NIT No.: TPCODL/P&S/100000313/2022-23

Procedure to Participate in Tender

Tender Enquiry No- TPCODL/P&S/1000000313/2022-23

Tender Enquiry No.	Work Description	EMD* (Rs.)	Tender Fee** (Rs.)	Last Date for payment of Tender Fee
TPCODL/P&S/ 1000000313/ 22-23	Supply of Portable LT&HT Electronic Reference Standard Meter/ Testing Kit	Rs. 50,000	5,000	11.11.2022

* EMD is exempted for MSME Bidders. However, MSME Bidder shall be barred to participate in the tendering process for a period of 2 years in case it backs out post award of the contract. MSME BAs needs to submit Bid Security Declaration as per the attached format.
** MSMEs registered in the State of Odisha shall pay tender fee of Rs. 1,000/- including GST.

Please note that corresponding details mentioned in this document will supersede any other details mentioned anywhere else in the Tender Document.

Procedure to Participate in Tender.

Following steps are to be followed before “Last date for Payment of Tender Fee”:

1. Eligible and Interested Bidders to submit duly signed and stamped letter on Bidder's letter head indicating
   a. Tender Enquiry number
   b. Name of authorized person
   c. Contact number
   d. E-mail id
   e. Details of submission of Tender Fee
   f. GST Registration No
   g. Details of submission of Tender Fee
   h. MSME Certificate, wherever applicable
   i. Details of Bank Account for refund of EMD
   j. Postal Address for refund of EMD
2. Non-Refundable Tender Fee, as indicated in table above, to be submitted in the form of Direct Deposit in the following bank account and submit the receipt along with a covering letter clearly indicating the Tender Reference/ Enquiry Number –

   Beneficiary Name: TP Central Odisha Distribution Ltd.
   Bank Name: STATE BANK OF INDIA
   Branch Name: IDCO Towers, Bhubaneshwar
   Address: P.O. - Sahidnagar, Janapath, Bhubaneswar.
   Branch Code: 7891
   Account No: 10835304915
   IFSC Code: SBIN0007891

E-mail with necessary attachment of 1 and 2 above to be sent to imran.ahmad@tpcentralodisha.com with copy to sudhakar.behera@tpcentralodisha.com before last date and time for payment of Tender Fee.

Interested bidders to submit Tender Fee and Authorization Letter before Last date and time as indicated above, after which link from TPCODL E-Tender system (Ariba) will be shared for further communication and bid submission.

Please note that all future correspondence regarding the tender, bid submission, due date extension, Pre-bid query, etc. will take place through TPCODL E-Tender system (Ariba) only. User manual to guide the bidders to submit the bid through E-Tender system (Ariba) is enclosed.

All communication shall be held only with the bidders who have carried out the above steps to participate in the Tender.

It is to be noted that once date of “Last date and time for Payment of Tender Participation Fee” is lapsed, no Bidder will be sent link from TPCODL E-Tender System (Ariba). Without this link, bidder will not be able to participate in the tender. Any last moment request to participate in tender will not be considered.

Further, all future corrigendum to the said tender will be uploaded in the Tender section on website https://www.tpcentralodisha.com.

NIT No.: TPCODL/P&S/100000313/2022-23

OPEN TENDER NOTIFICATION

FOR

SUPPLY OF PORTABLE LT&HT ELECTRONIC REFERENCE STANDARD METER/ TESTING KIT

Tender Enquiry No.: TPCODL/P&S/1000000313/22-23

Due Date for Bid Submission: 24.11.2022 [15:00 Hrs.]

TP Central Odisha Distribution Limited
2nd Floor, IDCO Towers, Janpath, Bhubaneswar – 751022

CONTENTS OF THE ENQUIRY

1.0 Event Information

1.1. Scope of work

Open Tenders are invited from interested Bidders entering into a Rate Contract valid for one year for the following:

S. No.	Description	EMD Amount (Rs.)	Tender Fee (Rs.)
1.	Supply of Portable LT&HT Electronic Reference Standard Meter/ Testing Kit	Rs. 50,000	5,000

Note: Tender Fee is inclusive of GST

1.2. Availability of Tender Documents

Please refer “Procedure to participate in the e-tender”.

1.3. Calendar of Events

(a)	Date of sale/ availability of tender documents from TPCODL Website	From 4.11.2022 onwards
(b)	Date by which Interested and Eligible Bidder to pay Tender Fee and confirm participation as mentioned in “Procedure to Participate in Tender”	11.11.2022
(c)	Last Date of receipt of pre-bid queries, if any	14.11.2022
(d)	Pre-Bid Meeting*	-
(e)	Last Date of Posting Consolidated replies to all the pre-bid queries as received	16.11.2022
(f)	Last date and time of receipt of Bids	24.11.2022; 15:00 Hours
(g)	Date & Time of opening technical bids & EMD (Envelope-1 & 2)	Participating Bidders will get mail intimation from TPCODL E-Tender system (Ariba) when their Technical Bids are opened.
(h)	Date & Time of opening of Price bid of qualified bidders	Bidders will get mail intimation from TPCODL E-tender system (Ariba) when their Price Bids are opened

**Pre-Bid Meeting Time and Venue details shall be shared later*

Note :- In the event of last date specified for submission of bids and date of opening of bids is declared as a closed holiday for TPCODL’s office, the last date of submission of bids and date of opening of bids will be the day following working day at appointed times.

