

TENDER SPECIFICATION

STN-1537/25

FOR

**THREE PHASE (10-40)A ELECTRONIC ENERGY METERS
DLMS & IRDA PORT WITH PP BOX**

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NOTE:

1. Payment terms, Delivery period, Performance Bank Guarantee, Taxes and Duties” should be in line with the terms and conditions of the specification. If any bidder does not meet any one of the conditions, such tender will not be considered. Please note that the conditional offers are also not considered. Hence the bidder shall submit the tender in line with the terms and conditions of the specification.
2. The bidders shall check the website www.tgsouthernpower.org and www.tender.telangana.gov.in for amendments, if any, upto one day prior to the date of tender opening. The amendments shall be binding on the bidders.
3. The purchaser will not be responsible for any damage that may be caused to the samples at any time.
4. The bidder shall furnish required Bid Security amount and validity as per specification. If the bidder fails to furnish bid security amount and bid validity as stipulated in the specification, such tender bid will not be considered for further evaluation.
5. The prospective bidders shall attend the pre-bid meeting (date and time in NIT) for any queries. The discussed queries shall be submitted in the form of a letter during pre bid meeting or within 24 hrs of pre bid meeting. Any new queries received after pre bid meeting are not liable to be considered.
6. The bid evaluation will be carried out based on the documents uploaded through www.tender.telangana.gov.in against this tender.
7. The Bids received with any details pertaining to prices in the offline mode will be liable for rejection.
8. In e-procurement commercial stage, if F&I charges are applicable then mention whether F&I charges entered are exclusive/inclusive of GST in the remarks section. If not mentioned in remarks, F&I charges will be considered as inclusive of GST.
9. EMD Exemption is considered only for Government Firms.

Ph : 040 – 23431033, 23431448

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**CHIEF ENGINEER (P&MM)
TGSPDCL**



**SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA
LIMITED
TGSPDCL (erstwhile TSSPDCL)**

Tender Notice

e-Procurement Tender Notice (Paper Notification)

TGSPDCL intends to float tender for procurement of (a) 3-ph (10-40A) Meters IRDA & DLMS with PP Box (b) Capacitor Bank 2 MVAR (c) 11KV 800A Conv. Double Break AB Switches with Insulators on e-procurement platform.

For further details of each item above, please visit www.tgsouthernpower.org, www.tender.telangana.gov.in, www.auction.telangana.gov.in.

Phone: 040-23431360, 1033, 1035, 1026

CHIEF ENGINEER (P&MM)

ONLINE VERSION**Tender Notice No : STN-1537/25**

Notice Inviting Tender Details		
S.No	Description	
1	Department Name	TGSPDCL
2	Office	Purchases & Material Management Wing, Corporate Office, TGSPDCL
3	Tender Number	STN-1537/25
4	Tender Subject	Three Phase (10-40)A Electronic Meters DLMS & IRDA port with Box.
5	Delivery Schedule	The delivery of materials shall commence within 45 days from the date of receipt of purchase order and complete within Three months (For trial orders it is in proportion to the quantity quoted)
6	Tender Type	Open
7	Tender Category	NA
8	Bid Security (INR)	(i) 2% of the Ex-works quoted value (plus with GST @18%) (or) (ii) Exemption letter of Bid Security in case of Govt. firms.
9	Bid Security Payable to	In the form of DD in favour of Pay Officer/TGSPDCL / Hyd or BG from Nationalized/Scheduled Bank as per format 2(a). The validity of the bank guarantee shall be upto bid validity +45 days from the date of tender opening.
10	Processing Fee (INR)	NIL
11	Transaction Fee	<u>Transaction fee:</u> All the participating bidders who submit the bids have to pay an amount @ 0.03% of their final bid value online with a cap of Rs.10,000/- for quoted value of purchase upto Rs.50 crores and Rs.25000/- if the purchase value is above Rs.50 crores & service tax applicable as per GST as levied by Govt. of India on transaction fee through online in favour of M/s. TGTS. The amount payable to M/s. TGTS is non refundable. <u>Corpus Fund:</u> Successful bidder has to pay an amount of 0.04% on quoted value through demand draft in favour of Managing Director, TGTS, Hyderabad towards corpus fund at the time of concluding agreement.
12	Transaction Fee Payable to	TGTS, Hyderabad
13	Date & time of pre-bid meeting with manufacturer	27-02-2026 at 11:30Hrs
14	Schedule Sale opening date	21-02-2026 from 13:00 Hrs
15	Schedule Sale closing Date	06-03-2026 Upto 13:00 Hrs.
16	Bid Submission Closing Date & time	06-03-2026 Upto 13:00 Hrs
17	Bid submission	On Line
18	Pre-Qualification& Technical Bid Opening Date (Qualification and Eligibility Stage and Technical Bid Stage)	06-03-2026 at 15:00 Hrs.
19	Price Bid Opening Date (Financial Bid Stage)	09-03-2026 at 12:00 Hrs
20	Place of Tender Opening	O/o Chief Engineer/P&MM TGSPDCL, 4th Floor, Corporate Office, Mint Compound, Hyderabad – 500 004.
21	Officer Inviting Bids/ Contact Person	Chief Engineer/P&MM/TGSPDCL/HYDERABAD
22	Address/E-mail id	O/o. Chief Engineer/P&MM TGSPDCL, 4th Floor, Corporate Office, Mint Compound, Hyderabad – 500 004

23	Contact Details/Telephone, Fax	Ph. No. 040-23431448, 040-23431319. Fax No. 040-23431034
24	Eligibility Criteria	As per Section VI
25	Procedure for Bid Submission	<p>Bids shall be submitted online on www.eprocurement.gov.in platform</p> <ol style="list-style-type: none"> 1. The participating bidders in the tender should register themselves free of cost on e-procurement platform in the website www.eprocurement.gov.in. 2. Bidders can log-in to e-procurement platform in Secure mode only by signing with the Digital certificates. 3. The bidders who are desirous of participating in e-procurement shall submit their technical bids, price bids as per the standard formats available at the e-market place. 4. The bidders should scan and upload the following documents in support of technical bids. The bidders shall sign on all the statements, documents certificates uploaded by him, owning responsibility for their correctness/authenticity: <ol style="list-style-type: none"> a) Bid Security should be furnished <ol style="list-style-type: none"> i) In the form of DD in favour of Pay Officer/TGSPDCL/Hyderabad (or) Alternatively BG from Nationalized/Scheduled bank in favor of Chief Engineer/P&MM/TGSPDCL/Hyd as per format-II enclosed (or) ii) If exempted give details of Bid Security Exemption (in case of Govt. Organization) b) Quantity offered c) Proof of manufacturer-SSI, Department of Industries, Govt. of India Enterprise etc d) Latest "Sales Tax Clearance Certificate" e) Financial Turnover certified by CA along with UDIN No. for last 5 years f) Details of previous supplies along with PO copies and delivery challan copies for qualification requirement as per tender document. g) Performance Certificates issued by Head of Purchasing Authority (as per spec) h) Copies of relevant purchase order copies mentioned in the performance certificates in support of the above. i) Drawings, Guaranteed Technical Particulars of the product, other relevant documents attached to the bid. j) BIS certificate k) ISO certification l) Type Test Certificates in full shape m) Duly filled and signed proforma as per Format A <p>6. The rates should be quoted in online only</p>

		<p>7. After uploading the documents the copies of the uploaded statement, certificates, documents, original Demand Drafts in respect of processing fee, testing charges and Bid Security (except the Price bid/offer/break-up of taxes) are to be submitted by the bidder to the Chief Engineer/ P&MM/ TGSPDCL so as to reach before the date and time of opening of the technical bid. Failure to furnish any of the uploaded documents, certificates, before the date and time of opening of technical bid will entail in rejection of the bid. The Department shall not hold any risk on account of postal delay. Similarly, if any of the certificates, documents, etc., furnished by the tenderer are found to be false / fabricated / bogus, the bidder will be disqualified, blacklisted, action will be initiated as deemed fit and the Bid Security will be forfeited.</p> <p>8. The department will not hold any risk and responsibility regulating non-visibility of the scanned and uploaded documents.</p> <p>9. The Documents that are uploaded online on e-market place will only be considered for Technical Bid Evaluation.</p> <p>10. Important Notice to Contractors, Suppliers and Department users</p> <p>(i) In the endeavor to bring total automation of processes in e-Procurement, the Govt. has issued orders vide G.O.Ms.No. 13 dated. 5.7.2006 permitting integration of electronic Payment Gateway of ICICI/HDFC Banks with eProcurement platform, which provides a facility to participating suppliers/ contractors to electronically pay the transaction fee online using their credit cards.</p>
26	Rights reserved with the Department	TGSPDCL reserves the right to accept or reject any or all of the tenders received without assigning any reasons therefore. The TGSPDCL also reserves the right to split the tender and place orders on more than one tenderer at its discretion
27	General Terms and Conditions	As per tender documents.

SECTION - II
SALIENT FEATURES OF THE BID

SUPERSCRPTION ON THE TENDER COVER

- Specification No : **STN-1537/25**
 Material : Three Phase (10-40)A Electronic Energy Meters
 DLMS & IRDA Port with PP Box
 Officer to whom the bid will be addressed : **CE/P&MM, Corporate Office/TGSPDCL/Hyd**
 Superscription on the bid cover and
 the outer envelope :
- a. Specification No. : **STN-1537/25**
 - b. Due date and time for online
& hard copy submission : **06.03.2026 at 13:00 Hrs**
 - c. Date and time of online opening : **06.03.2026 at 15:00 Hrs**
 - d. Payment of bid security
 - i) If paid give details: DD No.____Dt.____ for Rs.____
 - ii) If exempted give details
 - e. Payment of testing charges DD No.____Dt.____ for Rs.____
 - f. Whether 120 days validity offered(yes/no).
 - g. Whether bid is made accepting payment terms Clause....(yes/no).
 - h. Whether delivery is as per delivery schedule indicated....(yes/no)
 - i. Whether the sample (if specified) has been enclosed/sent...(yes/no)
 - j. Whether the quotation is in two parts (Yes/no)

Content of Bidding Documents:

The materials / equipment required, bidding procedures, and contract terms are prescribed in the bidding documents as listed below:

- a. Notice Inviting Bids.
- b. Salient feature of the contract.
- c. Standard General terms and conditions of contract.
- d. Standard Technical specification and drawings wherever necessary.
- e. Qualification Requirements.
- f. Schedule of requirements (delivery Schedule)

SAMPLE FORMS.

- g. Bid Form
- h. Bid security Form
- i. Performance Security Form
- j. Contract Form
- k. Proforma for Performance Statement
- l. Details to be furnished by the Manufacturer/Bidder (**Format-A**)
- m. Schedule of Deviations (Technical & Commercial)
- n. Declaration Form

The Bidder is expected to examine all instructions, forms, terms and technical specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at Bidder's risk and may result in the rejection of its bid.

Deviations from standard bidding document

- i) General terms and Condition of Contract
- ii) Technical

The above deviations supercede the existing terms of GCC and Technical Specification

CHIEF ENGINEER (P&MM)
TGSPDCL

SECTION - III
GENERAL TERMS AND CONDITIONS OF CONTRACT

A. Introduction

1. Definitions

In this Contract, the following terms will be interpreted as indicated:

- (a) "The Contract" means the agreement entered into between the Purchaser and the Supplier, as recorded in the contract Form signed by the Parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
- (b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.
- (c) "The Materials / equipment" means all of the equipment, machinery, and/or other materials which the Supplier is required to supply to the Purchaser under the Contract.
- (d) "The Services" means those services ancillary to the supply of the Materials / equipment, such as transportation and insurance, and any other incidental Services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Supplier covered under the Contract.
- (e) "GCC" means the General Terms and Conditions of Contract contained in the section.
- (f) "The Purchaser" means the organization purchasing the Materials / equipment.
- (g) Vendor is a supplier who has registered with the purchaser for supply of materials/equipment.
- (h) "The Supplier" means the firm supplying the Materials / equipment and Services under this Contract.
- (i) "Day" means calendar day.

2. Applicability

These General Conditions of contract will apply to the extent that they are not superseded by provisions of Salient features of the Bid.

3(a) Standards

The Materials / equipment supplied under this Contract will conform to the Standards mentioned in the Technical specifications, and, when no applicable standard is mentioned, the authoritative standards appropriate to the Materials / equipment' i.e., BIS, such standards will be the latest. All material will be of the best class and will be capable of satisfactory operation under tropical conditions without distortion or deterioration.

3(b) Interchangeability:

All similar materials and removable parts of similar equipment will be interchangeable with each other. A specific confirmation of this should be furnished in the bid.

4. Scope of Work:

This specification covers design manufacture, testing and delivery FADS (Free At Destination Stores) of the materials described at Section V and Technical Specification Section VI.

5. Eligible Bidders:

All the Manufacturers who have registered themselves with department of industries of State/Central Govt. with full manufacturing and testing facilities for supply of the material / equipment listed in Section No. V, of Bid specification and meeting the qualification requirements described at section IV and having BIS certification for the items quoted only need quote. Bids received from firms not meeting the above criteria will not be considered.

B. THE BIDDING DOCUMENTS

6. Contents of Bidding Document:

6.1 The Materials / equipment required, bidding procedures, and contract terms are prescribed in the bidding documents as listed below:

1. Notice Inviting Bid
2. Technical Specifications
3. Schedule of Requirements (Delivery Schedule)
4. Bid Form and Price Schedules(**online only**)
5. Salient Features of the Bid
6. General Terms and Conditions of Contract
7. Qualification Requirements
8. Bid Security
9. Performance Security Form
10. Schedule of Deviations

6.2 The Bidder is expected to examine all instructions, forms, terms and Technical specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not responsive to the bidding documents in every respect will be at Bidder's risk and may result in the rejection of its bid.

7. Clarification of Bidding Documents

Clarification of Bidding Documents: A prospective Bidder requiring any clarification of the bidding documents may notify the Purchaser in writing or by cable (hereinafter, the term cable is deemed to include telex and facsimile) at the Purchaser's address. The Purchaser will respond in writing to any request for clarification of the bidding documents, which it receives no later than fifteen (15) days prior to the deadline for the submission of bids. Written copies of Purchaser's response (including an explanation of the query but without identifying the source of inquiry) will be put on Website of the purchaser and e-procurement website or intimated by mail.

8. Amendment to Bidding Documents:

8.1 At any time prior to the deadline for submission of bids, the Purchaser, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, may modify the bidding documents by amendment.

8.2 All such amendments also would be made available on the website of TGSPDCL and e-procurement website and such amendments will be binding on the respective Bidders.

- 8.3 In order to allow prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. PREPARATION OF BIDS

9. Language of Bid:

The bid prepared by the Bidder including all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, will be in English.

10. Cost Associated with Bidding:

The Bidder will bear all costs associated with the preparation and submission of its bid, and the Purchaser, will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

11. Documents Constituting the Bid:

The bid prepared by the Bidder will comprise the following components:

- i. Bid Security in accordance with Clause No.19.
- ii. A Bid Form and Price Schedule (**only for online submission**) completed in accordance with Clause No.12 and 13.
- iii. Documentary evidence establishing in accordance with Clause No.18 that the Bidder is eligible to bid and is qualified to perform the contract if its bid is accepted.
- iv. Documentary evidence establishing that the Materials / equipment and ancillary services to be supplied by the Bidder are as per the Technical specification of the bidding documents; and
- v. Tax clearance certificate
- vi. Schedule of Deviations
 - (a) Commercial
 - (b) Technical

All the Schedules will be duly filled but not necessary in the sheets attached to the specification unless full details required in the schedules are furnished the Bids will be liable for rejection.

12. Bid Form:

The Bidder will complete the Bid form and the appropriate Price Schedule (**only for online submission**) furnished in the bidding documents, indicating the Materials / equipment to be supplied, a brief description of the Materials / equipment, quantity and prices.

13. Bid Prices:

- 13.1 The prices quoted shall be **FIRM**. Bids will be called for with prices FADS inclusive of packing and forwarding GST and other legally permissible duties and levies wherever applicable, handling charges to cover the transport by road from destination railway station to site/stores and insurance (transit and storage at site for 45 days).
- 13.2 Even though composite price is given the break-up for all the duties, taxes, freight, insurance, packing and forwarding etc., shall be furnished.
- 13.3 It is the responsibility of the Bidder to inform himself of the correct rates of duties and taxes leviable on the materials at the time of bidding.

- 13.4 The proforma credit available to the bidder on the purchases of inputs (raw materials) consequent to the introduction of "MODVAT" Scheme may be taken into account while quoting the prices.
- 13.5 The Bidder shall indicate on the appropriate Price Schedule (online submission) the unit prices (where applicable) and total bid price of the Materials / equipment it proposes to supply under the contract.

Prices indicated on the price schedule (online) shall be entered separately in the following manner.

