Following drawings & Documents shall be submitted with the bid:

l. Completely filled-in Technical Parameters.
m. General arrangement drawing of the meter
n. Rating plate
o. Terminal Block dimensional drawing `
p. Mounting arrangement drawings
q. Component list
r. Display parameter
s. Type Test Certificates from NABL approved laboratories.
t. Tamper details
u. PIN configuration, voltage and current of Module
v. Manual and SOP/DWI for operation

8. Rating Plate

- Meter name-plate:
  13. Manufacturer name and place of manufacturing
  14. Meter rating and Class
  15. Property of BRPL
  16. BIS registration mark (ISI mark)
  17. Manufacturing date (mm/yyyy)
  18. Guaranty period: 5.5 years
  19. Meter constant (imp/kWh, kVAh)
  20. PO no. and date
  21. Meter serial number should be of 8 digits
  22. Size of the digit of the meter serial number should be minimum 5mm X 3mm (Laser printing shall be preferred)
  23. Symbol of load switch
  24. QR code of fine quality should be printed contains meter serial number, mm/yyyy.
- Module Name plate

f. Manufacturer name and place of manufacturing
g. Serial no of NIC along/ IMEI no/MAC address
h. Property of BRPL
i. Manufacturing date (mm/yyyy)
j. Guarantee period

9. General Requirements

25. Meter Sr. Nos. to be printed in black on the name plate, instead of embossing (Good quality of printing)
26. The supplier should seal the meter cover. The Buyer shall approve the method of sealing.
27. Deliverable with Meters.
    a. Meter accuracy test report for each meter
    b. Copies for Routine test certificates with each meter till alternate is provided by vendor and approved by BRPL.
    c. Report of seal & initial reading record (soft copy).
28. Bidder shall mention no. of meters per box, box number, Meter serial number, type and rating on cartons.

29. The supplier should seal the meter cover. The Buyer shall approve the method of sealing.
30. Individual meter should be packed in separate box and bidder shall take adequate care in packing to ensure there is no damage to the meters during transit. Vendor shall replace all meters and boxes if any breakage is found during transit.
31. Meters shall be suitably packed with environmental friendly material in order to avoid damage or disturbance during transit or handling and to prevent ingress of moisture/dust.
32. Meter shall have manufacturing month and year in the memory and should be downloadable.
33. GTP and necessary points shall be signed and approved at the time of purchase order and any changes subsequently shall be done through change management process.
34. Bidder shall demonstrate that at any point of time, the pre -paid meter shall be configurable from remote to a Post-paid meter and vice –versa or bidirectional Net meter as desired, by BRPL without any loss of data. In these cases, released specifications of such meters shall be followed wherever applicable in addition to the existing specifications. Method of conversion shall be documented and approved by BRPL before implementation to avoid any loss of data. The HES shall have the capability to identify such cases and report shall be generated from HES.
35. Delivery of software for CMRI and approval of BCS software is required at the time of inspection and before meter delivery.
36. Bidder shall provide software to download data using handheld device such as PDS and android based devices as and when required by BRPL in agreed timeline
37. Bidder shall submit two samples, login details for HES (on cloud/server), configuration details, manual (meter & HES) to Smartgrid & Meter Technical team for approval. In case of any shortcomings bidder shall be responsible to either re-submit or upgrade existing samples for approval.
38. Acceptance testing shall include tests as per relevant IS along with Two way communication, Load control features, Firmware upgrade, Last gasp, Postpaid to prepaid to Net & vice versa, ToD update, Relay configuration, RTC related events, alerts, Communication module related from remote or local as desired.
39. Bidder shall provide complete support for troubleshooting communication and software issue without any additional costs during the guarantee period.
40. Bidder shall be responsible to ensure proper communication of the meters with HES & ensure 100% billing is achieved in time every month.