The price of the Materials / equipment quoted EXWORKS and all excise and other duties and sales and other taxes payable on the finished Materials / equipment with individual breakup for Taxes and Duties, packing and forwarding, freight and insurance etc.

14. Taxes and Duties

- 14.1 A bidder will be entirely responsible for quoting the correct taxes and duties, other local taxes or levies if any, license fees, etc., he has to incur until completion of the contract. For the purpose of evaluation the bidder should clearly indicate the GST and any other levies payable. Failure to furnish such details leads to loading as indicated in the evaluation criteria.
- 14.2 If the rates of statutory levies assumed by the Bidder are less than the actual rates prevailing at the time of bidding, the Purchaser will not be responsible for such errors. If the rates of statutory levies assumed by the Bidder are later proved to be higher than the actual / correct rates prevailing at the time of bidding, the difference will be passed on to the credit of the Purchaser.
- 14.3. Deemed Export Benefits: This is not applicable for local purchases with TGSPDCL funds.

15. Statutory Variations

In case of subvendor items Taxes, Duties are inclusive in tender price. No statutory variation is applicable. Further price variations in respect of Sub-vendor items will be considered on tender prices.

Any variation up or down in statutory levy or new levies introduced after signing of the contract under this specification will be to the account of TGSPDCL provided. In cases where delivery schedule is not adhered to by the supplier and there are upward variation / revision after the agreed delivered date, the supplier will bear the impact of such levies and if there is downward variation / revision the TGSPDCL will be given credit to that extent. **This is allowed only once during delivery period i.e. at the time of delivery of goods at factory.**

16. Bid Currencies:

Prices shall be quoted in Indian Rupees; and will be paid in Indian Rupees Only.

17. Quantity to quote:

Bidder shall quote a minimum quantity of at least 20% of the total quantity indicated in the bid Specification. Offers less than the minimum prescribed are liable for rejection.

18. Documents Establishing Bidder's Eligibility and Qualifications

The Bidder shall furnish, as part of its bid, documents establishing the Bidder's eligibility to bid and its qualifications to perform the contract if its bid is accepted.

The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted will establish to the Purchaser's satisfaction:

- (a) That the Bidder has the financial, technical, and production capability necessary to perform the contract;
- (b) That the Bidder meets the qualification criteria listed in Section VI. In addition the Bidder may furnish full particulars regarding supply of the material in question made so far to TGSPDCL during the last 5 years and other reputed utilities.

18.1 Documents Establishing Materials/equipment Conformity to Bidding Documents.

The Bidder shall furnish as part of its bid, documents establishing conformity to the bidding documents of all Materials / equipment and services, which the Bidder proposes to supply under the Contract.

The documentary evidence of conformity of the Materials / equipment and the services to bidding documents may be in the form of literature, drawings, and data, and will consist of:

- (a) a detailed description of the essential technical and performance characteristics of the Materials / equipment;
- (b) The bidder should specifically mention about furnishing the test certificates and a specimen form of test certificate should be furnished along with the bid.
- (c) a list giving full particulars, including available sources and current prices of spare parts, special tools etc., necessary for the proper and continuing functioning of the Materials / equipment following commencement of the use of the Materials / equipment by the Purchaser; and
- (d) an item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsive-ness of the Materials / equipment and services to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.

For purposes of the commentary to be furnished pursuant to above, the Bidder will note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications, are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names, and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

19. Bid Security

- 19.1 The Bidder shall furnish, as part of its bid, a Bid Security in the amount of 2% of the Total Ex-works value of the materials offered against the bid (**plus with GST @18%**). This amount should be paid by way of a crossed demand draft drawn on any schedule bank in favour of the Pay Officer, TGSPDCL and payable at headquarters of the Purchaser. The crossed DD should invariably be furnished along with the bids. **Alternatively the bidders may furnish a B.G. in original in lieu of DD as per the proforma attached.** Fax / photocopies of the bid security will not be accepted and will be rejected.
- 19.2 The fact of having enclosed bid security by **DD/B.G.** along with the bid should be clearly super scribed on the bid envelope. Bids, which do not have the above superscription, will be rejected and returned to the respective bidders unopened.
- 19.3 Submission of BID SECURITY **by way of Cheque, cash, money order, call deposit** will not be accepted and will be considered as disqualification.
- 19.4 Payment of BID SECURITY will be waived at the discretion of the TGSPDCL in the case of fully owned Government undertaking of the Central or State Government. Such undertakings should immediately apply and obtain exemption before submitting their Bids. They need only refer to the details of such exemption in their Bids. Exemption accorded by any organization other than TGSPDCL will not be considered.
- 19.5 Requests for exemption from payment of BID SECURITY will not be entertained in any other case.
- 19.6 Any bid not secured as above will be rejected by the purchaser.
- 19.7 Unsuccessful Bidders' Bid Security will be discharged or returned as promptly as possible, but not later than thirty (30) days after the expiry of the period of bid validity prescribed by the Purchaser.
- 19.8 The successful Bidder's Bid Security will be discharged upon the Bidder signing the contract.
- 19.9 **The Bid Security may be forfeited:**
- (a) if a Bidder:**
- i. Withdraws its bid or alters its prices during the period of bid validity specified by the Bidder on the Bid Form, or
 - ii. Does not accept the correction of errors pursuant to Clause No.30.2; or
 - iii. Offers post Bid rebates, revisions or deviations in quoted prices and / or conditions or any such offers which will give a benefit to the Bidder over others will not only be rejected outright but the original Bid itself will get disqualified on this account and the Bidder's BID SECURITY will be forfeited.
- (b) In the case of a successful Bidder, if the Bidder fails:**
- i. To sign the contract in accordance with Clause No.37.
 - ii. To furnish performance security in accordance with Clause No.38.

- 19.10 In cases where the Bid Cover Contains superscription of having furnished Bid Security by way of DD but if the same is not found within, such Bids will be rejected and bidder will run the risk of being banned.

Note : The bidder shall furnish required Bid Security amount and validity (The validity of the bank guarantee shall be upto bid validity +45 days from the date of tender opening) as per specification. If the bidder fails to furnish bid security amount and bid validity as stipulated in the specification, such tender bid will not be considered for further evaluation.

20. Period of Validity of Bids.

- 20.1 Bids shall remain valid for the period of (120) days from the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period will be rejected.

The bidders should clearly super scribe on the sealed envelopes of the bids about the validity. Bids not containing superscription of validity will be rejected and returned unopened.

- 20.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses there to will be made in writing (or by cable). The Bid Security provided under Clause No.19 will also be suitably extended. A Bidder may refuse the request without forfeiting its Bid Security.

21. Tax Clearance Certificates:

Copies of Income Tax, Sales Tax and Turnover Tax certificates for the latest period from the appropriate authority will invariably be enclosed to the bid. In the case of proprietary or partnership firm it will be necessary to produce the certificate / certificates for the proprietor or proprietors and for each of the partners as the case may be. If the Bidder has already produced the certificate during the calendar year in which the bid is made, it will be sufficient, if particulars are given.

22. Service Conditions

- 22.1 The equipment / materials offered will be entirely satisfactory for operation under the climatic conditions indicated below:

(a)	Maximum ambient air temperature (in shade)	45 ^o C
(b)	Maximum ambient air temperature (under sun)	50 ^o C
(c)	Maximum daily average ambient air temperature	35 ^o C
(d)	Maximum yearly average ambient air temperature	30 ^o C
(e)	Maximum humidity	100%
(f)	Altitude above M.S.L.	Up to 1000M
(g)	Average No. of thunder storm days per annum	50
(h)	Average No. of dust storm days per annum	Occasional
(i)	Average No. of rainy days / annum	90
(j)	Average Annual Rain fall	925mm
(k)	Normal tropical monsoon period	4 months
(l)	Maximum wind pressure	150 kg/Sq.M.

- 22.2 Due consideration will be given to any special devices or attachments put forward by the Bidder which are calculated to enhance the general utility and the safe and efficient operation of the equipment / materials.

23. Format and Signing of Bid.

- 23.1 The Bidder shall seal the original bid, duly marking envelope as "ORIGINAL". The envelopes will then be sealed in an outer envelope.

- 23.2 The original and the copies of the bid shall be typed and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the contract. The person or persons signing the bid will initial all pages of the bid, except for printed literature.
- 23.3 Any interlineations, erasures, or overwriting will be valid only if they are initialed by the person or persons signing the bid.

D. Submission of Bids

24. Submission, Sealing and Marking of Bids.

- 24.1 The tenderers are required to submit their bids in two parts as under:
- (i) Part-I : Bid Security, Technical Bid & Qualification Requirements. Technical Bid shall contain full technical particulars and commercial terms and conditions **but without prices**. This should not contain any cost information whatsoever.
- Part-II : Price Bid – containing Prices (**shall be on-line only**)
Bids received with any details pertaining to prices in the offline mode will be liable for rejection.
- (ii) The Part-I of tender should be furnished in a sealed cover super scribing tender enquiry number, name of material, name of the bidder and date of tender opening
- (iii) Part-I of the bid will be opened on the due date of tender opening. In case the bidders have been granted Bid Security exemption (clause-19), documentary evidence for the same must be furnished. The firms whose Bid Security, Testing charges and Transaction Fee are not received as specified in the tender document, the price bids will not be opened and their bids will be rejected summarily.
- (iv) The price bids of only those bidders whose technical bids, on examination, are determined to be technically and commercially acceptable and meeting the specified Qualification Criteria will be opened at a later date.

Sealing and Marking of Bids.

- 24.2 The Bidder shall seal the bid in an envelope.
- 24.3 The inner and outer envelopes will be addressed to the purchaser.
- 24.4 The sealed cover as well as the outer envelope should be super scribed as follows:
- (a) Bid Enquiry No.
- (b) Due date and time for hard copy and online submission.
- (c) Date and time for online opening.
- (d) Payment of Bid Security
- (i) If paid, give details: D.D. No..... Date:
- (e) Whether 120days validity offered.....YES / NO
- (f) Payment of testing charges D.D. No..... Date:
- (g) Whether the quotation is made accepting Payment terms clause YES/NO
- (h) Whether the delivery is as per delivery schedule indicated.... YES/NO
- (i) Whether the sample (if specified) has been enclosed/ sent...YES/NO
- (j) Whether the bid is quoted in two parts (clause 24.1).... (YES/NO)

- 24.5 Bids not super scribed as above are liable to be rejected.
- 24.6 The Bidder shall invariably complete the Bid in full. Details to be furnished by the bidder and Schedule of Prices attached to the specification and enclose the same to the bid without fail.
- 24.7 The bids shall be in bound volumes (With the documents in the volume not detachable). All pages of the bid except in-amended printed literature shall be initiated by the person/persons signing the bid. The page number shall be referred in Index. All pages including literature, type test reports of the bid shall be numbered and the page numbers shall be continuous. Soft copy of the technical and commercial bids and designs with drawings shall be given in Floppy disc/ CD also. Summary sheet in the given format on the top of the bid duly signed and sealed by the bidder.
- 24.8 The time of actual receipt in the office only will count for the acceptance of the bid and either the date of bid, date stamp of post office or date stamp of any other office will not count. The TGSPDCL will not be responsible for any postal or any other transit delays.
- 24.9 Telegraphic quotations will not be entertained under any circumstances. Clarification, amplifications, and/or any other correspondence from the Bidder subsequent to the opening of bid will not be entertained. The Bidders are advised to ensure that their bids are sent in complete shape at the first instance itself.
- 24.10 The inner envelopes shall also indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "late".
- 24.11 If the outer envelope is not sealed and marked as required above, the Purchaser will assume no responsibility for the bid's misplacement or premature opening.

25. Deadline for Submission of Bids.

- 25.1 Bids together with modifications if any, or other withdrawals must be received by the Purchaser not later than the deadline for submission of bids specified in the Salient features of the Bid.
- 25.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the bidding documents 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.

26. Late Bids

- 26.1 Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser will be rejected and returned unopened to the Bidder.

26.2 Modification and Withdrawal of Bids.

The Bidder may modify or withdraw its bid after the bid's submission, provided that written notice of the modification, including substitution or withdrawal of the bids, is received by the Purchaser prior to the deadline prescribed for submission of bids.

The Bidder's modification or withdrawal notice will be prepared, sealed, marked, and dispatched. A withdrawal notice may also be sent by cable, but followed by a signed confirmation copy, postmarked not later than the deadline for submission of bids. No bid may be modified after the deadline for submission of bids.

No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified. Withdrawal of a bid during this interval may result in the forfeiture of its Bid Security.

E. Opening and Evaluation of Bids

27. Opening of Bids by the Purchaser

- 27.1 The Purchaser will open all bids meeting above criteria at the time, on the date, and at the place specified.
- 27.2 The Bidders' names, bid modifications or withdrawals, discounts and the presence or absence of requisite Bid Security and such other details as the Purchaser, at its discretion, may consider appropriate, will be announced at the opening.
- 27.3 Bids that are not opened at bid opening will not be considered further for evaluation, irrespective of the circumstances.

28. Clarification of Bids

During evaluation of the bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the prices or substance of the bid shall be sought, offered, or permitted.

29. Preliminary Examination

- 29.1 The 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.
- 29.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail, and the total price will be corrected. If the Supplier does not accept the correction of the errors, its bid will be rejected, and its Bid Security may be forfeited. If there is a discrepancy between words and figures, the amount in words will prevail. If the supplier does not accept the correction of the errors, its bid will be rejected and its Bid Security may be forfeited.
- 29.3 The Purchaser may waive any minor informality, nonconformity, or irregularity in bid which does not constitute a material deviation, provided such waiver doesn't prejudice or affect the relative ranking of any Bidder.

- 29.4 Prior to the detailed evaluation, the Purchaser will determine the substantial responsiveness of each bid to the bidding documents. For purposes of these Clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the bidding documents without material deviations. Deviations from, or objections or reservations to critical provisions, such as those concerning Bid Security, and Taxes and Duties will be deemed to be a material deviation. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 29.5 If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

Note : Payment terms, Delivery period, Performance Bank Guarantee, Taxes and Duties” should be in line with the terms and conditions of the specification. If any bidder does not meet any one of the conditions, such tender will not be considered. Please note that the conditional offers are also not considered. Hence the bidder shall submit the tender in line with the terms and conditions of the specification.

30. Evaluation and Comparison of Bids.

- 30.1 The Purchaser will evaluate and compare the bids, which have been determined to be substantially responsive.
- 30.2 The Purchaser's evaluation of a bid will take into consideration one or more of the following factors

All the bids, which are opened, read out and considered for evaluation, will be checked for qualification requirements in respect of technical and commercial aspects. Such of the bids, which do not meet the qualification requirements, will not be evaluated further. The bid is to be checked for its conformity to the technical specification. If it does not meet the technical specification, the Bid will not be evaluated further. However, if in the opinion of the purchaser the bidder has offered equipment / material better than the technical specification the same may be considered. The bid may be rejected for the following reasons:

1. Not in the prescribed form
 2. Insufficient bid security or bid not accompanied by the required bid security or proof of exemption.
 3. Bids not properly signed
 4. The bidder is a vendor who is banned from further business transactions and the period of ban is still in force.
 5. Bid received after the due date and time
 6. The bid is through telegram or fax
- Further, the purchaser may enquire from the bidder in writing for any clarification of the bid. The response of the bidder will also be in writing. However no change in the prices or substance of the bid will be sought, offered or permitted.
 - Bids will be examined for completeness and for any computational errors.
 - Arithmetical errors will be rectified on the following basis.
 - Where there is a discrepancy between the unit price and total price, the unit price will prevail and the total price will be corrected accordingly.
 - Where there is a discrepancy between words and figures, the amount in words will prevail.

- Failure on the part of the bidder to agree to the above corrections will result in rejection of his offer and forfeiture of his bid security.
- It will be ensured that the required sureties have been furnished and that the documents have been properly signed.
- The purchaser's evaluation of a bid will take into consideration one or more of the following factors
 - (a) Delivery schedule offered in the bid;
 - (b) Deviations in payment schedule from that specified in the general terms and conditions of the contract and technical deviations.
 - (c) The cost of components, mandatory spare parts, and service;
 - (d) The availability of spare parts and after-sales services for the equipment offered in the Bid;
 - (e) The projected operating and maintenance costs during the life of the equipment;
 - (f) The performance and productivity of the equipment offered;
 - (g) Other specific criteria indicated in the Bidding documents.

In addition the Purchaser's evaluation of a bid will take into account the net landed cost of the material at the final destination. For the purpose of evaluation net landed cost is arrived at by adding all elements of the basic price, allowable discount, excise duty & any other levies, packing & forwarding, freight charges, insurance (transit & storage) as quoted by the bidder, interest on advance if any, erection, servicing other charges and **inclusive of GST** as called for.

In addition any variation up or down in taxes and duties / new levies introduced subsequent to bid opening and before award will be considered for comparison purposes.