41. The Solution will ensure 90% of the smart meters are read within 4 hours & 99% within 8 hour.
42. The supplier shall give 15 days advanced intimation to enable BRPL to depute representative for lot inspection.
43. Bidder shall update the ToD for all meters in case of any changes by DERC within 4 weeks of such intimation without any charges. Bidder shall give an undertaking in this regard signed by suitable authority.
44. Bidder shall ensure integration of meters with third party HES if procured by BRPL in future. Bidder shall give an undertaking in this regard signed by suitable authority.
45. For any false events recorded in meter, vendor shall depute their representative for field visit within one week and provide the root cause analysis in 4 weeks time.
46. Bidder shall provide mobile app to monitor energy, alerts, load curve, instantaneous parameters etc.
47. For Prepaid Solution:
    a. Meter manufacturer shall comply with DERC tariff regulation (latest) for smart prepaid metering system.
    b. Meter shall communicate with HES as per defined configuration as desired by BSES. However, billing data shall be uploaded on daily basis.
    c. Meter remaining balance shall be updated into meter on daily basis. A meter wise log/Ledger shall be prepared for reconciliation purpose.
    d. The credit shall be debited by the meter based on the electricity consumption according to the rate including the fixed charges as defined in tariff configuration.
    e. An Alert facility shall be provided to consumers on their registered mobile nos./email linked with the system. Alert message shall initiate on every Recharge, Low credit and Load connection/disconnection.
    f. Emergency credit limit configuration facility shall be available in Rs and Days that will be used as reserve amount. The emergency credit amount shall be adjusted in next recharge transaction.
    g. The meter shall not disconnect consumers supply even if their credit falls down to emergency credit limit during night hours, on Weekly-off or pre-defined public holidays (Friendly credits). During meter recharge the adjustment for credited amount shall be done first.
    h. HES shall calculate the consumption amount as per uploaded billing data (kWh/kVAh consumption and MD) and applicable tariff; so that remaining balance can further be calculated and updated into meter.

i. A visible low credit warning shall be provided in form of LED/ LCD, for low credit when the credit falls below defined alarm limit.

j. Bidder shall ensure that the meter shall not disconnect even unless an authorized command is executed from the HES and report of such connect/disconnect actions will be available.

10. Display Sequence for the Parameters (prepaid & postpaid)

Sr No.	Parameter	Display Time
1.	Meter Sr. No.(8 digits)	5 Sec
2.	Date	5 Sec
3.	Real time	5 Sec
4.	Credit balance in INR (for prepaid mode)	5 sec
5.	Last Recharge Amount in INR	5 sec
6.	Last Recharge Date	5 sec
7.	Cumulative kWh	15 Sec
8.	Cumulative kVAh	15 Sec
9.	Cumulative kVArh (lag & lead)	15 Sec
10.	Current month MD kW	10 Sec
11.	Current month MD kVA	5 Sec
12.	Phase wise Relay Status (On/OFF)	5 Sec
13.	Phase wise Voltage (instantaneous value)	5 sec each
14.	Phase wise Current (instantaneous value)	5 Sec each
15.	Neutral current (Instantaneous value)	5 Sec
16.	Instantaneous PF	5 Sec
17.	Instantaneous kW	10 Sec
18.	Instantaneous kVA	10 Sec
19.	Temperature	5 sec
20.	High Resolution value (kWh, KVAh, kVArh)	5 sec
21.	Error Code	5 Sec
22.	Signal Strength	5 sec
23.	TOD active and apparent energy	5 sec
24.	Top cover open date & time	5 sec

On Demand Display

34. LCD test
35. Date
36. Time
37. Credit balance in INR (for prepaid mode)
38. Cumulative Active energy
39. Cumulative Apparent Energy
40. Cumulative Reactive energy
41. R phase voltage
42. Y phase voltage
43. B phase voltage
44. R phase current (line)
45. Y phase current (line)
46. B phase current (line)
47. Neutral Current
48. Instantaneous Load Active
49. Instantaneous Load Reactive
50. Instantaneous Load Apparent
51. Last month billing Date & Time
52. Last month billing Active energy
53. Last month billing Reactive energy
54. Last month billing Apparent energy
55. Last month billing Maximum Demand in Active
56. Last month billing Maximum Demand in Active occurrence Date and Time
57. Last month billing Maximum Demand in Apparent
58. Last month billing Maximum Demand in Apparent occurrence Date
59. Last month billing Maximum Demand in Apparent occurrence Time
60. Last Occurrence Tamper ID
61. Date of Last Tamper Occurrence
62. Time of Last Tamper Occurrence
63. Last Restoration Tamper ID
64. Date & time of Last Tamper Restoration
65. Cumulative Tamper Count
66. Front Cover Open Count
67. Last Cover open date & time

68. Present Sequence
69. Present PT Status
70. Present CT Status
71. Self Diagnostic Flags
72. Connection check
73. Signal strength
74. Temperature
75. Status of Communication module
76. Relay status
77. Error Code
78. Last recharge amount with date and time

11. Head End Software

24. The bidder shall provide HES license free of cost for remote reading of data with BRPL logo in the website and reports generated.
25. Bidder shall install the HES within BRPL premises and integrate the HES with BRPL billing system without any cost.
26. HES shall be developed based on open platform and distributed architecture for scalability without degradation of the performance.
27. HES shall also manage the module on field, have user access rights management, dashboard for viewing in graphical mode, analysis & reporting, Security features and audit trail.
28. HES system shall have user friendly GUI to monitor communication status, energy, demand, MD, instantaneous parameters, tampers, parameters like voltages, current, active power, power factor, events, consumption, balance in Rs. etc.
29. HES system shall support TCP/IP, UDP, HTTP, FTP, SMTP etc; HES system should be compatible to RDBMS Oracle 12C/My SQL database.
30. HES shall have option to export CDF as per MIOS standard as well as user defined report generation in format of Excel, PDF, XML and CSV for further integration with system.
31. Alerts (for Alarms and Events) shall be displayed in HES for further action and shall be configurable
32. HES shall have facility for On Demand acquisition of meter data and at user selectable periodicity
33. HES system shall display phasor diagram, consumption/load profiles by configurable period (15/30 min, hour, day, month, year etc.) day type, tariff, customer type, or any user specified collection of meters.

34. HES system shall provide energy usage profile for a single meter or group of meters. The load profile shall illustrate energy consumption and peak demand in user defined intervals for a user-specified time period.
35. HES will pop up alerts for tampers & events, non communication of meters, non billed meters, RTC issues of meters or modems etc.
36. HES shall be capable of accessing complete data stored in modem through remote or have provision to upload meter data of CMRI/PDS or android based devices.
37. HES shall maintain data of at least 12 months according to desired hierarchy. Archival policy shall be decided along with IT at the time of award of contract.
38. HES shall manage geographical, administrative, regional, and the network hierarchy of the utility. These hierarchies shall be imported from external source and / or shall be configurable in the system.
39. HES system shall have necessary security features as per existing and comply in future to cyber laws as mandated by Government of India. HES shall have mechanism to identify fraud, data breach and manipulation of data. All configurations of User Management / Access Rights shall be as per the requirements of BRPL.
40. HES system shall be able to generate user specific reports for billing, monitoring and export in excel, pdf, csv formats.
41. HES must have built-in redundancy & fail over architecture to ensure seamless system recovery.
42. Supplier shall agree to integrate devices from other manufacturers in future.
43. Supplier shall be responsible to ensure 100% billing is done each month.
44. Supplier shall troubleshoot in case of non communication, erratic behavior and non receipt of alerts for both field and back end activities.
45. The Supplier shall also provide training for the use of software, installation, downloading and troubleshooting free of cost to BRPL.
46. HES shall be integrated with other applications of BRPL such as analytics, SAP, GIS etc.

12. Meter Replacement

j) Manufacturer shall undertake to replace meter in case of failure within the guarantee period.

k) Faulty meters under Guarantee shall be verified by manufacturer at site and rectify wherever possible.

l) Manufacturer will replace the meters with the Serial numbers provided by BRPL and manufacturer shall provide an excel sheet with details of returned meters, replaced meter, PO

no., PO date, seals etc for mapping purpose by BRPL. Format of the same can be taken from Stores if required.

m) Manufacturer will bear the cost of replacement of faulty meter and site verification.

n) Manufacturer shall lift the Faulty Meters from BSES Stores within 30 days of intimation.

o) Manufacturer shall inspect the meter within 10 days of intimation at Stores and inform authorized representative of BRPL of any observation in writing. If manufacturer fails to inform BRPL then all meters will be considered for replacement.