The following criteria may be adopted for taxes and duties for evaluation

- a. It is the responsibility of the bidder to quote all taxes and duties correctly without leaving any column unfilled. Where taxes and duties are not applicable the bidder should enter "NA". If no duty / tax is le-viable the same may be entered as "NIL". If any column is left blank or filled vaguely like "as applicable", the same will be loaded with the maximum of the other eligible Bids.
- b. Where there is an exemption of GST, the documentary evidence to that effect will be enclosed by the supplier.
- c. **The bidders for supply and works shall invariably possess the GSTIN number and PAN Number for the bids above Rs. 5.00 lakhs and this must be verified before entering into contract.**

- Prior to detailed evaluation, the responsiveness of each bid will be determined. A substantially responsive bid is one that conforms to all the terms and conditions of the bidding documents without material deviations. For this purpose superscription, qualification requirement, bid security, validity, delivery, payment term, price schedule, taxes and duties will be deemed to be the critical provisions and deviations in any one of these items will be deemed to be a material deviation. The purchaser may waive any minor informality, non-conformity or irregularity in the bid which does not constitute a material deviation, provided such waiver does not affect the relative ranking of any bidder. The purchaser will clearly indicate in the bid specification the methodology for evaluation of bids.
 - (a) Bid price, which will include all, costs of manufacture and services at manufacturing place as well as, Transportation to destination stores, packing and forwarding, insurance and all Taxes & other legally permissible duties & levies payable.
 - (b) Delivery schedule offered in the bid.
 - (c) Deviations in payment schedule from that specified in the general terms and conditions of the contract.
 - (d) The cost of components, mandatory spare parts, and service
 - (e) The availability of spare parts and after-sales services for the equipment offered in the Bid;
 - (f) The projected operating and maintenance costs during the life of the equipment;
 - (g) The performance and productivity of the equipment offered; and/or
 - (h) Other specific criteria indicated in the Bid Specification.

30.3(a) The Purchaser's evaluation of a bid will take into account the Net Landed Cost of the Material at destination stores inclusive of all taxes and duties and **inclusive of GST** quoted by the Bidder. It is the responsibility of the bidder to quote all Taxes and Duties correctly without leaving any column unfilled. Where not applicable the column may be filled as "NA". If no duty / tax is le-viable the same may be filled as "NIL". If no column is left blank the same is loaded with maximum of other eligible Bids.

30.3(b) Any statutory variations of taxes and duties and new levies imposed after opening of the bid and before award of the contract will be taken into consideration for the purpose of evaluation.

30.4 A substantially responsive bid is one, which conforms to all the terms and conditions of the bidding documents without material deviations. For this purpose superscription, qualification requirement, bid security, validity, delivery, payment term, price schedule, submission of Types test certificates (as per Clause 4 section VI), taxes and duties will be deemed to the critical provisions and deviations in any one of these things will be deemed to be a material deviation.

31. Contacting the Purchaser.

- 31.1 From the time of the bid opening 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.
- 31.2 Any effort by a Bidder to influence the Purchaser in its decisions on bid evaluation, bid comparison, or contract award will result in the rejection of the Bidder's bid.

F. Award of Contract.**32. Post Qualification**

- 32.1 In the absence of pre-qualification, the Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily.
- 32.2 The determination will take into account the Bidder's financial, and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualification submitted by the Bidder, as well as such other information as the Purchaser deems necessary and appropriate.

33. Award Criteria:

The Purchaser will award the contract to the successful Bidder / Bidders whose bid has / have been determined to be substantially responsive.

However it is not binding on TGSPDCL to accept the lowest or any other Bid. It reserves the right to place orders on different Bidders.

34. Purchaser's Right to Vary Quantities at Time of Award

- 34.1 The Purchaser reserves the right at the time of contract award to increase or decrease the quantity by +/- 50% of Materials / equipment and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.
- 34.2 The purchaser reserves the right to vary the ordered quantity by +/- 50% during the execution of the contract.

35. Purchaser's Right to Accept Any Bid and to Reject Any or All Bids

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected bidder or bidders.

36. Notification of Award

- 36.1 Prior to the expiration of the period of bid validity, the Purchaser will notify the Successful Bidder in writing by registered letter or by cable, to be confirmed in writing by registered letter, that its bid has been accepted.
- 36.2 The notification of award will constitute the formation of the Contract.

- 36.3 Upon the successful Bidder's furnishing of the performance security, the Purchaser enters into contract with successful Bidder / Bidders. The Purchaser will notify each unsuccessful Bidder and will discharge its Bid Security.

37. Signing of Contract:

The Purchaser notifies the successful Bidder that its bid has been accepted. Within 30 (thirty days) of receipt of notification of award of Contract, the successful Bidder will sign and date the contract. Failure to comply with this stipulation will entail cancellation of the contract besides forfeiture of the bid security.

38. Performance Security:

- 38.1 Within Fifteen (15) days of receipt of the notification of Contract award. The successful Bidder will furnish to the Purchaser the performance security for an amount 10% of the contract value for proper fulfillment of the contract, which will include the warranty period, and completion of performance obligations including Warranty obligations. The Performance Security will cover 60 days beyond the date of completion of performance obligations including Warranty obligations.

In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected / replaced material will be extended to a further period of 12 months and the Performance Bank Guarantee for proportionate value will be extended 60 days over and above the extended warranty period.

- 38.2 The proceeds of the performance security will be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

- 38.3 The performance security will be...

(a) A bank guarantee issued by a **Nationalized bank or scheduled bank** acceptable to the Purchaser, in the form provided in the bidding documents.

(b) A banker's cheque or crossed DD or Pay Order payable at the Head quarter of the Purchaser in favour of the Purchaser drawn on any scheduled bank.

- 38.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than sixty (60) days after the expiry date.

- 38.5 Failure of the successful Bidder to comply with the above requirement will entail cancellation of the award and forfeiture of the Bid Security and the balance to make up the performance security deposit will be deducted from pending payments if any due to the tenderer from TGSPDCL on other orders in addition the company will also become liable for being black listed by TGSPDCL.

39. Corrupt or Fraudulent Practices

It is essential that the Purchaser as well as Bidder/supplier / contractor for the purposes of this provision, the terms set forth below as follows:

(i) "Corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public 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;

(iii) Will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

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

40. Use of Contract Documents and Information:

40.1 The Supplier will not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, of any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person will be made in confidence and will extend only so far as may be necessary for purposes of such performance.

40.2 The Supplier will not, without the Purchaser's prior written consent, make use of any document or information except for purposes of performing the Contract.

40.3 Any document, other than the Contract itself, will remain the property of the Purchaser and will be returned (in all copies) to the Purchaser on completion of the supplier's performance under the Contract if so required by the Purchaser.

40.4 The Supplier will permit the Purchaser or his authorized representative to inspect the Supplier's accounts and records relating to the performance of the Supplier and to have them audited by auditors appointed by the Supplier.

41. Patent Rights

The Supplier will indemnify the Purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Materials / equipment or any part thereof.

42. Places / Locations:

Particulars of site location and nearest rail heads to which the equipments / material have to be supplied will be given to successful Bidders.

43. Delivery:

Delivery period will be reckoned from the date of signing of the contract. The delivery quoted will be firm, definite, unconditional and on the basis of receipt of materials at destination in good condition without any bearing on the procurement of raw materials or any similar prerequisites. The commencement date and date of delivery will be indicted. The preferred delivery time, which is the essence of this specification, is indicated in the schedule. Final deliveries are however, subject to confirmation at the time of Contract. Delay in delivery of materials FADS – (Free At Destination Store) due to non-availability of railway booking, non-allotment of wagons and any such reasons will not be considered. It is the responsibility of the supplier to make alternative arrangements for transporting the materials by road or rail so as to see that the material reaches the destination within the stipulated period. The Purchaser reserves its right to defer the delivery date at any time after orders are placed without any change in the conclusion of contract other conditions supply. The delivery period, which will be reckoned from the date of the Contract, will be guaranteed under penalty as in Clause 61.

44. Inspections and Tests

- (i) The supplier will keep the Purchaser informed in advance of the time of the starting and the progress of manufacture of equipment in its various stages so that arrangement could be made for inspection. The accredited representative of the TGSPDCL will have access to the supplier's or his subcontractor's work at any time during working hours for the purpose of inspecting the materials during manufacturing of the materials / equipment and testing and may select test samples from the materials going into plant and equipment. The supplier will provide the facilities for testing such samples at any time including access to drawings and production data at no charge to Purchaser. As soon as the materials are ready the supplier will duly send intimation to TGSPDCL by Regd. Post and carry out the tests in the presence of representative of the TGSPDCL.
- (ii) The TGSPDCL may at its option get the materials inspected by the third party if it feels necessary and all inspection charges in this connection will be borne by the TGSPDCL. In case of material, not of acceptable quality or not conforming to the specification, the materials will be rejected. The material has to be re-offered for inspection. In such a case the 2nd inspection charges are to suppliers account. In case the materials are rejected in the 2nd inspection also, the TGSPDCL reserves the right to cancel the order.
- (iii) The dispatches will be affected only if the test results comply with the specification. The dispatches will be made only after the inspection by the TGSPDCL Officer is completed to the TGSPDCL satisfaction or such inspection is waived by the competent authority.
- (iv) The acceptance of any quantity of materials will in no way relieve the supplier of its responsibility for meeting all the requirements of this specification and will not prevent subsequent rejection if such materials are later found to be defective.
- (v) The supplier will give 15 days advance intimation to enable the Purchaser to depute his representative for witnessing the acceptance and routine tests.
- (vi) Should any inspected or tested materials / equipment fail to conform to the specification, the Purchaser may reject the materials and supplier will either replace the rejected materials or make alterations necessary to meet specifications requirements free of costs to the Purchaser.

(vii) In the case of transformers, instrument transformers and meters inspection will be conducted every year, for the first 5 years on a 2% sample of the quantities supplied. Samples will be collected at random to establish that the guaranteed technical parameters are as per the submitted bid by the supplier. In the case of non-adherence, the purchaser may take suitable action on the supplier including cancellation of vendor registration and banning further dealings, depending on the gravity of the deviation. These random inspections may be entrusted to a third party.

(viii) Inspection not carried out due to non-readiness of the material even after contacting / confirmed over phone from the supplier about availability of material and physical verification at the supplier premises, the charges @ 0.3% of Ex-works price of material offered for inspection (inclusive of GST and all other taxes & duties, travelling expenses, boarding and lodging charges at the place of inspection and all incidental charges) shall be paid by supplier subject to a maximum of Rs. 10,000.00

45. Name Plate:

Equipment should be provided with name plate giving full details of manufacture, capacities and other details as specified in the relevant ISS or other specification stipulated. The contract No. and date and year of supply and the words "TGSPDCL" must be etched on the name plate.

46. Packing

46.1 The Supplier will provide such packing of the Materials / equipment as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing will be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing case size and weights will take into consideration, where appropriate, the remoteness of the Materials / equipment' final destination and the absence of heavy handling facilities at all points in transit.

46.2 The packing, marking, and documentation and outside the packages will comply strictly with such special requirements as will be expressly provided for in the Contract and in any subsequent instructions ordered by the Purchaser. The supplier will be required to make separate packages for each consignee; each package will be marked on three sides with proper paint / indelible ink with the following;

1. Contract Number
2. Supplier's name
3. Packing list reference number

46.3 The supplier, whenever dispatches material to a destination should prepare the following information in the form of packing slip in quadruplicate and send the same to the consignee and obtain his acknowledgement. The consignee will return to the supplier one copy of the packing slip with his remarks. The proforma of packing slip will be as follows:

PACKING SLIP

1. Contract No. & Date.
2. Quantity allotted to the stores and rate applicable.
3. Quantity so far supplied to the stores and the rate applied.
4. Quantity now supplied and the rate applied.
5. Total quantity supplied under the Contract with rates applied.
6. Programme for supplying the balance quantity to the Stores.

47. Delivery Documents

- 47.1 Delivery of the Materials/equipment will be made by the Supplier in accordance with the terms specified in the contract.

The latest test certificates containing the result of the tests as per the relevant ISS or other specification stipulated must be submitted to the Chief Engineer (P&MM) and got approved by him.

- 47.2 Documents to be submitted by the Supplier are specified as under...

- (i) Insurance certificate;
- (ii) Supplier's certificate certifying that the defects if any pointed out during inspection has been rectified (3 copies).
- (iii) Manuals in Six sets and one set of reproducible drawings.

The Purchaser will receive the above documents soon after the dispatch of materials and if not received, the supplier will be responsible for any consequent expenses.

48. Insurance

- 48.1.1 The Materials / equipment supplied under the Contract will be fully insured against loss or damage incidental to manufacture or acquisition, transportation and delivery and also storage for 45 days at destination stores before taking into account.

- 48.1.2 The bidder shall a) Initiate and pursue insurance claim till settlement, and b) Promptly arrange for repair and/or replacement of any damaged items in full irrespective of settlement of insurance claim by the under Writers. c) All costs because of insurance liabilities covered under the contract will be to supplier's account. The supplier shall provide the Purchaser with a copy of all insurance policies and documents taken out by him in pursuance of the 'Contract'. Such copies of documents shall be submitted to the purchaser immediately after such insurance coverage. The supplier shall also inform the Purchaser in writing at least sixty (60) days in advance, regarding the expiry, cancellation and/or change in any of such documents and ensure revalidation/renewal etc., as may be necessary well in time.

The risks that are to be covered under the insurance shall be comprehensive and shall include but not limited to, the loss or damage in transit, storage, due to theft, pilferage, riot, civil commotion, weather conditions, accident of all kinds, fire, flood, war risk(during ocean transportation) bad or rough handling etc. The scope of such insurance shall cover the entire contract value.

The insurance will be in an amount equal to 100% FADS value of Materials / equipment on all risks basis. The policy will have a provision for extension to cover further storage if necessary at destination stores / site at TGSPDCL cost. The supplier will take the insurance cover in the name of purchaser.

49. Transportation

The Supplier is required under the Contract to transport the Materials / equipment to a specified place of destination defined as normally the district stores, transport to such place of destination, including insurance and storage, will be arranged by the Supplier, and the related costs will be included in the Contract Price only.

50. Incidental Services

The Supplier may be required to provide any or all of the following services, including additional services, if any.

- (a) Performance or supervision of on-site assembly and/or start-up of the supplied Materials / equipment;
- (b) Furnishing of tools required for assembly and/or maintenance of the supplied Materials / equipment;
- (c) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Materials / equipment;
- (d) Performance or supervision or maintenance and/or repair of the supplied Materials / equipment, during warranty period, provided that this service will not relieve the Supplier of any warranty obligations under this contract; and
- (e) Training of the Purchaser's personnel, at the Suppliers' plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Materials / equipment.

51. Spare Parts

The Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier.

- (a) Such spare parts as the Purchaser may choose to purchase from the Supplier, provided that this election will not relieve the supplier of any warranty obligations under the contract; and
- (b) In the event of termination of production of the spare parts:
- (c) Advance notification to the Purchaser of the impending termination.
- (d) Time to permit the Purchase to procure needed requirement; and following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

52. Warranty

- 52.1 The supplier will warrant for the satisfactory functioning of the material / equipment as per specification for a minimum period of **5 years** from the date of receipt of the material / equipment in good condition.

- 52.2 The Supplier warrants that the Materials/equipment supplied under the Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The supplier further warrants that all Materials/equipment supplied under this Contract will have no defect, arising from a design and /or materials as required by the Purchaser's specifications or from any act of omission of the Supplier that may develop under normal use of the supplied Materials/equipment.
- 52.3 All the material will be of the best class and will be capable of satisfactory operation in the tropics under service conditions indicated in clause 23.1 without distortion or deterioration. No welding filling or plugging of defective parts will be permitted, unless otherwise specified, they will conform to the requirements of the appropriate Indian, British or American Standards. (Where a standard specification covering the material in question has not been published, the standards of the American Society for testing of Materials should be followed).
- 52.4 The entire designs and construction will be capable of withstanding the severest stresses likely to occur in actual service and of resisting rough handling during transport.
- 52.5 Unless otherwise specified the warranty period will be 5 years from the date of acceptance of the Materials / equipment. The Supplier will, in addition, comply with the performance guarantees specified under the contract. If, for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the supplier will at its discretion either, Make such changes, modifications, and/or additions to the Materials / equipment or any part thereof as may be necessary in order to attain the contractual guarantees specified in the contract at its own cost and expense and to carry out further performance tests as per the relevant standards.
- 52.6 The Purchaser will promptly notify the supplier in writing of any claims arising under this warranty.
- 52.7 "Upon receipt of such notice, the Supplier will within 30 days repair or replace the defective Materials/equipment or parts thereof, free of cost at the ultimate destination. The supplier will take over the replaced parts/Materials / equipment at the time of their replacement. No claim whatsoever will lie on the Purchaser for the replaced parts/Materials/equipment thereafter". In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/replaced material will be extended to a further period of 12 months.
- 52.8 If the Supplier, having been notified, fails to remedy the defect(s) within the above period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense duly deducting the expenditure from subsequent bills / bank guarantee and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

53. Payment

"100% payment will be arranged **on or after 30 days** from the date receipt of material/equipment at the destination/stores (i.e.103 entry in SAP module) duly transferring the said amount to the bank account of the supplier by the purchaser bank. The supplier will have to predefine the Bank details while entering into contract for electronic transfer of payments.

Note:

- i) The date of delivery would be the date on which the stores officer certifies the receipt of materials at stores in good condition 103 entry in SAP module in respective of the date of check measurement.
- ii) Form 13 shall be issued subject to material taken into stock in good condition (i.e. 105 entry in SAP module)
- iii) The supplier should invariably submit test certificates as soon as despatch is made so that the test certificates can be checked up and approved well before it becomes due for payment. Routine Test Certificates of the entire lot shall be submitted to the Consignee.
- iv) The performance guarantee to be executed in accordance with this specification shall be furnished on a stamp value of Rs.100/- The performance guarantee shall be from any Nationalized/Scheduled Bank. Performance Guarantee to the extent of 10% value of purchase order valid upto 2 months over and above the guarantee period to draw 100% payment.

The performance guarantee has to be extended suitably by you in accordance with the guarantee clause, so that the last consignment against the order is covered by the guarantee.

- v) If you have received any over payments by mistake or if any amounts are due to the TGSPDCL due to any other reason, when it is not possible to recover such amounts under the contract resulting out of the subject specification, the TGSPDCL reserves the right to collect the same from any other amounts and/or bank guarantee given by you due to or with the TGSPDCL.
- vi) When you do not at any time, fulfill your obligations in replacing / rectifying etc., of the damaged/ defective materials in part or whole promptly to the satisfaction of the TGSPDCL officers, the TGSPDCL reserves the right not to accept the bills against subsequent dispatches made by the supplier and only the supplier will be responsible for any demurrages, wharf ages or damages occurring to the consignment so dispatched.

54. Prices

Prices charged by the Supplier for Materials / equipment delivered and Services performed under the Contract will not vary from the prices quoted by the supplier in its bid, with the exception of any price adjustment authorized in the contract.

55. Change Orders

The Purchaser may at any time, by a written order given to the Supplier make changes within the general scope of the Contract in any one or more of the following:

- (a) Drawings, designs, or specifications, where Materials / equipment to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) The method of shipment or packing;
- (c) The place of delivery; and/or
- (d) The Services to be provided by the Supplier.

56. Contract Amendments

No variation in or modification of the terms of the Contract will be made except by written amendment by the Purchaser and accepted by the supplier.

57. Assignment

The Supplier will not assign, in whole or in part, its obligations to perform under this Contract, except with the Purchaser's prior written consent.

58. Delays in Supplier's Performance

58.1 Delivery of the Materials / equipment will be made by the Supplier in accordance with the time schedule prescribed by the Purchaser in the Schedule of Requirements.

58.2 If at any time during performance of the Contract, the Supplier should encounter conditions impeding timely delivery of the Materials / equipment, the Supplier will promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser will evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension will be ratified by the parties by amendment of the Contract.

58.3 Except as provided under force measure clause a delay by the Supplier in the performance of its delivery obligations will render the Supplier liable to the imposition of liquidated damages unless an extension of time is agreed upon without the application of liquidated damages.

59. Penalty for delay in supplies

The time for and the dates for delivery mentioned in the contract will be deemed to be the essence of the contract. Subject to force measure Clause No.64, if the Supplier fails to deliver any or all of the Materials/equipment or to perform the Services within the period(s) specified in the Contract, the Purchaser will, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 0.5% per week on the undelivered portion subject to a maximum of 5% of the cost of the undelivered portion within scheduled time. Once the maximum is reached the Purchaser may consider termination of the contract.

The check measurement date i.e., the date of receipt of materials at destination stores in good condition will be taken as the date of delivery. For calculation of penalty the date of receipt of material at the destination stores is the date of delivery subject to the condition that the goods/material are received in good condition. Materials / Equipment which are not of acceptable quality or are not conforming to the specification would be deemed to be not delivered. For penalty, the number of days would be rounded off to the nearest week and penalty calculated accordingly.

The penalty specified above will be levied and would be adjusted against subsequent pending bills.

In cases where new vendors fail to meet the requirement of the Contract there would be no penalty to such vendors but they will be excluded from the next bid for the particular item of the material.

Any failure on the part of new vendors for a second time would cause them to be removed from the list of registered vendors.

60. Risk Purchase

In case of supplier who has not adhered to the delivery schedule, the TGSPDCL reserves the right to purchase the balance quantity from the open market/floating another tender and recover the extra expenditure thus incurred from the supplier.

61 Termination for Default

61.1 The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate this Contract in whole or in part:

i. If the Supplier fails to deliver any or all of the Materials / equipment within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser.

ii. If the Supplier fails to perform any other obligation(s) under the Contract.

iii. If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

61.2 In the event the Purchaser terminates the Contract in whole or in part, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Materials / equipment or services similar to those undelivered, and the Supplier will be liable to the Purchaser for any excess costs for such similar Materials / equipment or Services. However, the Supplier will continue performance of the Contract to the extent not terminated.

62. Termination for Insolvency

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or not affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

63. Termination for Convenience

63.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination will specify the termination is for the Purchaser's convenience, the extent to which performance of the supplier under the Contract is terminated, and date upon which termination becomes effective.

63.2 However the Materials / equipment that are complete and ready for shipment within thirty (30) days after the supplier's receipt of notice of termination will be accepted by the Purchaser at the Contract terms and prices.

64. Force Majeure

64.1 The Supplier will not be liable for forfeiture of its performance security, penalty for late delivery, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

64.2 For purposes of this clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

- 64.3 If a Force Majeure situation arises, the supplier will promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier will continue to perform its obligations under the Contract as far as is reasonably practice, and will seek all reasonable alternative means for performance not prevented by the Force Majeure event.

No price variance will be allowed during the period of force measure.

65. Settlement of Disputes

- 65.1 If any dispute or difference of any kind whatsoever will arise between the Purchaser and the Supplier in connection with or arising out of the Contract, the parties will make every effort to resolve amicably such dispute or difference by mutual consultation.
- 65.2 If, after thirty (30) days the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.
- 65.3 Any dispute of difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause will be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Materials / equipment under the Contract.
- 65.4 Arbitration proceedings will be conducted in accordance with the following rules of procedure. The dispute resolution mechanism will be as follows:
- (a) In the case of a dispute or difference arising between the Purchaser and a Supplier relating to any matter arising out of or connected with this agreement, such dispute or difference will be settled in accordance with the Arbitration and Conciliation Act. 1996. The Arbitral Tribunal will consist of three Arbitrators one each to be appointed by the Purchaser and the supplier the Third Arbitrator will be chosen by the two Arbitrators so appointed by the parties and will acts as Presiding Arbitrator. In case of failure of the two Arbitrators appointed by the parties to reach upon a consensus within period of 30 days from the appointment of the Arbitrator appointed subsequently, the Presiding Arbitrator will be appointed by The Institution of Engineers (India).
 - (a) If one of the Parties fails to appoint its Arbitrator in pursuance of Sub-Clause (a) within 30 days after receipt of the notice of the appointment of its Arbitrator by The Institution of Engineers (India), will appoint the Arbitrator. A certified copy of the order of the Institution of Engineers (India), making such an appointment will be furnished to each to the parties.
 - (b) Arbitration Proceedings will be held at Purchaser's Headquarters, and the language of the Arbitration Proceedings and that of all documents and communication between the parties will be English.
 - (c) The decision of the majority of Arbitrators will be final and binding upon both parties. The cost and expenses of Arbitration Proceedings will be paid as determined by the Arbitral Tribunal. However, the expenses incurred by each party in connection with the preparation, presentation etc., of its proceedings as also the fees and expenses paid to the Arbitrator appointed by such party or on its behalf will be borne by each party itself.

- (d) Where the value of the Contract is Rs. One Crore and below, the disputes or differences arising will be referred to the Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority namely The Institution of Engineers (India).

65.5 Notwithstanding any reference to arbitration herein,

- (a) The parties will continue to perform their respective obligations under the Contract unless they otherwise agree; and
- (b) The Purchaser will pay the Supplier any monies due the Supplier.

66. Jurisdiction

All and any disputes or differences arising out of or touching this contract will be decided by the Courts or Tribunals situated in Purchaser's Headquarters only. No suit or other legal proceedings will be instituted elsewhere.

67. Notices

67.1 Any notice given by one party to the other pursuant to this Contract will be sent to the other party in writing or by cable, telex, or facsimile and confirmed in writing to the other party's address.

67.2 A notice will be effective when delivered or on the notice's effective date, whichever is later.

68. Foreign Exchange

No Foreign Exchange is available or expected for this purchase. Offers which do not require release of F.E. or procurement of import license by TGSPDCL only will be considered. Where some of the components are to be imported the manufacturer will have to make their own arrangements for import license etc., and should not look for any assistance from TGSPDCL.

SECTION-IV
SCHEDULE OF REQUIREMENT
STN-1537/25

Sl. No.	Description	Qty. (Nos.)	Free at Destination Stores
1.	Three Phase Whole Current Electronic Energy Meters of 10-40A rating of 1.0 class of accuracy with Pilfer Proof Box with DLMS & IrDA physical layer as per technical specification. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">Base Current 10A</div> <div style="text-align: center;">Continuous Current 40A</div> </div>	1,00,000	Any district stores In TGSPDCL jurisdiction.

NOTE:

1. In e-procurement commercial stage, **if F&I charges are applicable then mention whether F&I charges entered are exclusive/inclusive of GST in the remarks section. If not mentioned in remarks, F&I charges will be considered as inclusive of GST.**
2. The tenderer should quote the rates for free at destination stores and shall fill the price schedule in e-procurement platform.
3. 6 Nos. (Six) sample of quoted item shall be submitted at the time of submission of bid. Bids received without samples will be rejected.

The purchaser will not be responsible for any damage that may be caused to the samples at any time
4. Delivery: To commence in 45 days and complete within 3 (Three) months from the date of receipt of purchase order.

Stores

Mahaboob Nagar
Nalgonda
Medak
Siddipet
Ranga Reddy
City-Hyderabad.
Wanaparthy
Suryapet

Circle

Mahaboob Nagar
Nalgonda
Sanga Reddy
Siddipet
Cyber City.
Banjara Hills.
Wanaparthy
Suryapet

SECTION-V

QUALIFICATION REQUIREMENTS
SPECIFICATION No. STN-1537/25**1.0 TESTING FEES:**

The bidder should enclose crossed demand draft for Rs. 3.50 lakhs drawn in favour of " Pay Officer /TGSPDCL/Hyderabad" towards testing charges fee of meters along with the technical bid. Tenders without the Demand Draft will be rejected. **The amount remitted towards testing charges will not be refunded even if the tender is rejected and meter is not sent for testing on the ground that they do not meet the eligibility conditions also the tender samples will not be returned.**

Note : The bidders will be addressed to submit testing charges over and above the above specified amount at a later date if required.

2.0 SAMPLES:

6 Nos. sample meters along with BCS softcopy as per the specification shall be submitted along with the tender. The sample meters are to be **provided with 2 Nos. company seals to the meter cover.** Tenders received without samples as above will be rejected. The samples will be subjected to tests as per CBIP Publication No.325 (with latest amendments), IS:13779/99 (with latest amendments) and DLMS IS:15959 (with latest amendments) . The sample shall comply with the specification.

3.0 ELIGIBILITY:

3.1 The bidder must possess BIS(Copy of original) certification as per IS-13779/99 (with latest amendments) covering the rating being quoted. Tenders received without BIS certification will be rejected. The bidder should be a manufacturer who must have designed, manufactured, tested and supplied to "POWER UTILITIES"(third party supplies will not be considered) at least 40% of the quoted quantity of the goods / **equipment of IR/IRDA with DLMS/Non DLMS** or higher rating (i.e., three phase only) indicated in the "Schedule of Requirement" in a continuous period of 12 months during the last 5 years and its financial turnover during any one year of the last five years should have been equal or more than 100% value of the material now quoted. Statement to this effect shall be submitted Certificate issued by a CA towards financial turnover shall be submitted).

At least 20% of similar **material of IR/IRDA with DLMS/Non DLMS with** similar current rating offered against the specification should be in successful operation for 2 years as on the date of opening of the Bid. Fresh bidders can be given order upto 15% of total quantity as a trial order if equipment is justified.

In support of the above statement, attested copies of the purchase orders, Excise Duty invoices, Copies of Performance certificates(issued by head of purchase wing) from purchaser's should be enclosed. It may be noted that without attested copies of the purchase orders, Excise Duty invoices, Copies of Performance certificates(issued by head of the purchase wing) from purchaser's, the information given in the statement will be treated as not furnished. Attestation should be done by any Gazetted Officer.

3.2 All bids submitted will also include the following information:

- i. Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company or firm or partnership, etc.,
- ii. The bidder should furnish a brief write-up, backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the required equipment

within the specified time of completion after meeting all their current commitments.

- iii. The bidder should clearly confirm that all the facilities exist in his factory for inspection and testing and these will be made available to the purchaser or his representative for inspection.
- iv. Reports on financial standing of the Bidder such as profit and loss statement, balance sheets and auditor's report for the past three years, bankers certificates etc. shall be submitted.

4.0 TYPE TEST CERTIFICATES:

A set of Type Test Certificates of meter and box shall be furnished along with the bid. The type tests must have been conducted on similar type of materials with similar or higher capacity current rating (Base current remaining same) as per the relevant IS or CBIP Publication No.325 in NABL Accredited Laboratories as per the latest revision of the Technical Specification. The date of type tests shall be **not older than 5 years** as on date of tender opening. The type testing should be on 3 samples if the type test reports submitted are as per IS:13779/99 or on one or more samples if the type test reports submitted are as per CBIP Publication No.325. The Bids received without type test reports will be treated as Non-Responsive. **DLMS conformance test certification as per relevant IS shall also be enclosed.**

5.0 Even though the bidder meets the above qualifying criteria, they are subject to be disqualified if they have...

- a. Made misleading or false representations in the forms statements and attachments submitted in proof of qualification requirements and / or
- b. Record of poor performance such as not properly completing the contract, inordinate delays in supply completion, litigation history or financial failure etc.,

6.0 Notwithstanding anything stated above the purchaser reserves the right to assess Bidder's capability and capacity to perform the contract should circumstances warrant such an assessment in the overall interest of the purchaser.

7.0 General:

1. The bidder shall be a manufacturer of Electro Static Energy Meters.
2. Shall possess ISO 9001/9002 certification.
3. Assembly and testing shall be under dust proof and A.C environment.
4. The testing equipment shall be fully automatic and computerized. The error calculators shall be preferably electronic and shall be of latest and their precession shall be five times the class of meters produced.
5. Shall possess latest Jigs and Tools for assembly of meter components. Shall have all facilities to maintain good quality control in the process of manufacture as well as raw material and precession components
6. **Any company/vendor/supplier/contractor that is blacklisted/debarred by any other power utility is not eligible to participate in the tenders.**
7. **The bidders shall have to furnish an undertaking in the prescribed format regarding any relation to the promoters of blacklisted / debarred companies by any utility. Any false information furnished in the declaration while rendering bid, such contract is liable for termination as well as recovery of damages.**

SECTION-V
TECHNICAL SPECIFICATION STN-1537/25

**THREE PHASE (10-40)A WHOLE CURRENT ENERGY METERS DLMS & IRDA
PROTOCOL WITH PP BOX**

1.0 SCOPE :

- 1.1 This specification covers design, engineering, manufacture, assembly, stage testing, and inspection and testing before supply and delivery free at destination stores of LT Three Phase, 4 wire 3 element, kWh Whole Current Electronic Energy Meters with **IRDA Port & DLMS** of accuracy class 1.0 with pilfer proof box.
- 1.2 It is not the intent to specify completely herein all the details of the design and construction of material. However the material shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to the purchaser, who will interpret the meanings of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered material shall be complete with all components necessary for their effective and trouble free operation. Such, components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in this specification and/or the commercial order or not

2.0. STANDARDS :

- 2.1 The materials shall conform in all respects to the following relevant Standard Specifications with latest amendments thereto.

Indian Standard No.	Title
IS 13779/1999 (with latest amendments)	Specification for AC Static Watt hour Meter for class 1 & 2
CBIP Publication No. 325 (with latest amendments)	Specification for AC static electrical energy meters.
IS 14772/2020 with latest amendments	Specification for boxes for the enclosure of electrical accessories
IS-9000	Basic Environmental testing procedure for Electronic and Electrical items
IS:15959:2011 (with latest amendments)	Date Exchange for Electricity meter reading, Tariff and Load Control Companion specification.