p) The meters which are found defective/inoperative within the guarantee period, shall be replaced within six weeks of receipt of report for such defective/inoperative meters.

q) If the defective meters are not replaced within the specified period then the same shall be treated as breach of performance and shall be liable for penalty.

r) Following are minimum conditions for replacement of meters and boxes under Guarantee:

Vendor return Cases for Meters	
Sr no	**Case**
19.	Display faulty, back lit not glowing
20.	Erratic pulse
21.	Meter data not downloaded through optical port
22.	No Pulse
23.	Abnormal active energy (jump in reading)
24.	Data Corruption of any type, MD courruption
25.	Tamper not restored
26.	RTC Fail
27.	Wrong or No serial number download
28.	Communication module failure & replacement not possible
29.	Voltage/current missing
30.	Abnormal voltage
31.	Meter stop/counter reset
32.	Meter burnt internally
33.	Water and rust mark
34.	Reverse reset
35.	Clock fail flag, cover open flag, memory failure
36.	Push button not working

Notwithstanding anything stated above, BRPL reserves the right to assess bidder's capability to carry out the work stated and add, modify or delete part or whole of the specifications in the overall interest of the purchaser. In this regard the decision of the purchaser is final and binding.

13. General Requirements for Meter Box

j. The meter box shall be IP54 rating and bidder shall provide compliance certificate for IP54 rating of meter box. The box shall be fully transparent.
k. The meter box shall have danger symbol, manufacturer details/symbol, meter serial no. and Property of BRPL printed on it.
l. Meter box shall be push-fit type and have earth nut and no unidirectional screws to be used to fix the meter in the meter box.
m. The box will have metal plate around optical portion so that optical cord can easily fix on it without support while reading.
n. The thickness of the meter box should be min 3 mm mm (Base and cover) and will have two cable glands and design should be such that there is no space to insert any illegal material after inserting armored cable.
o. The material of box shall be virgin polycarbonate and grade of the box should be such that it is fire retardant and self extinguishing.
p. In case of meter box found broken the vendor replace the box with meter.
q. The box should have four numbers of back pillar (Two eye holes and two holes types) with their screw and guttys.
r. Supplier shall provide meter box drawing and box mounting arrangement.
s. Push fit box shall allow the push button/capacitive touch without opening the box.

14. Tests for Meter box

SN	PARTICULARS	REQUIRMENT
1.	Name of the firm and place of manufacturer.	As per the firm
2.	Type of box/model	Three Phase meter box
3.	Material used for cover	U V resistant fire retardant Transparent Polycarbonate
4.	Material used for base	U V resistant fire retardant Transparent Polycarbonate
5.	Dimension of box a. Length b. Width c. Depth	As per meter
6.	Thickness of Base minimum	3mm±0.1mm
7.	Thickness of Cover (Transparent) minimum	3mm±0.1mm
8.	Pad locking arrangement provided	Required
9.	Two Nos. sealing arrangement at diagonal Opposite corner	Required
10.	Meter mounting arrangement	Screws shall not be unidirectional type
11.	Superior Nylon 66 Glands	2 Nos. glands are Required
12.	Rubber 'O' ring	1 Set
13.	Eye holes for fixing at base with pillar	2 Nos.
14.	Round holes for fixing at base with pillar	2 Nos.
15.	Earthing connections	1 Set

16.	Meter box mounting accessories	Four numbers Gutty and screw shall be provided. Screw size shall be suitable for Box with pillar
17.	Same serial no. should be embossed on base and cover of box as well as meter	Required
18.	Provision to make the meter immune to 35 KV spark device and high frequency electromagnetic pulse device upto 10 Ghz. (loop type) shield.	Required
19.	Visual examination	As per GTP/approved drawing
20.	Verification of dimensions & marking	As per GTP/approved drawing
21.	Protection against electric shock	IS:14772
22.	Resistance to ingress of solid object & to harmful ingress of water (IP-55)	IS:14772
23.	Test of mechanical strength/impact resistance test	IS:14772
24.	Resistance to heat	IS:14772
25.	Resistance to rusting	IS:14772
26.	Glow wire test at 950 degree centigrade	IS:14772/IEC 695-2-1
27.	Verification of dielectric properties at 5kV	IS:8623
28.	Heat deflection at 125 degree centigrade at 0.45 Mpa	As per standard
29.	Test for self extinguishing properties	IS:4249
30.	Flammability Test	IS:11731 II
31.	UV resistance Test	Din 53387