2.2 CONFLICT OF STANDARDS :

Material conforming to other internationally accepted standards, which ensure equal or higher quality than the standards mentioned above would also be acceptable. In case the Bidders who wish to offer material conforming to the other standards, salient points of difference between the standards adopted and the specific standards shall be clearly brought out in relevant schedule. Two copies of such standards with authentic English Translations, shall be furnished along with the offer. In case of conflict the order of precedence shall be (i) CBIP TR-325 (ii) IS and (iii) other standards. In case of any difference between provisions of these standards and provisions of the specification, the provisions contained in specification shall prevail.

3.0 CLIMATIC CONDITIONS :

The materials to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions.

Location	At various locations in the state of Telangana
Max. ambient air temperature (deg.C)	50
Max. ambient air temperature in a closed box (deg.C)	60
Min. ambient air temperature (deg.C)	7.5
Average daily ambient air temp. (deg.C)	35
Max. Relative Humidity (%)	100
Max. altitude above mean sea level (m)	1000
Average Annual rainfall(mm)	925
Max. wind pressure(kg/sq. m.)	200
Isoceraunic level(days per year)	50
Average number of rainy days/years	90
Average number of months/tropical monsoon condition per year	3
Seismic level(Horizontal acceleration)	0.3 g.
Permitted Noise Level	45 dB

Moderately hot and humid tropical climate is conducive to rust and fungus growth. The climatic conditions are also prone to wide variations in the ambient conditions, Smoke is also present in the atmosphere, Heavy lightning also occurs during June to October.

4.0. PRINCIPAL PARAMETERS :

The equipment shall conform to the following specific parameters:

Sl. No.	Item	Specification
1.	Type of Installation	Indoor/Outdoor
2.	System voltage	3x240V +20%, -30% Phase to neutral
3.	System frequency	50 Hz +/- 5%
4.	No. of phases	Three Phase 4wire
5.	System of earthing	Solidly grounded

5.0. TECHNICAL REQUIREMENTS:

The meter shall be as per the following parameters and no deviations are acceptable.

5.1. Materials used :

- 5.1.1. The meter shall be made out of high quality materials to ensure high reliability and long life with a self extinguishing type Poly Carbonate meter casing. The entire design and construction shall be capable of withstanding the severest stresses likely to occur in actual service. The latest state of art technology of surface mounting of components is preferred for this purpose. Soldering used if any, shall be perfect without dry solders. The components used shall be of high quality and comply with international industrial standard practices. The construction of the meter shall be such as to permit sealing of the meter cover terminal cover etc. independently to ensure that the internal parts are not accessible for tampering etc. without breaking the seals. The meter window shall be made out of scratch and break resistant transparent silicon coated polycarbonate. Meters shall be designed and constructed in such a way as to avoid introducing any danger in use so as to ensure specially.

- i) Personnel safety against electric shock.
- ii) Personnel safety against effects of excessive temperature.
- iii) Protection against spread of fire.
- iv) Protection against penetration of solid objects, dust and water.

In addition necessary documentary evidence shall be made available by the supplier for having used Industrial Grade components.

Further, meters should be provided with Short circuit current protection

5.1.2 Ratings :

1. Three phase meters as specified at clause 1.0 shall be rated as follows:

a)	Voltage	3 x 240V (Phase to neutral)
b)	Current	
	i) Basic current (I _b)	10A
	ii) Rated max. continuous current (I _{max})	40A
c)	Frequency	50 Hz
d)	Accuracy	Class 1.0

5.1.3 Power Supply Variation:

The extreme power supply variation which the meter should withstand without damage and without degradation of its metrological characteristics when it is subsequently operated under its normal operating conditions:

Voltage	-40% to +20%
Frequency	+/- 5%
PF.range	Zero lag-unity-zero lead *

However manufacturer can offer meters which can withstand higher variations.

“Note : The meter shall remain powered up and functional **even in the event of any two phases or one phase & Neutral are available.**

* The meter shall work over wide PF range and the limits of errors with the variation of PF shall be as per IS 13779 (latest version).

5.1.4 **Name Plate marking** : The name plate drawing shall be got approved from the purchaser before commencement of manufacture.

5.1.5 **Accuracy**: Class of accuracy of meter shall be 1.0. The accuracy should not drift with time.

5.1.6 Power consumption:

5.1.6.1 **Voltage circuit**: The active and apparent power consumption in each voltage circuit including power supply of meter at reference voltage, reference temperature and reference frequency shall not exceed 1 Watt and 8 VA per phase respectively.

5.1.6.2 **Current circuit**: The apparent power taken by each current circuit at basic current, reference frequency and reference temperature shall not exceed 1VA.

The above losses are maximum allowable and there would not be any positive tolerance.

5.1.7 **Starting current**: The meter should start registering energy at 0.2% of basic current.

- 5.1.8 **Running with no load:** When the voltage of 120% of rated voltage is applied with no current flowing in the circuit, the test output of the meter shall not produce more than one pulse/count. The minimum time test limit shall be as per IS 13779/1999.
- 5.1.9 **Maximum Continuous Current:** The rated maximum current for the meter shall be 100% of I_{max} at which the meter purports to meet the accuracy requirement. Meter terminals shall be suitable to carry 150% of I_{max} for the duration of two hours after which accuracy of the meter shall be within its accuracy class.
- 5.1.10 **Influence quantity:** As per CBIP TR No. 325 (Manual-304) with latest amendments.
- 5.1.11 **Measuring parameters:**

The three phase meter shall be capable to measure continuously "Active Energy kWh" at all loads and power factors i.e., zero lag-unity-zero lead under balanced and unbalanced conditions of load. The meter should also have provision for automatic recording of cumulative kWh at 24.00 Hrs. on the last day of the month for each calendar month and the same should go to memory. In addition it shall measure and display in auto scroll mode, through a manual switch (push button) and also to read with CMRI/remote read out the following :

5.1.11.1 **Parameters (Auto Scroll)**

The display of following parameters shall be continuously scrolling one after another. The display shall have 'ON' time of atleast 10 seconds for each measured value for display cycling.

- (I) Complete LCD Test, System Service Test, System Current Test
- (II) Meter Number
- (III) Date
- (IV) Time
- (V) Active Energy KWH
- (VI) Reactive Energy KVARH Lag
- (VII) Reactive Energy KVARH Lead
- (VIII) Apparent Energy KVAH
- (IX) MD in KVA & KW with two decimal digits with 30 minutes integration
- (X) Date and Time of MD Occurrence
- (XI) Rising Demand with elapse time KVA & KW
- (XII) Cum MD in KVA & KW
- (XIII) Resets
- (XIV) Voltage R
- (XV) Voltage Y
- (XVI) Voltage B
- (XVII) Current R
- (XVIII) Current Y
- (XIX) Current B
- (XX) Inst PF
- (XXI) Frequency
- (XXII) Tamper Count
- (XXIII) Average monthly Power Factor with three decimal digits with indication (Lag or Lead)
- (XXIV) No. of Tamper events.
- (XXV) Total Power (Instantaneous Active Power in KW)

5.1.11.2. Display Parameters (Push Button) :

1. Complete LCD Test, System Service Test, System Current Test
2. Meter Number
3. Date
4. Time
5. Active Energy KWH
6. Reactive Energy KVARH Lag
7. Reactive Energy KVARH Lead
8. Apparent Energy KVAH
9. MD in KVA & KW with two decimal digits with 30 minutes integration
10. Date and Time of MD Occurrence
11. TOD KWH (00.00 hrs. to 06.00 hrs)
12. TOD KVAH (00.00 hrs. to 06.00 hrs)
13. TOD KWH (06.00 hrs. to 10.00 hrs)
14. TOD KVAH (06.00 hrs. to 10.00 hrs)
15. TOD KWH (10.00 hrs. to 14.00 hrs)
16. TOD KVAH (10.00 hrs. to 14.00 hrs)
17. TOD KWH (14.00 hrs. to 18.00 hrs)
18. TOD KVAH (14.00 hrs. to 18.00 hrs)
19. TOD KWH (18.00 hrs. to 22.00 hrs)
20. TOD KVAH (18.00 hrs. to 22.00 hrs)
21. TOD KWH (22.00 hrs. to 24.00 hrs)
22. TOD KVAH (22.00 hrs. to 24.00 hrs)
23. Rising Demand with elapse time
24. Cum MD in KVA and KW
25. Resets
26. Voltage R with one decimal digit
27. Voltage Y with one decimal digit
28. Voltage B with one decimal digit
29. Current R with two decimal digits
30. Current Y with two decimal digits
31. Current B with two decimal digits
32. Inst PF
33. Frequency
34. Tamper Count
35. Last Billing 1 to 6 KWH
36. Last Billing 1 to 6 KVRH Lag
37. Last Billing 1 to 6 KVRH Lead
38. Last Billing 1 to 6 KVAH
39. Last Billing 1 to 6 MD in KVA & KW
40. Last Billing 1 to 6 Date and Time of MD Occurrence
41. Last Billing 1 to 6 Power factor
42. Instantaneous Active power in KW in R, Y, B phases with two decimal digits
43. Total Power(KW & KVA)
44. NVM Status
45. Battery status
46. Present running Tamper status
47. Power factors in R, Y, B with three decimal digits
48. Number of Tamper events
49. Self Diagnostics (LCD Segment check & Battery check).

5.1.11.3. Readout Parameters with CMRI/RMR. :

- i) Meter serial number, Model, Make.
- ii) All parameters at Clause 5.1.11.2. (above).
- iii) Load Survey data for last 60 days
- iv) Tamper details of at least 70 events (in and out) with date and time (i.e., 140 records).
- v) Self diagnostic details(Real time calendar, low battery/Battery fail).

- vi) Midnight energies for last 60 days
- vii) Billing registers
- viii) TOD Registers

NOTE: Meter shall continuously monitor and calculate the average maximum demand for each demand interval time of 30 minutes and maximum of these in a calendar month shall be stored along with date and time when it occurred. Whenever MD is reset, the maximum MD value so registered shall be stored along with date and time. **Meter should be suitable for lag + lead only tariff. It shall be made possible to program lag + lead only Tariff to Lag Tariff as and when required by TGSPDCL using a software tool given by the manufacturer.**

TEST MODE:

1. KWH (Import)
2. KVARH Lag
3. KVARH Lead
4. KVAH(Import)
5. Rising Demand with elapse time(Import)

(*) NOTE: However, the above parameters which are mentioned, should be as per DLMS document for CAT-C1 meters and other parameters should be downloaded through BCS software which is mandatory for the supplier to provide the software for downloading and reading from the BCS software.

- 5.1.12 In addition to providing on the Name plate, the meter serial number shall also be programmed into meter memory for identification through CMRI/remote reading and meter reading print out.

The bidder shall indicate any additional measurement and display features being offered in addition to the above minimum requirement.

- 5.1.13 **MD Reset:** The meter should have provision of maximum demand resetting: (i) Manual resetting (ii) Resetting shall be possible through a handheld Common Meter Reading Instrument (CMRI) capable of communicating with the meter. (iii) Auto reset at 24.00 Hrs of the last date of each calendar month for which minimum 30 years calendar shall be programmed by the manufacturer. The cumulative kWh should also be recorded at 24.00 Hrs. on the last date of each calendar month for previous six months.

- 5.1.14. **LCD Display:** The meters shall have bright LCD Electronic display with backlit and with minimum (6+1) digits. The backlit should not glow during power off condition. The LCD shall be industrial grade with multi layer & of STN (Super Twisted Nematic) type construction suitable for temperature withstand of 80°C (storage) & 65°C (operation) i.e.,

- a. When the meter is placed over at a constant temperature of 65°C for a period of 30 minutes, the character of LCD should not deform.
- b. After keeping the meter at a constant temperature of 80°C for a period of 30 minutes and when restores at normal temperature, LCD display shall work satisfactorily.

Note: The LCD should be hard pin type and soldered to PCB.

- c) The TGSPDCL will assign a unique meter serial number and that will be in 2 pages display.

(i) Page 1 display contains length of (6) spaces Alpha numeric. (Meter make (2) spaces, Year of manufacture (2) spaces follows the Month (2) spaces.

Ex. HP2211 (HPL MAKE, 2022 Year of Mfg. and 11-November Month)

(ii) Page 2 display contains length of (8) spaces for 8 digit serial number (numeric only)

Ex. 00123456.

(iii) If there is LCD display limitation, display may be as below.

□ □
□ □ □ □ □ □

d) The meter manufacturers shall ensure that the meter serial numbers already given as a part of previous tenders of TGSPDCL are not repeated.

The LCD display should have a wide viewing angle of 120° and up to one meter distance, for clear visibility of the display of the meter reading at distance with backlight in green and characters/digits in black. Large viewing area with large display icons is preferred. However, the display size area should not be less than 55 x 14 mm. The registered parameters shall not be affected by loss of power. The display shall not be affected by electrical and magnetic disturbances. The meter shall make use of non-volatile memory capable of storing and retaining all the data required to be stored, without the help of any power source or battery back up and shall have a minimum retention time of 10 years under un-powered condition.

The minimum character height x width shall be 10x5mm. Dot matrix type LCD display is not acceptable.

All important data such as calibration data, billing parameters and cumulative KWh should be stored in Non-Volatile Memory (NVM) internal to the main processing circuit and it should not be possible to change the data through any standard serial communication.

The accuracy of display parameters on LCD display for all parameters shall be matching with the accuracy class of meters as per IS.

The availability of phase wise voltages and current shall be indicated individually by the characters 1,2&3 or R,Y,B (1,2,3 indicating the availability of R, Y & B phase voltages respectively the availability of corresponding current be indicated by blinking of the corresponding numeric number (phase). At the start of each sequence of display LCD healthiness anomaly and real time and date shall be displayed.

5.1.15 **Test output** : The meters shall have a separate pulse emitter and high resolution display for testing purpose as described in CBIP Report No.325.

The resolution of the test output shall be sufficient, to enable the conduction of the starting current test in less than 10 minutes and accuracy test at the lowest load shall be completed with desired accuracy within 5 minutes (as per Clause 4.2.2.10 of CBIP Report No.325).

5.1.16 Load Survey Capability :

The meter should log 30 minutes kWh, Kvarh lag, Kvarh lead, KVAh, KVA, pf, three voltages(R,Y,B) and three currents(R,Y,B) for the last 60 days. It should be possible to transfer this data on to a base Computer station (to be provided by the Purchaser) through CMRI/P&T lines as detailed in Cl.5.10..3. The base computer shall give complete details of load survey particulars both in numeric data form and in graphic form. Necessary software for invoking the base computer station shall be provided by the bidder and demonstrated.

5.1.17 TIME OF DAY TARIFF/DEMAND:

The meter offered shall contain provisions for multiple tariff metering (time of day metering / demand) and details of the same may be indicated in the tender separately. The meter offered should have a real time clock based on a quartz crystal with a battery totally independent of power supply. The meter shall be capable of being set in to minimum of 8 time zones (optionally more time zones can be offered) in 24 hours cycle to cover morning and evening on and off peak periods separately TOD register shall be provided for active energy, reactive energy, lag & lead and demand data.

Initially TOD registers for 6 time zones shall be programmed as detailed below to capture kWh, kVAh, kVA, kVAh lead, lag and shall be made them to read on meter display.

T1: 00.00 hrs. to 06.00 hrs.
 T2: 06.00 hrs. to 10.00 hrs.
 T3: 10.00 hrs. to 14.00 hrs.
 T4: 14.00 hrs. to 18.00 hrs.
 T5: 18.00 hrs. to 22.00 hrs.
 T6: 22.00 hrs. to 24.00 hrs.
 and cumulative.

However, it should be possible for TGSPDCL to invoke/change them through the use of a CMRI with 2 level password protection and necessary software should be loaded by the meter supplier into the base computer station of TGSPDCL for this purpose.

(*) The above parameters are to be read as per DLMS protocol document : (ETD 13 (6211) Table 3, Clause No. F.2 as per the time zones required by TGSPDCL.

5.1.18 Communication capability :

(i) The meter shall be provided with a galvanically isolated IRDA communication port and an additional RS-232 port on RJ 11 socket with sealing provision. The meter shall comply as per DLMS-ICS (CAT-C1) specification. But should load the meter software, protocol software, dial up software and any other required software in to the base computer station of the purchaser. However, the meter manufacturers have to submit their protocols, BCS software and required data along with sample meters to be submitted by the bidder. The manufacturer shall supply the meter software, BCS Protocol software required for CMRI/Base Computer/RMR through Modems/Multiplexer. It is the responsibility of the meter manufacturer to provide the required software and all the facilities required by the TGSPDCL to use the DOS based hand held CMRI for reading and retrieving the data from the meter or to retrieve the available data through P&T lines to the central computer station and regenerating appropriate reports required by the TGSPDCL. After loading the software in the purchaser's base computer station/ central computer station, the meter manufacturer shall demonstrate the data transfer through hand held CMRI/ P & T lines and regeneration of appropriate reports to the purchaser. The data element size and its over head speed of transmission shall be such that the entire billing data can be transferred within maximum time of 3 minutes.