--End of Document--

BSES
RAJDHANI POWER LIMITED

Volume - II

FORMATS

Tender Notification for

RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

CMC/BR/22-23/RB/PR/SN/1010

BSES
RAJDHANI POWER LIMITED

Annexure -A

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed & stamped by the bidder along-with bid)

BSES Rajdhani Power Ltd (BRPL) intends to use reverse auction through SAP-SRM tool as an integral part of entire tendering process. All bidders who are techno-commercially qualified on the basis of tender requirements shall participate in the reverse auction.

The following terms and conditions are deemed as accepted by the bidder on participation in the bid:-

1. In case of bidding through Internet medium, bidders are advised to ensure availability of all associated infrastructure as required to participate in the reverse auction event. Inability to bid due to telephone glitch, internet response issues, software & hardware hangs/failures, power failures or any other reason shall not be the responsibility of BRPL.

2. In case bidder fails to participate in the reverse auction event due to any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid submitted by them as a part of tender shall be considered as bidder's Final No Regret offer. Any off-line price bids received from a bidder in lieu of non-participation in the reverse auction event shall be rejected by BRPL.

3. The bidder is advised to understand the auto bid process t safeguard themselves against any possibility of non-participation in the reverse auction event.

4. The bidder shall be prepared with competitive price quotes during the day of reverse auction event.

5. The prices quoted by bidder in reverse auction event shall be on FOR Landed cost BRPL Store/site basis inclusive of all relevant taxes, duties, levies, transportation charges etc.

6. The prices submitted by the bidder during reverse auction event shall be binding on the bidder.

7. The bidder agrees to non-disclosure of trade information regarding bid details e.g. purchase, identity, bid process/technology, bid documentation etc.

8. BRPL will make every effort to make the bid process transparent. However award decision of BRPL will be final and binding on the bidder.

9. The prices submitted during reverse auction event shall be binding on the bidder.

10. No request for Time extension of the reverse auction event shall be considered by BRPL.

BSES
RAJDHANI POWER LIMITED

Annexure -I

BID FORM

RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX

To
Head of the Department
Contracts & Materials
BSES Rajdhani Power Ltd
BSES Bhawan, Nehru Place
New Delhi– 110019
Sir,

We understand that BSES RAJDHANI POWER LTD is desirous of procuring" **RATE CONTRCAT FOR SUPPLY OF 1 PH & 3 PH SMART PREPAID METER WITH BOX"** ` in it's licensed distribution network area in Delhi.

1 Having examined the Bidding Documents for the above named works, we the undersigned, offer to deliver the goods in full conformity with the Drawings, Conditions of Contract and specifications or as may be determined in accordance with the terms and conditions of the contract .The above Amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.

2 If our Bid is accepted, we undertake to deliver the entire goods as per delivery schedule given by you from the date of award of purchase order/letter of intent

3 If our Bid is accepted, we will furnish a performance bank guarantee for an amount of 5% (Five) percent of the total contract value for due performance of the Contract in accordance with the General Conditions of Contract.

4 We agree to abide by this Bid for a period of 120 days from the date fixed for bid opening under clause 11.0 of GCC, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

5 We declare that we have studied the provision of Indian Income Tax Law and other Indian Laws for supply of equipments/materials and the prices have been quoted accordingly.

6 Unless and until Letter of Intent is issued, this Bid, together with your written acceptance there of, shall constitute a binding contract between us.

7 We understand that you are not bound to accept the lowest, or any bid you may receive.

8 There is provision for Resolution of Disputes under this Contract, in accordance with the Laws and Jurisdiction of Contract, Clause 19 of GCC.

Dated this..... day of..... 20 .....

Signature..... In the capacity of .....

.....duly authorized to sign for and on behalf of
(IN BLOCK CAPITALS) .....

BSES
RAJDHANI POWER LIMITED

Annexure -II

FORMAT FOR BID SECURITY BANK GUARANTEE

(To be issued in a Non Judicial Stamp Paper of Rs.50/-purchased in the name of the bank)

Whereas [name of the Bidder](hereinafter called the Bidder") has submitted its bid dated [date of submission of bid] for the supply of [name and/or description of the goods] (hereafter called 'the Bid").

KNOW ALL PEOPLE by these presents that WE [name of bank]at[Branch Name and address],having our registered office at[address of the registered office of the bank](herein after called —the Bank"),are bound unto BSES Rajdhani Power Ltd., with it's Corporate Office at BSES Bhawan Nehru Place, New Delhi -110019 ,(herein after called —the Purchaser")in the sum of Rs._____for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this_____ day of_____ 20____.

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form ;or

2. If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:

(a) fails or refuses to execute the Contract Form ,if required; or
(b) fails or refuses to furnish the performance security, In accordance with the Instructions to Bidders/GENERAL CONDITIONS.;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that is its demand the purchaser will note that amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or condition s.

This guarantee will remain in force up to and including thirty (30) days after the period of bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the bank)

RAJDHANI POWER LIMITED

Annexure –III

BSES Rajdhani Power Limited, New Delhi

PRICE FORMAT

ENQUIRY NO & DATE: CMC/BR/22-23/RB/PR/SN/1010 DT: 08.03.2022

Sr NO	HSN Code	Material Dispatch Location (GSTN no.)	Item Description	UOM	QTY (Nos.)	EX-WORKS RATE/No.	C GST (%)	CGST %	S GST (%)	S GST %	I GST (%)	I GST	FREIGHT	LANDED COST/No. (Rs) INR	TOTAL LANDED COST(Rs) INR
A			Single Phase 4G Smart Meter with configurable for Net Meter	Nos	12500										
			Meter Box												
B			Three Phase 4G Smart Meter with configurable for Net Meter	Nos	5500										
			Meter Box												
c			Head end system License Including integration with BSES Billing and other application	Nos	50,000 nos end point										

Note: Individual line items prices are required, RA shall be done on package cost

Please attach the covering letter head along with the price format.

NAME OF THE BIDDER WITH STAMP

BSES
RAJDHANI POWER LIMITED

Annexure - IV

COMMERCIAL TERMS AND CONDITIONS

ENQUIRY NO & DATE : CMC/BR/22-23/RB/PR/SN/1010 DT: 08.03.2022

S/NO	ITEM DESCRIPTION	AS PER BRPL	CONFIRMATION OF BIDDER
1	Validity of prices	120 days from the date of offer	
2	Price basis	a) Firm, FOR Delhi store basis. Prices shall be inclusive of all taxes & duties, freight upto Delhi stores. b) Unloading at stores shall be in vendor's scope c) Transit insurance in BRPL scope for Indian portion only	
3	Payment terms	100% payment within 45 days after receipt of material at stores	
4	Delivery schedule	As per our requirement	
5	Defect Liability period	60 months after commissioning or 66 months from the last date of supply, whichever is earlier	
6	Penalty for delay	1% per week of delay of undelivered units or part thereof subject to maximum of 10% of total PO value of undelivered units	
7	Performance Bank Guarantee	5% of total PO value valid for 60 months after commissioning or 66 months from the last date of supply, whichever is earlier plus 3 months towards claim period	

Bidder should also furnish the below details for future communication:-

1) General Information
Name of Company:
Postal Address:

2) Technical Query:

Contact Person Name:
Contact No:
Email Address:

3) For Commercial Query
Contact Person Name:
Contact No:
Email Address:

ANNEXURE V

ENQUIRY NO & DATE : CMC/BR/22-23/RB/PR/SN/1010 DT:08.03.2022

NO DEVIATION SHEET

SL NO	SL NO OF TECHNICAL SPECIFICATION	DEVIATIONS,IF ANY

SIGNATURE & SEAL OF BIDDER

NAME OF BIDDER

BSES
RAJDHANI POWER LIMITED

Annexure – VI

S.No	Qualification Criteria	Declaration by bidder with qualifying the fulfillment	Documentary Evidence attached page no. details
1	Bidder shall be the OEM of the equipment offered, having manufacturing base in India for Smart Meters, having an in-house testing lab for acceptance tests as per latest IS standards.		
2	Bidder should have supplied at least 5000 smart meters with connect disconnect facility, electronic display and communication facility in last three years. The manufacturer should have experience of supplying to Electricity Distribution Utility / Reputed Organization in India. This should be supported by enclosing the copies of purchase orders from the SEBs / Power utilities/Organization.		
3	Bidder should certify that at least 3000 nos. is in successful operation since last 2 years as on the date of opening of Bid. This should be supported by enclosing the copies of performance reports from the SEBs / Power utilities/Organization from an authorized signatory duly signed and stamped.		
4	The Bidder should have average turnover of Rs. 20 Crores for the last three financial years (i.e. 2018-19,2019-20,2020-21) related to metering item only.		
5	Net worth in last two (2) financial years should be positive for metering items.		
6	The bidder must possess valid ISO 9001:2000 certification for meter manufacturing and must possess valid BIS License.		
7	Firms who are debarred/blacklisted in other utilities in India will not be considered.		
8	Bidder should have complete volume of type test reports as per IS 13779 (Including latest amendments if any),IS 15884 and as per CBIP-325 from any NABL accredited lab. The type test report should not be older than 3 years as on the date of opening of tender.		
9	The audited financial statements of accounts for the last three years submitted by bidder shall be evaluated and last year of audited accounts should show positive net worth.		
10	The manufacturer should have following facility to meet both quality and quantity requirement of supplies.		
a	**Computerized test bench**: The manufacturer should have sufficient Nos of Computerized test benches. The benches should have electronic supply, Isolated CT/ PT system and data should be directly stored in central server.		
b	**Seal tracking system:** The manufacturer has to put both his own seal and BSES seal on the meter. He should have a seal tracking software to ensure tracking of seal and no duplication of seals and meter nos.		
c	**Meter Burn In system:** In order to ensure the reliability of components and that there is no drift in meter accuracy with time; the manufacturer should have burn in facility --- Running meter with load at elevated temperature.		
d	**Routine test data** : During lot acceptance , all routine test data should be made available to inspector. In fact as per BIS, STI all test data should be offered to inspector for verification. **Routine test report should be packed with each meter**.		
e	**Test benches:** During the lot acceptance, BSES inspector can test up to 5% of offered quantity .The manufacturer should agree to provide all test facility to do so. Further he should allow BSES inspector to check shop floor process. The place of inspection should be clearly marked in tender and same should be well equipped.		
f	**Test equipments:** Since the meters has lot of anti theft features, the manufacturer should have test set up too check the working of all anti theft features. Same should be available during lot inspection; otherwise inspector has a right to withdraw inspection.		
g	**PCB assembly facility:** - The PCB facility should have auto- pick n place machine, in-circuit tester, Protection against static charge/ dust etc.; and process to ensure no corrosion of solder points/ tracks. Incase service is taken from other vendor than bidder shall arrange inspection of facility. The bidder should be taking the service from the vendor since last two years and so far have procured one million meter PCB from vendor.		
h	The manufacturer should send the compliance of above mentioned parameters in technical offer and has to give an undertaking about No Objection to verify his manufacturing facility as a part of tender process. Further in relevance to above clause vendor should submit details of facilities.		
The manufacturer should send the compliance of above mentioned parameters in technical offer and has to give an undertaking about No Objection to verify his manufacturing facility as a part of tender process.			

BSES
RAJDHANI POWER LIMITED

CHECK LIST

Sl No	Item Description	YES/NO
1	INDEX	YES/NO
2	COVERING LETTER	YES/NO
3	BID FORM (UNPRICED) DULY SIGNED	YES/NO
4	BILL OF MATERIAL (UNPRICED)	YES/NO
5	TECHNICAL BID	YES/NO
6	ACCEPTANCE TO COMMERCIAL TERMS AND CONDITIONS	YES/NO
7	FINANCIAL BID (IN SEALED ENVELOPE)	YES/NO
8	EMD IN PRESCRIBED FORMAT	YES/NO
9	DEMAND DRAFT OF RS 1180/- DRAWN IN FAVOUR OF	BSES.....POWER LTD
10	POWER OF ATTORNEY/AUTHORISATION LETTER FOR SIGNING THE BID	YES/NO