- (ii) **Software:** The following software shall be made available by meter manufacturer to interface with hand held meter reading instrument/CMRI/ RMR.
- (a) Software to be resident in hand held terminal/CMRI for the purpose of reading and programming the specific make(s) of static meters.
 - (b) Base computer station software for accepting data from hand held terminal/CMRI, processing, generating reports and down loading instructions from the Base computer station to CMRI.
 - (c) Dial up software and protocol software for accepting the data from the meter through P & T lines to the base computer station/ central computer station, processing and generating appropriate reports.
 - (d) Necessary sealing provision should be provided for RS 232 port **terminated with RJ 11.**
 - (e) Any future upgrades (license copy) of software/protocol be furnished to the purchaser at free of cost without any linkage to the guarantee period of the meters. All the parameters available in the registers of the meter shall be user selectable through CMRI.
- (iii) **Data Security:** The meter manufacturers are responsible for ensuring that the data extracted from the meters using manufacturer specific algorithms in the software up to down loading to the base computer station remains secure during the process.
- (iv) An internal rechargeable battery / Permanent Battery shall be provided to read the meter display locally and data collection locally in the absence of connected PT supply.

Note : The IRDA port shall be exclusively used for Billing with ISBM as per the protocol defined by the TGSPDCL. However the total Data download shall be made possible through RJ11 port using DLMS.

(iv) IRDA PORT COMMUNICATION CAPABILITY :

The meters shall have facility for remote reading through remote IrDA Communication Port from a minimum distance of 1.5 meters with the help of ISBM (Integrated Spot Billing Machine) to facilitate the utility for auto reading, billing the consumer at spot and downloading of six months of data for future use. The meter shall possess suitable fast and reliable infrared communication for data transfer. There should not be any possibility of tampering of data stored in meter even after getting the password of the software. It should be locked at the time of manufacturing. There should not be any RTC adjustment/correction. Adequate tamper proofing shall be provided to disallow any change of such auto recorded reading by the meter reader.

All sorts of communication between meter and ISBM shall be of "One way" type. Data could only be downloaded from meter to ISBM but no command regarding data alteration in the meter should be possible in any case.

The meter shall have capability of IR Communication with ISBM (procured separately) as specified by the utility. In such case the both meter manufacturer and ISBM supplier shall give an undertaking to utility that they are compatible and able to generate consumer spot bill.

Parameters to be downloaded with ISBM :

The following parameters should be downloaded by ISBM.

- Meter Sr. No.
- Time & Date
- All the parameters specified in scrolling mode along with tamper indications if any.

- ISBM must have facility to download the above data to the base computer.

Other than above, if manufacturer proposes to record extra parameters, may indicate in their offer.

5.1.19 **Self Diagnostic Features:** The bidder shall provide details of self diagnostic features available and indication on the 3 phase meter for unsatisfactory/non-functioning of the following.

- i) Time & calendar.
- ii) Real time clock (RTC) battery.
- iii) All display segments
- iv) Non volatile memory.

5.1.20 **Calibration :**

The Meter should be factory calibrated and no modification of calibration should be possible at site by any means what so ever. This is to ensure that the meter cannot be tampered at site.

5.2 **CONSTRUCTION:**

5.2.1 Meter shall be designed and constructed to be capable of withstanding all severe stresses and vibration and dust environments likely to be encountered in actual field. All parts that are likely to develop corrosion shall be effectively protected against corrosion by providing suitable protective coating. The meter shall have proper fixing arrangement for mounting in meter box.

5.2.2 **Meter case:**

The meter case including its base shall be made of self-extinguishing type superior grade Polycarbonate. Both meter base and cover shall be transparent and jointed such that it should be 'break to open' (ultrasonically welded/heat stake process/chemical process/push fit) and they should not be detachable. The casing should be dust and moisture proof to the degree of IP 51 as per IS 12063, vermin proof and sturdy. The material should be highly non-flammable having high rigidity in combination with high heat resistance. Also it should have high impact strength. The meter case should be such that internal connections are clearly visible (i.e. transparent). The meter case shall have a provision with a deep cut for hanging the meter.

5.3 **TERMINALS AND TERMINAL BLOCK:**

5.3.1 The terminal block shall be of moulded type and shall be fixed to the extended portion of the meter base. The meter base shall cover the terminal block of its back and sides. It should be non hygroscopic, non ignitable and with material of good dielectric and mechanical strength. Extended terminal cover shall be provided, to ensure that the internal parts are not accessible for tampering etc. without breaking seals. A firm connection shall be established within the meter to energise the voltage circuit. The distance between the end terminal block and the ending of the extended terminal cover shall be a minimum of 2 inches.

5.3.2 Sufficient clearance shall be allowed between terminals. Further, the supporting webs between the two terminals of the terminal block should be sufficiently high to ensure that the two neighboring terminals do not get bridged by dust or it is not possible to have flash over between adjacent terminals of terminal block.

5.3.3 The terminals shall be of suitable rating to carry 150% of I_{max} and made of electro-plated (or tinned) brass and shall be of replaceable type.

5.3.4 All connection screws and washers should be tinned/nickel plated brass. The terminal screws shall not have pointed end at the bottom. All terminals will have two screws. The terminals shall be properly bound in the insulation. Sufficient clearance can be provided between terminals to avoid possible flash over.

- 5.3.5 The terminal block shall have provision with double screws for fixing to the meter board. It shall not be possible to remove the meter from the hanging screw without removing the screws from the terminal block.
- 5.3.6 Aluminum crimping pins of suitable size shall be supplied by the manufacturers along with the meters for proper termination of the cable ends which are to be packed in a polythene cover and tagged to each meter (for termination incoming & outgoing leads).
- 5.3.7 The extended terminal cover shall be fixed to the meter terminal block by two screws. The screws should not be detachable from the cover and shall have provision for sealing. The terminal cover extension shall be designed such that cable and cable glands are covered completely inside the box to avoid mishandling of the cables by unauthorized persons.
- 5.3.8 The terminal block shall fit into the meter tightly and base cover shall overlap the meter terminal block on three sides with at least 2mm overlapping along with ultrasonic welding to avoid insertion of any foreign material.**
- 5.3.9 **Connection diagram:** Every meter shall be indelibly marked with a connection diagram showing the phase sequence for which it is intended and shall be attached to the inner side of the extended terminal cover. In case any special precautions need to be taken at the time of testing the meter, the same may be indicated along with the circuit diagram.
- 5.3.10 **Terminal Arrangement:** The terminal arrangement and connection diagram shall be marked in accordance with clause 7.2 of IS 13779. Terminal arrangement shall be in sequence Phr(in), Phr(out), Phy(in), Phy(out), Phb(in), Phb(out), Neutral (in), Neutral(out).
- 5.3.11 **Non Flammability:** The terminal block, the terminal cover and the case shall ensure reasonable safety against spread of fire. They shall not be ignited by thermic over load of live parts in contact with them. To comply with this these parts shall fulfill the conditions of the glow wire test as per clause 5.2.4. of CBIP Technical Report No.325.

5.4 SEALING OF METER:

Proper sealing arrangement should be provided on the meter to make it tamper resistant and avoid mishandling by unauthorized persons.

The manufacturer shall provide minimum two seals for the meter at the factory after calibration and testing. The meter cover shall have provision for placing minimum 2Nos. additional seals by the purchaser. The terminal block cover shall have provision for placing minimum two seals. One number separate sealing arrangement to the MD Reset button cover and separate sealing arrangement for communication port shall be provided. **Separate sealing arrangement for RJ11 port to be used for communication to CMRI/Laptop should also be provided. The meter should be designed and constructed in such manner to make it pilfer proof once it is sealed. The meter shall contain two push buttons for UP scrolling and Down scrolling apart from MD reset button and Battery button.**

The holes for sealing wire shall be minimum 2mm dia .

All the sealing screws when they are in open condition (i.e. not fixed) should not be easily detachable from the respective covers. The meter should be designed and constructed in such a manner as to make it pilfer resistant.

TAMPER & FRAUD PROTECTION:

5.4.1 The three phase meter should have features to prevent/detect any tamper and fraud including:

- 1) **Phase sequence reversal:** The meter should work accurately irrespective of phase sequence of supply.
- 2) **D.C immunity:** Meter should not saturate on injection of DC current in Phases.

This test shall be carried out in Government NABL accredited labs as an acceptance test at different load points starting from I_b to $I_{max}/\sqrt{2}$ considering random points in power factor range of 0.5 lead – UPF – 0.5 lag. Meter should remain in accuracy limit as defined in IS 13779 for mentioned load points.

The inspecting officer shall verify these parameters during acceptance tests and in addition to it the DC Immunity Test shall be carried out at NABL lab as an additional acceptance test.

- 3) **Bypassing Current Coil:** The meter must have capability to record bypassing of current coil (s) of one or any phases. However the meter should not record tamper if load currents are unbalanced as per clause 5.1.10.
- 4) **Current reversal in current coil:** The meter should register energy consumption correctly in forward direction irrespective of the direction of current in the current coil/coils. The meter shall also register the occurrences of reversal for any of the phases.
- 5) **Missing Potentials:** The meter shall be capable of detecting and recording occurrences of missing potential (one phase or more phases) with load which can happen due to intentional/ accidental disconnection of potential link(s).
- 6) **Missing Neutral :** The meter shall record correctly even if the neutral is accidentally or incidentally disconnected.
- 7) **External Magnetic Influence :** The meter shall not get influenced by any external permanent/electromagnet (s). The continuous (DC & AC) Magnetic Induction of external origin: The value of magneto motive force to be applied shall be as per the stipulations of IS-13779 with latest amendments for static Electronic Energy Meters.

The meter should be immune to electrostatic discharges (generated by High Voltage/Frequency Tamper device) of voltage up to 35 KV level (approx.). Beyond 35 KV meter should record as tamper if not immune.

- 8) **Cover Open Tamper :** The meter shall record as tamper when top cover is opened which shall be displayed on meter display continuously as "COVER OPEN" and which shall be resetted only at factory.
- 9) Meter shall be immune of any abnormal frequency signal OR meter shall log & display as tamper in the event of abnormal frequency i.e., less than 47.5 Hz or more than 52.5 Hz is supplied to the meter.
- 10) **The meter tamper snapshot should also have Kvah reading apart from Kwh reading and along with other parameters of voltages and currents and P.F**
- 11) **Further the Tampers of Over Voltage, Over Current, Neutral Disturbance, Low P.F and abnormal frequency shall also be logged with date and time stampings**

5.4.2. **Tamper information** : “Minimum of 70 events (occurrence & restoration to be counted as one event) date & time of the event shall be recorded with separate slots for each type of tamper (i.e. 20 events each for (i) by passing current coil, (ii) current reversal in current coil (iii) potential missing and 10 events each for external magnetic influence”.

5.4.2.1 The measurement by meter shall not get influenced by injection of A.C. Voltages/chopped signal/DC signal and harmonics on the outgoing leads of the meter.

5.4.2.2 The bidder should furnish with detailed explanation as to how their meter is able to detect/protect recording of the above tamper and fraud features with sketches and phasor diagrams if required. Additional features if any in their neutral may also be clearly indicated.

5.5 TECHNICAL SPECIFICATION FOR PILFER PROOF BOX TO HOUSE THE METER.

5.5.1 TECHNICAL DETAILS :

The box shall be weather proof made out of transparent Polycarbonate with flame retardant properties.

It shall be capable of withstanding temperatures of boiling water for 5 minutes continuously without distortion or softening. The thickness of the box shall not be less than 3mm on the load bearing side (ie., back side of the box) and other sides, door and roof shall not be less than 2.5mm. The box shall have its roof tapering down to both sides for easy flow of water.

The Boxes shall generally comply with the provisions of IS 5133 and IEC60 695. The boxes shall be suitable for outdoor/indoor application. The outdoor box shall have its roof designed for easy flow of rain water without any stagnation on the box. The box shall be with good workmanship.

The dimensions of the box shall be such that there is a minimum clearance of 75 mm on all sides, 25mm clearance on the front and 10mm on the back of the meter then the meter is fixed in the box.

Soft rubber gaskets shall be provided all around wherever required for protection against entry of dust and water. It shall comply with IP-33.

- a) Colour : Fully transparent
- b) The contents of the box are as follows

ii) Internal hinges : A minimum of 2 nos. internal hinges well protected against corrosion shall be provided. The hinges of the door should be concealed and they shall be fixed to the flanges provided to the base and cover of the box in such a manner that the door opens by a minimum of 120 degrees.

iii) Handle : Suitable handle or knob shall be provided for opening of the box door.

iv) Fixing arrangement : The meter base supports inside the box are raised by about 10 mm in the box for ease of wiring. While fixing the meter screws should not protrude outside. For fixing the box to wall or wooden board 2 Nos. key type hole for hanging and 2 Nos. 6mm Dia. Round holes for fixing shall be provided at the four corners of the meter box. The meter is to be installed in the box and the box in the assembled condition shall have provision to fix it to a pole or on wall.

v) Latch : The door shall be provided with a GI latch/SS latch or a 'U' clamp to secure it with the base of the box.

vi) Sealing arrangement : The box shall have provision for minimum 2 nos. seals to make it fully tamper resistant.

vii) Inlet Outlet: Suitable circular holes shall be provided on the left of the box for inlet/right side of the box for outlet with brass or fire resistance high grade engineering plastic glands securely fixed to the box on both sides by check nuts. The incoming and outgoing cables shall be clamped to the inside base of the meter box (providing collapsible type gland) to ensure fixing of the cable. Cable glands shall be collapsible type so that there shall be no gap after tightening.

viii) Printing : Metallic label containing the letters "TGSPDCL" and the P.O. No. and date shall be engraved on the top cover of the box. The name of the manufacture shall be engraved on the bottom half of the box. A blank sticker shall also be fixed on the meter box for use of field staff to indicate Service No. etc.

ix) The fixing arrangements shall not be complex and it shall be easily approachable for connections when the door is open and is completely tamper resistant once it is sealed.

x) The dimensional drawing giving details of meter box shall be enclosed in the bid.

5.6 GUARANTEED TECHNICAL PARTICULARS:

The guaranteed technical particulars as detailed in the specification Annexure-I & II shall be guaranteed and a statement of guaranteed technical particulars shall be furnished in the format along with the bid without which the Bid will be treated as Non-Responsive.

5.7 TESTS:

5.7.1 Type tests for Meter :

The meters offered by the bidder shall be fully type tested at an NABL Accredited Laboratory either as per the CBIP Technical Report No. 325 (latest amendments) or IS : 13779/ 1999 (latest amendments) standards. The type test reports can pertain to similar type of materials with similar or higher capacity current rating. One copy of type test reports shall be furnished with the Bid. The date of type tests shall be not older than 5 years from the date of opening of the tender. The type testing should be on three samples if type test reports submitted are as per IS: 13779/99 or on one or more samples if the type test reports submitted are as per CBIP TR. No. 325. **Also DLMS Conformation Report shall be submitted.**

The Bids received without type test reports will be treated as Non-responsive.

5.7.2 Tests for boxes : The following tests are to be conducted on the box at any independent NABL accredited laboratory and test reports shall be submitted along with the bid.

- i) Test of material identification
- ii) Test for mechanical strength as per IS 14772.
- iii) Test for water absorption as per IS 14772.
- iv) Test for stability at high temperature as per IS 14772.
- v) Test for withstanding temperature boiling water for 5 minutes continuously for non-distortion or softening of material as per IS 14772.
- vi) Glow wire test as per clause 5.2.4 of CBIP Technical Report No.325 read with amendments.

5.8 Acceptance and routine tests.

5.8.1 Acceptance Tests for Meters

Samples picked up by the inspecting officer for acceptance tests shall be first subjected to 'soaking' at 70 +/- 2 Deg. C for four hours. After normalizing the acceptance tests as stipulated in CBIP (with latest amendments) and IS shall be carried out by the supplier in presence of purchaser's representative. Also the following additional tests are carried out on mutually agreed quantity of meters from each lot offered for inspection.

- i) Shock Test.
- ii) Vibration Test.
- iii) Magnetic induction of external origin (AC&DC).
- iv) Tamper & Fraud protection as per Cl. 5.5.

For sampling plan for pre-despatch inspection, maximum lot size of 10,000 meters shall be considered for acceptance test as per IS:13779/99.

5.8.2.2 Routine Tests :

All the routine tests as stipulated in IS and in addition tamper and fraud protection tests as per clause 5.5. shall be carried out and test certificates shall be furnished for approval of the purchaser.

5.8.2 Boxes

5.8.2.1 Acceptance Tests

- i. Physical verification of dimensions of the box.
- ii. Compatibility of the box for housing the Meter, and ensuring ease of connecting and reading the meter.
- iii. Test for mechanical strength.

5.8.2.2. Routine Tests :

The routine test certificates for the following shall be furnished for approval of the purchaser.

- i. Physical verification of dimension of the box.
- ii. Compatibility of the box for housing the meter ensuring ease of connecting and the reading the meter.

6.0 TEST REPORTS / TEST CERTIFICATES:

6.1 Record of routine test reports shall be maintained by the Bidder at his works for periodic inspection by the purchaser's representative.

6.2 Test certificates of tests conducted during manufacture shall be maintained by the Bidder. These shall be produced for verification as and when desired by the purchaser.

6.3 TEST FACILITIES :

The tests shall be carried out as per relevant Standards and test certificates shall be furnished for approval. The Bidder shall indicate the details of the equipment available with him for carrying out the various tests as per relevant Standards. The bidder shall indicate the sources of all materials.

NOTE : The Meters used for conducting tests shall be calibrated periodically at reputed Government Accredited Test Laboratories and test certificates shall be available at works for verification by purchasers representative.

7.0. INSPECTION:

7.1 The inspection may be carried out by the purchaser at any stage of manufacture. The manufacturer shall grant free access to the purchaser's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser, shall not relieve the supplier of his obligation of furnishing the equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.

- 7.2 All acceptance tests and inspection shall be made at the place of manufacturer unless otherwise especially agreed upon by the Bidder and purchaser at the time of purchase. The Bidder shall afford the inspector representing the purchaser all reasonable facilities without charge, to satisfy him that the equipment is being furnished in accordance with this specification.
- 7.3 The supplier shall keep the purchaser informed in advance, about the manufacturing programme so that arrangement can be made for inspection.
- 7.4 The purchaser reserves the right to insist for witnessing the acceptance/routine testing of the bought out items. The supplier shall give 15 days for local supply/30 days in case of foreign supply advance intimation to enable the purchaser to depute his representative for witnessing the acceptance and routine tests.
- 7.5 The purchaser reserves the right to get type test any meter, or Box from any of the lots offered for inspection received at any Destination Stores at purchaser's expenses and clause 8.0 (Section-V) applies for any failure to pass tests.
- 7.6 **NOTE FOR FOREIGN BIDDERS:** The Bidder shall indicate the name (s) of reputed inspection agencies and the inspection charges clearly for each lot. The inspection charges will be borne by the supplier. However the purchaser reserves the right to appoint at his cost any inspection agency to carry out the inspection.

Training : Training for two of purchaser's engineers shall be imparted by the bidder. All expenses towards training of purchaser's engineers shall be borne by the bidder. The expenditure towards travel and incidentals including accommodation is to purchasers account.

A. 8.0 TESTING AFTER RECEIPT AT STORES:-

From meters supplied to Stores, TGSPDCL will pick up samples at random @ 2 Nos. meters for every lot of 10,000 Nos. or part thereof. These samples will be tested for acceptance tests as decided by TGSPDCL at an NABL Accredited Government Laboratory in the presence of representatives of supplier and TGSPDCL as per relevant IS/CBIP and TGSPDCL specifications at suppliers cost. If any one meter fails in the testing again two samples will be picked up at random from the stores and tested. If the meters fails in the above tests the entire lot will be rejected. The order quantity will be reduced accordingly. All the expenses for testing of the meters shall be borne by the supplier.

9.0 QUALITY ASSURANCE PLAN :

- 9.1.1 The Bidder shall invariably furnish the following information along with his bid, failing which his bid shall be liable for rejection. Information shall be separately given for individual type of material offered.
- (i) The structure of organization.
 - (i) The duties and responsibilities assigned to staff ensuring quality of work.
 - (ii) The system for purchasing, taking delivery and verification of materials.
 - (iii) The system for ensuring quality of workmanship.
 - (iv) The quality assurance arrangement shall conform to relevant requirements of ISO 9001 or 9002 as applicable.
 - (v) Statement giving list of important raw materials names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested. List of test normally carried out on raw materials in presence of Bidder's representative, copies of test certificates.
 - (vi) Information and copies of test certificates as in (i) above in respect of bought out accessories.
 - (vii) List of manufacturing facilities available.

- (viii) Level of automation achieved and list of areas where manual processing exists.
- (ix) List of areas in manufacturing process, where stage inspections are normally carried out for quality control and details of such tests and inspections.
- (x) Lists of testing equipment available with the bidder for final testing of equipment specified and test plant limitation. If any, vis-a-vis the type, special acceptance and routine tests specified in the relevant standards. These limitations shall be very clearly brought out in schedule of deviations from specified test requirements.

9.2 The contractor shall within 30 days of placement of order, submit following information to the purchaser.

- i. List of raw materials as well as bought out accessories and the names of sub-suppliers selected from those furnished alongwith offers.
- ii. Type test certificates of the raw materials and bought out accessories if required by the purchaser.
- iii. Quality assurance plan (QAP) with hold points for purchaser's inspection. The quality assurance plan and purchasers hold points and notification points shall be discussed between the purchaser and Bidder before the QAP is finalized.

9.3 The contractor shall operate systems which implement the following.

- (i) Hold Point : A stage in the material procurement or workmanship process beyond which work shall not proceed without the documental approval of designated individuals or organizations. The purchaser's written approval is required to authorize work to progress beyond the hold points indicated in approved quality plans.
- (ii) Notification Point: A stage in material procurement or workmanship process for which advance notice of the activity is required to facilitate witness. If the purchaser does not attend after receiving documented notification in accordance with the agreed procedures and with the correct period of notice then work may proceed.

9.4 The contractor shall submit the routine test certificates of bought out accessories and central excise passes for raw material at the time of routine testing if required by the purchaser and ensure that the Quality Assurance requirements of this specification are followed by the sub-contractors.

The quality assurance programme of the contractor shall consist of the quality system and quality plans with the following details.

(i) Quality System:

- The structure of the organization
- The duties and responsibilities assigned to staff ensuring quality of work.
- The system for purchasing, taking delivery and verification of materials.
- The system for ensuring quality workmanship.
- The system for control of documentation.
- The system for the retention of records.
- The arrangement for the contractor's internal auditing.
- A list of the Administration and work procedures required to achieve and verify Contract's quality requirements. These procedures shall be made readily available to the project Manger for inspection on request.

(ii) Quality Plans:

- An outline of the proposed work and programme sequence.

- The structure of the contractors organization for the contract.
- The duties and responsibilities assigned to staff ensuring quality of work.
- Hold and Notification points.
- Submission of Engineering documents required by the specification
- The inspection of materials and components on receipt.
- Reference to the Contractor's Work Procedures appropriate to each activity.
- Inspection during fabrication / Construction.
- Final Inspection and test.

10.0. DOCUMENTATION:

10.1 All drawings shall conform to International Standards Organization (ISO) 'A' series of drawings sheet/India Standards Specifications IS:656. All drawings shall be in ink and suitable for micro filming. All dimensions and data shall be in S.I. Units.

10.2 List of drawings and documents :

The bidder shall furnish the following along with bid

- i. Two sets of drawings showing clearly the general arrangements, fitting details, electrical connections etc.
 - ii. Technical leaflets (users manual) giving operating instructions.
 - iii. Three copies of dimensional drawings of the Meter for each quoted item.
- 10.3 The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at the supplier's risk.
- 10.4 Approval of drawings/work by purchaser shall not relieve the supplier of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revision of application standards, rules and codes of practices. The equipment shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of ordering and purchaser shall have the power to reject any work or materials which, in his judgment is not in full accordance therewith.
- 10.5 The successful Bidder shall, within 2 weeks of notification of award of contract, submit three sets of final versions of all the drawings as stipulated in the purchase order for purchaser's approval. The purchaser shall communicate his comments/approval on the drawings to the supplier within two weeks. The supplier shall, if necessary, modify the drawings and resubmit three copies of the modified drawings for their approval. The supplier shall within two weeks, submit 30 prints and two good quality report copies of the approved drawings for purchaser's use.
- 10.6 Eight sets of operating manuals/technical leaflets shall be supplied to each consignee for the first instance of supply.
- 10.6.1 One set of routine test certificates shall accompany each dispatch consignment.
- 10.6.2 The acceptance test certificates in case pre-dispatch inspection or routine test certificates in cases where inspection is waived shall be got approved by the purchaser.

11.0 PACKING & FORWARDING :

11.1.1 The equipment shall be packed in crates suitable for vertical/horizontal transport as the case may be, and suitable to withstand handling during transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during

transit, due to improper and inadequate packing. The easily damageable material shall be carefully packed and marked with the appropriate caution symbol. Wherever necessary, proper arrangement for lifting, such as lifting hooks etc., shall be provided. Any material found short inside the packing cases shall be supplied immediately by supplier without any extra cost.

- 11.2 Each consignment shall be accompanied with a detailed packing list containing the following information.
- a. Name of the consignee.
 - b. Details of consignment.
 - c. Destination.
 - d. Total weight of consignment.
 - e. Handling and packing instructions.
 - f. Bill of Material indicating contents of each package.
- 11.3 The supplier shall ensure that the packing list and bill of material are approved by the purchaser before dispatch.
- 11.4 The packing shall be done as per the manufacturer's standard practice. However, he should ensure the packing is such that, the material should not get damaged during transit by Rail/Road.
- 11.5 The marking on each package shall be as per the relevant Standards and shall also contain.

12.0 SUPERVISION SERVICES: Nil.

The Purchaser will arrange for unloading of the consignments at the destination stores.

13.0 MANDATORY SPARES & TOOLS :

The bidder shall give the list of items and shall keep a reasonable stock of the same, during the warranty period.

14.0 TECHNICAL DEVIATIONS :

Any deviation in Technical Specification as indicated in Section-III shall be specifically and clearly indicated in the schedule of deviation format – Schedule – 'A'.

15.0 GUARANTEE:

The material should be guaranteed for satisfactory operation for a period of 5 years from the date of receipt of material at destination stores by the consignee in good condition. During the guarantee period if the meter while in its normal operation is found defective **including software/firmware issues**, it shall be replaced by the supplier with a new meter free of cost with in 15 days. If the meter is not replaced within 30 days of intimation the supplier should note that the guarantee period will be extended to that extent by the number of days delayed beyond 30 days. If the tenderer does not replace within 180 days the cost of the meter(s) will be recovered from the existing bills/ future bills/ Bank Guarantees available TGSPDCL. **The WGP defective meters shall be transported from the various TGSPDCL destination to their manufacturing factory and replace them with healthy meters and test them for accuracy and IRDA performance, DLMS and also resetting all the values to zero and transport back to the respective TGSPDCL destination free of cost by the manufacturer.**

16.0 GENERAL:

- a) Principle of operation of the meter, outlining the methods and stages of computation of various parameters starting from input voltage and current signals including the sampling rate if applicable shall be furnished by the bidder.
- b) The bidder shall indicate the method adopted to transform the voltage and current to the desired low values with explanation on devices used such as CT, VT or Potential divider as to how they can be considered superior in maintaining ratio and phase angle for variation of influence quantities during its service period.
- c) The bidder shall furnish details of memory used in the meter.
- d) Details of testing facilities: The manufacturer laboratory must be well equipped for testing of the meters. They must have computerized standard power source and standard equipment calibrated not later than a year (or as per standard practice). The details of testing facilities available for conducting (a) The routine tests and (b) Acceptance tests shall be furnished in a statement. Bids without these details will be treated as Non responsive.
- e) The TGSPDCL will assignee a unique meter serial number and that will be in 2 pages display.
- (iv) Page 1 display contains length of (6) spaces Alpha numeric. (Meter make (2) spaces, Year of manufacture (2) spaces follows the Month (2) spaces.
Ex. HP2211 (**HPL MAKE**, **2022** Year of Mfg. and **11**-November Month)
- (v) Page 2 display contains length of (8) spaces for 8 digit serial number (numeric only)
Ex. 00123456.
If there is LCD display limitation, display may be as below.
-
- b) The meter manufacturers shall ensure that the meter serial numbers already given as a part of previous tenders of TGSPDCL are not repeated.
- c) The meter manufacturers shall also ensure the QR code (sample enclosed) serial number on the meter name plate should match with serial number fed in internal memory of the meter. Check point to be invariably kept for new meters and also for WGP meters.
- d) The dimensions of QR code shall be 10mm X 10mm.

COMMUNICATION PROTOCOL OF THREE PHASE IrDA METERS
(For Consumer Meters)

Master : Meter Accessing Instrument with IrDA physical layer standard (CMRI).
 Slave : Energy Meter (Considered in this document)
 "IR Transceiver : Should be complaint to the latest IrDA Physical layer standard"
 i.e., the details is as follows:

Protocol Information:**General :**

Master : Meter Accessing Instrument with IrDA physical layer standard (CMRI/ ISBM).
 Slave : Energy Meter

Technical Details

Peak wavelength : 850-900 nM
 Half Angle : 15° Minimum cone
 Link Distance : 1.5 m from the top of meter cover
 Speed : 2.4 kbit/s – 115.2 kbit/s(SIR)
 Modulation : Baseband, no carrier
 Window : Infrared window

Emitter:

Intensity in angular range : 40- 500 mW /Sr
 Rise and Fall time : 600n Sec Maximum

Receiver:

Irradiance : 4-5x10⁻⁵ μ W/ Cm²
 Latency : 10 m Sec

Communication protocol:

Baud Rate : 9.6 kbps
 Physical layer, SIR, 1/16 at 9.6 kbps

I.Steps for getting data from Meter to CMRI

The following procedure is adopted for getting data from Meter to , through IR PORT.

Format:

- Little Endian
- All values are in Hexadecimal
- Check Sum calculation :
 - if data, then Check Sum = $\sum \sim$ Data,
 - else Check Sum = 0

1a. Command 1 – from CMRI/ISBM to Meter (Initiation Command)

Transmitting Sync packet (11 bytes, Data Nil, with two starting sync bytes) to meters.

Sync Word	Meter IP	Payload	Command	CMRI/ISBM IP	Data	Checksum
16 bit 95h 95h	64 bit = fffffffffffffh	8 bit	8 bit	24 Bit	Max 242 Bytes	8 bit

Example:

Transmitting sync packet from CMRI/ISBM to Meter:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
95 95 ff ff ff ff ff ff ff 10 96 31 11 05 00

Sync Word = 0x95 0x95

Meter IP = 1st and 2nd MSB Manufacturers name Initials

3rd MSB – Manufacturing Year

4th MSB - Manufacturing Month

Rest four bytes - meters Sr. No. in range = 0x 00 00 00 00 - 0xFF FF FF FF * Total

8 Bytes of Meter IP are Little Ending

Payload = 0x10 = 16d
 Command = 0x96 = 150d
 CMRI/ISBM IP = 0x31 0x11 0x05 => 0x051131 = 332081d
 Check Sum = 0 (because there is no data)

1b. Response 1 – from Meter to CMRI/ISBM (Initiation Response)

Meters use wireless Collision Avoidance i.e. all meters which receives the Command 1, gives response in random time slots of 62.5 ms each up to maximum of 0.5s.

Sync Word	CMR IP	Payload	Response	Meter IP	Data	Checksum
16 bit 95h 95h	24 bit = ffffffh	8 bit	8 bit	64 Bit= ffffffffffffffh	Max 242 Bytes	8 bit

Example: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

Sequence: **95 95 31 11 05 30 96 01 1B B7 00 0b 16 45 41 01 01 1B B7 00 0b 16 45 41 05 18 03 80 1E 00**

Name	No of Bytes	Byte Posn	Example	Description
		Offset	Hex Bytes	
Sync Word	2	0,1	95 95	Packet Start identifier
Destination ID	3	2,3,4	31 11 05	MRI ID : 0x051131 =332081 (Decimal)
Pkt Length	1	5	0x1e	30 d
Cmd ID	1	6	0x96	0x96 : Response 1- ID
Source ID	8	7,8,9,10,11,12,13,14	01 1B B7 00 0b 16 45 41	Source ID Eg: 0x 4145160b00B71B01 41=A 45=E 16=22 0b=11 0x00B71B01=12000001d Combined Sr No:- AE221112000001
No of packets	1	15	0x01	Single packet
Meter ID	8	16,17,18,19,20,21,22,23	01 1B B7 00 0b 16 45 41	Meter ID Eg: 0x 4145160b00B71B01 41=A 45=E 16=22 0b=11 0x00B71B01=12000001d Combined Sr No:- AE221112000001
Manufacturing DATE(Month)	1	24	0x05	0x05(BCD Format) - May
Version Control ID	1	25	0x18	For new vendors meter make
Meter phase	1	26	0x03	00h:Single Phase ,03h:Three Phase
Meter Health Check	1	27	0x80	Meter Status
MD Integration Period	1	28	0x1E	MD Intergaration Period
Check sum	1	29	0x00	Sum of inversion of all the Data Bytes

2a. Command 2 - from CMRI/ISBM to Meter (Data Command -1)

The CMRI/ISBM will send below command(s) to particular meter which has responded at first.

Sync Word	Meter IP	Payload	Command	CMRI/ISBM IP	Data	Checksum
16 bit 95h 95h	64 bit	8 bit	8 bit	24 Bit	Max 242 Bytes	8 bit

Example:

CMRI/ISBM Command set , packet 1: **95 95 01 1B B7 00 0b 16 45 41 10 00 31 11 05 00**

Sync Word = 95h 95h
 Meter IP = 1st and 2nd MSB Manufacturers name Initials – 0x41 , 0x45
 3rd MSB – Manufacturing Year - 0x16
 4th MSB - Manufacturing Month - 0x0B
 Rest four bytes - meters Sr. No. in range = 0x00B71B01 = 12000001
 Payload = 0x10 = 16d
 Command = 00 (Command for first packet) / Billing Data
 CMRI/ISBM IP = 0x31 0x11 0x05 => 0x051131 = 332081d
 Check Sum = 00

2b. Response 2 - from Meter to CMRI/ISBM (Billing data only)

Meter will give the billing data as bellow,

Sync Word	CMR IP	Payload	Response	Meter IP	Data	Checksum
16 bit 95h 95h	24 bit	8 bit	8 bit	64 Bit	Max 242 Bytes	8 bit

In detail explanation of Packet 1 of Response 2

Name	No of Bytes	Byte Posn	Example	Description
		Offset	Hex Bytes	
Sync Word	2	0,1	95 95	Packet Start identifier
Destination ID	3	2,3,4	31 11 05	MRI ID : 0x051131 =332081 (Decimal)
Pkt Length	1	5	0x00 - 0xF8	248 bytes
Cmd ID	1	6	0x00 - 0xFF	00h : Billing Data
Source ID	3	7,8,9,10,11 12,13,14	01 1B B7 00 0b 16 45 41	Source ID Eg: 0x 414516 0b00B71B01 41=A 45=E 16=22 0b=11 0x00B71B01=12000001d Combined Sr No:- AE221112000001
RTC – Time	3	15,16,17	00 00 00	hh:mm:ss (24 Hours format)
RTC – Date	3	18,19,20	00 00 00	DD:MM:YY
Instantaneous Voltage R	2	21,22	00 00	Least count 0.1 (240.1 volts)
Instantaneous Voltage Y	2	23,24	00 00	Least count 0.1 (240.1 volts)
Instantaneous Voltage B	2	25,26	00 00	Least count 0.1 (240.1 volts)
Instantaneous Current R	2	27,28	00 00	Least count 0.01 (12.89 amps)
Instantaneous Current Y	2	29,30	00 00	Least count 0.01 (12.89 amps)

Instantaneous Current B	2	31,32	00 00	Least count 0.01 (12.89 amps)
Cum. kWh	4	33,34,35,36	00 00 00 00	Least count 0.01
Cum. kVAh	4	37,38,39,40	00 00 00 00	Least count 0.01
LBP1 kvAMD	2	41,42	00 00	Least count 0.01
MD Time	2	43,44	00 00	HH:mm (24hr format)
MD Date	3	45,46,47	00 00 00	DD:MM:YY
Make Code	3	48,49,50	00 00 00	XXX (TEXT format)
Phase	1	51	0x03	00h:Single Phase ,03h:Three Phase
Meter Multiplying factor	2	52,53	0001	XXXX (Fixed value 1)
MD Reset Count	2	54,55	00 00	00 - 65535

3. Command 3 – from CMRI/ISBM to Meter (Closing Command)

CMRI/ISBM will send the below command to the meter to stop / close the communication

Sync Word	Meter IP	Payload	Command	CMRI/ISBM IP	Data	Checksum
16 bit 95h 95h	64 bit = ffffffffffffffh	8 bit	8 bit	24 Bit	Max 242 Bytes	8 bit

Example:

CMRI/ISBM Command set for Closing command :

95 95 01 1B B7 00 0b 16 45 41 10 9e 31 11 05 00

Sync Word = 95h 95h
 Meter Serial Number = Meter IP = 0x4145160b00B71B01 = AE221112000001d
 Payload = 0x10 = 16d
 Command = 0x9e = 158d
 CMRI/ISBM IP = 0x31 0x11 0x05 => 0x051131 = 332081d
 Checksum = 0x00

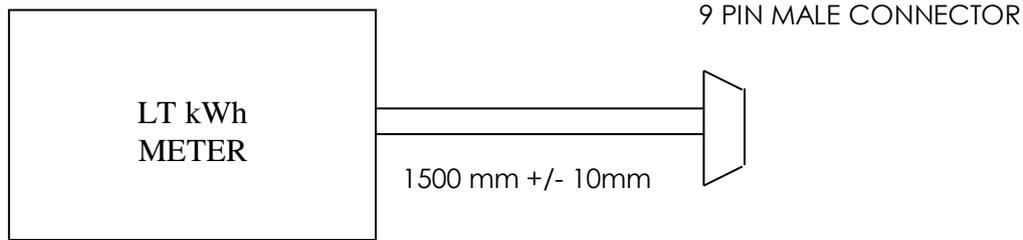
* After receiving closing command from CMRI / ISBM, the meter should not respond to broadcast command till 15 minutes.

* **Meter has to display "DONE" in case of billing data**

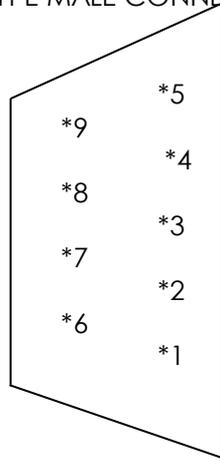
Data is then downloaded for each valid meter in sequence.

The CMRI restarts the process 3 times till no meter response is found.

APPENDIX



RS 232C 9 PIN D TYPE MALE CONNECTOR

PIN FUNCTION LISTING:

PIN	SINGNAL NAME
01	NC (Not connected0
02.	Transmit Data TXD
03	Receive Data RXD
04	NC
05	Signal ground (SG)
06	NC
07	NC
08	NC
09	Power supply (+4.75V to +12.5V)

ACRONYMS

Reference Abbreviations	Name and Address
IEC	International Electro Technical Commission Bureau Central de la Commission Electro Technique International, Rue de verembe Geneva, Switzerland.
ISO	International Organization for Standardization, Danish Board of Standardization Aurehoegvej – 12, DK – 2900, Heel prup, DENMARK.
ISS	Indian Standard Bureau of Indian Standards Nanak Bhavan, 9, Bhadur Shah Zafar Marg, NEW DELHI – 110 002, INDIA.
CBIP	Central Board of Irrigation and Power Malcha Marg, Chankyapuri, NEW DELHI – 110 021. INDIA.
CT	Current Transformer
PT	Potential Transformer
Deg.C	Degrees centigrade
Max	Maximum
Accn.	Acceleration
db	Decibels
MD	Maximum Demand
TOD	Time off day
Min.	Minimum
CMRI	Common Meter Reading Instrument

ANNEXURE – I

GUARANTEED TECHNICAL PARTICULARS FOR METERS

Sl. No.	Characteristics	
1.	Marker's name and country	
2.	Type of meter/model a) Basic Current (A) b) Maximum Current (A)	
3.	Accuracy class	
4.	Power consumption per Phase (a) Voltage Circuit (ii) Current circuit	
5	Minimum starting current of the meter(% Ib)	
6	Parameters Measures	
7	Display (No. of digits and height of character)	
8.	P.F. Range	
9.	Variation of voltage at which meter functions normally	
10.	Particulars of readout a) Continuous display b) Manually on display	
11.	Details of Meter Base & Cover (i) Type of Material (ii) Dimensions & Weight	
12.	Non volatile memory retention time in absence of power	
13.	Memory capacity (kB)	
14.	Details of Tamper and Fraud provisions on Display (manually)	
15	Guarantee for satisfactory operation of Meter	
16	DLMS Conformation whether available (Yes/No)	

II

1.	Standards to which the meter conforms	
2.	Overload capacity	
3.	Dynamic Range	
4.	<ul style="list-style-type: none"> a) Meter terminal block having sealable extended terminal cover. b) Connection diagram inside the terminal cover. c) Maximum safe current the terminals and screws shall carry. 	
5.	<p>Change in errors (accuracy) due to variation in voltage, frequency & temperature to be furnished</p> <ul style="list-style-type: none"> a) Voltage variation <ul style="list-style-type: none"> i) + 20% to +10% ii) + 10% to - 10% iii) - 10% to - 20% iv) - 20% to - 30% b) Frequency variation <ul style="list-style-type: none"> i) 50+10% Hz ii) 50+/-5% Hz iii) 50-10%Hz c) Temperature 	
6.	Detailed explanation how the tamper detection made is furnished or not?	
7.	<p>Sealing of the meter (Nos. of seals)</p> <ul style="list-style-type: none"> a) Meter cover b) Terminal block cover c)Others, if any 	
8.	Whether the meter carries any certification mark	
9.	Self diagnostics features (Provide details)	
10.	Principle of operation (Provide details)	
11.	Any additional measuring parameters	

ANNEXURE – II

TECHNICAL PARTICULARS OF BOX

Sl. No.	Characteristics	
I. 1.	Manufacturer's name	
2.	Material used for box body	
3.	Material withstanding temperature	
4.	Dimensions of box (lxwxh)	
5.	Thickness (mm)	
II. 1.	Color	
2.	No. of Hinges	
3.	Handle provision	
4.	Earthing provision	
5.	Sealing Arrangements	
6.	Inlet & Outlets	
7.	Gasket a) Whether gasket is provided for door b) Material of the gasket	
8.	Suitable for outdoor installation	

SECTION - VII
SAMPLE FORMS
1. BID FORM

Date.

TO: (Name and Address of Purchaser)
Gentlemen and/or Ladies:

Having examined the Bidding documents, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver.
(Description of Materials / equipment) in conformity with the said bidding documents in accordance with the prices quoted online and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the Materials / equipment in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we will obtain the guarantee of a bank in a sum equivalent to 10% of the Contract Price for the due performance of the Contract, in the form prescribed by the Purchaser.

We agree to abide by this Bid up to (For the Bid Validity Period) specified in Clause and it will remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award, will constitute a binding Contract between us.

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

We certify / confirm that we comply with the eligibility requirements as per clause of the bidding documents.

Dated this.day of.200

[Signature]

[in the capacity of]

Duly authorized to sign Bid for and on behalf of _____

2. (a) BID SECURITY FORM

Whereas. (hereinafter called "the Bidder") has submitted its Bid dated (date of submission of bid) for the supply of.(name and /or description of the Materials / equipment) (hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that WE.(name of bank) having our registered office at.(address of bank)(hereinafter called "the Bank"), are bound unto.(name of Purchaser) (hereinafter called "the Purchaser") in the sum of 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 200 .

THE CONDITIONS of this obligation are:

1. If the Bidder
 - a) withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
 - a) does not accept the correction of errors in accordance with the Bid Specification, 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 furnish the performance security, in accordance with the Bid Specification.
 - (b) fails or refuses to execute the Contract Form if required; or

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the 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 conditions.

This guarantee will remain in force up to and including forty five (45) days after(Specification Date) the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

.
(Signature of the Bank)

NOTE: This will be executed on a Rs.100/- non-judicial stamp paper issued by a scheduled Bank.

2(b) PERFORMANCE SECURITY FORM

To: _____(Name of Purchaser)

WHEREAS.....(Name of Supplier)
(hereinafter called "the Supplier") has undertaken, in pursuance of Contract No.....dated.....200 to supply.(Description of Materials / equipment and Services)
(hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier will furnish you with a Bank Guarantee by a recognized Bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of. (Amount of the Guarantee in Words and Figures) and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limit of..... (Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the. ... day of. 200.

Signature and Seal of Guarantors

.....
Date.200.

.....

Address:.....

.....

.....

NOTE: This will be executed on a Rs.100/- non-judicial stamp paper by a scheduled Bank.

3. CONTRACT FORM

THIS AGREEMENT made the. day of. 200 Between.(Name of Purchaser) of the one part and.(Name of Supplier) of the other part:

WHEREAS the Purchaser invited bids for certain Materials / equipment and ancillary services viz.,
(Brief description of Materials / equipment and Services) and has accepted a bid by the Supplier for the supply of those Materials / equipment and services in the sum of.
(Contract Price in Words and Figures)(hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions will have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents will be deemed to form and be read and construed as part of this Agreement, viz.:
 - (a) the Bid Form and the Price Schedule submitted by the Bidder;
 - (b) the Schedule of Requirements;
 - (c) the Technical Specifications;
 - (d) the General Conditions of Contract;
 - (e) the Purchaser's Notification of Award.
3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Materials / equipment and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Materials / equipment and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

Brief particulars of the Materials / equipment and services which will be supplied/ provided by the Supplier are as under:

Sl. No.	Brief Description of Materials / Equipment & services	Quantity to be supplied	Unit Price Rs.	Total Price Rs.	Delivery Terms

TOTAL VALUE: (Rupees _____only)

DELIVERY SCHEDULE:

IN WITNESS whereof the parties hereto have caused this Agreement to be executed on the day and year first above written.

Signed, Sealed and Delivered by the
said.(for the Purchaser)
in the presence of.

Signed, Sealed and Delivered by the
said.(for the Supplier)
in the presence of.

NOTE: To be executed on a Rs.100/- Non-judicial stamp paper.

4. PROFORMA FOR PERFORMANCE STATEMENT

Bid No. _____

Date of Opening _____

Time _____ Hours

Name of the Firm _____

Order placed by (full address of purchaser)	Order No. and Date	Description and quantity of ordered equipment	Date of Completion of Delivery	
			As per Contract	Actual

Remarks indicating reasons for late delivery, if any	Has the equipment been satisfactorily functioning? (Attach a Certificate from the Purchaser)

Signature of the Bidder _____

(FORMAT-A)**5. DETAILS TO BE FURNISHED BY THE MANUFACTURER**

1. Specification No.	:	
2. Name of the Material	:	
3. Quantity to be procured	:	
4. Last date and time for submission of Bid	:	
5. Date and time for opening of Bid	:	
6. State whether Bid guarantee is enclosed	:	
7. State whether the quotation in two parts has been submitted.	:	
8. State whether 20% minimum quantity is quoted	:	
9. Whether willing to furnish performance B.G. @ 10% if order is placed	:	
10. Whether month wise delivery schedule indicated	:	
11. Prices whether Firm	:	
12. Whether any other tax / duty payable. If so give details and the same is included / not included.	:	
13. State whether TGSPDCL(erstwhile TGSPDCL) terms of payment are accepted.	:	
14. Quantity offered for supply	:	
15. State whether 120 days validity offered	:	
16. Whether sample is enclosed (if specified)	:	
17. Whether the material / equipment offered conforms to the relevant TGSPDCL(erstwhile TGSPDCL) Specification	:	
18. Whether you have executed orders of the TGSPDCL(erstwhile TSSPDCL) previously for these items. (Please give details)	:	
19. Similar details in respect of supplies made to other utilities	:	
20. Whether Bid guarantee exemption letter enclosed, if exempted.	:	
21. Whether sales tax clearance certificate enclosed	:	
22. Whether Income-tax clearance certificate enclosed.	:	
23. Whether Warranty clause accepted	:	
24. Whether Penalty clause accepted	:	
25. Whether delivery schedule accepted	:	

6. SCHEDULE OF DEVIATION**(i) TECHNICAL**

Sl. No.	Requirements / Equipment	Specification Clause No.	Deviations	Remarks

It is hereby conformed that except for deviations mentioned above, the offer conforms to all the other features specified in Technical Specification Section ____ of this Bid Document

Place :

Signature of the Bidder :

Date :

Name :

Business address :

6. SCHEDULE OF DEVIATION**(ii) COMMERCIAL**

Sl. No.	Requirements / Equipment	Specification Clause No.	Deviations	Remarks

It is hereby conformed that except for deviations mentioned above, the offer conforms to all the other features specified in Commercial Specification Section ____ of this Bid Document

Place :

Signature of the Bidder :

Date :

Name :

Business address:

7. DECLARATION FORM**Declaration to be given by the Company in regard to relation to promoters of Blacklisted /
debarred companies by any power utilities.**

I declare that, myself or any of the representatives of my company / firm do not have any relatives with promoters of blacklisted / debarred companies by any utilities.

It is certified that the information furnished above is true to the best of my knowledge and belief. It is hereby undertaken that in the event of the above information found to be false or incorrect at a later date, the TGSPDCL is entitled to terminate the contract/agreement entered into besides recovering damages as may be found necessary, with due notice.

Signature of authorized representative