1.4 Mandatory documents required along with the Bid

1.4.1 EMD of requisite value and validity
1.4.2 Tender Fee of requisite amount
1.4.3 Requisite Documents for compliance to Qualification Criteria mentioned in Clause 1.7.

1.4.4 Drawing, Type Test details along with a sample of each item as specified at Annexure I (as applicable)
1.4.5 Duly signed and stamped 'Schedule of Deviations' as per Annexure III on bidder's letter head.
1.4.6 Duly signed and stamped 'Schedule of Commercial Specifications' as per Annexure IV on bidder's letter head.
1.4.7 Proper authorization letter/ Power of Attorney to sign the tender on the behalf of bidder.
1.4.8 Copy of PAN, GST, PF and ESI Registration (In case any of these documents is not available with the bidder, same to be explicitly mentioned in the 'Schedule of Deviations')
1.4.9 Documents for safety bid evaluation as per Appendix 13: CSM-F-9 Safety Bid Evaluation Criteria

Please note that in absence of any of the above documents, bid submitted by the bidder shall be liable for rejection.

1.5. Deviation from Tender

Normally, the deviations to tender terms are not admissible and the bids with deviation are liable for rejection. Hence, the bidders are advised to refrain from taking any deviations on this Tender. Still in case of any deviations, all such deviations shall be set out by the Bidders, clause by clause in the 'Annexure III - Schedule of Deviations' and same shall be submitted as a part of the Technical Bid.

1.6. Right of Acceptance/Rejection

Bids are liable for rejection in absence of following documents:-

i. EMD of requisite value and validity
ii. Tender fee of requisite value
iii. Price Bid as per the Price Schedule mentioned in Annexure I (BOQ)
iv. Necessary documents against compliance to Qualification Requirements mentioned at Clause 1.7 of this Tender Document
v. Filled in Schedule of Deviations as per Annexure III
vi. Filled in Schedule of Commercial Specifications as per Annexure IV
vii. Receipt of Bid within the due date and time

TPCODL reserves the right to accept/reject any or all the bids without assigning any reason thereof.

1.7 Qualification Requirement / Eligibility Criteria

1. The bidder should have average annual turnover of **Rs. 1 Cr.** in last three financial years from (FY 18-19, FY 19-20 & FY 20-21). **CA Audited Summary sheet and profit & loss account statements to be submitted.**
2. The bidder should be either a manufacturer or authorized dealer/distributor of the Original Equipment Manufacturer (OEM) for the equipment to be supplied. **Self-undertaking in this regard shall be submitted by the manufacturer.** In case the OEM chooses to participate through its authorized dealer/distributor, a copy of authorization to participate in this particular tender should have been accompanied with the bid document while submitting the tender. TPCODL reserve the right to confirm the manufacturing facility by visiting bidder's plant / works.

3. The bidder (OEM and/or authorized dealer/distributor) should have successfully executed the supply of minimum 10 Nos for 0.1 Accuracy Class ERS Testing Kits and minimum of 70 Nos. for LT Portable Reference Standard Meter during the last Five years. **In this regard, copy of supply/work order along with order completion certificate/ evidence of supply and performance certificate from the client to be furnished with the bid document.**
4. Declaration on bidder's letterhead for Non-blacklisting from any Government Department/ PSU/ SEB's/ Power Utility/OREDA.

1.8. Marketing Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the General Condition of Contracts. Bidders must agree to these rules prior to participating. In addition to other remedies available, TPCODL reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the General Condition of Contracts. A bidder who violates the market place rules or engages in behavior that disrupts the fair execution of the marketplace, may result in restriction of a bidder from further participation in the marketplace for a length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace
- Breach of terms as published in TENDER/NIT

1.9. Supplier Confidentiality

All information contained in this tender is confidential and shall not be disclosed, published or advertised in any manner without written authorization from TPCODL. This includes all bidding information submitted to TPCODL. All tender documents remain the property of TPCODL and all suppliers are required to return these documents to TPCODL upon request. Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

2.0 Evaluation Criteria

- The bids will be evaluated technically on the compliance to tender terms and conditions
- The bids will be evaluated commercially on all-inclusive lowest cost on line item basis as calculated in Schedule of Items *[Annexure I].* TPCODL however, reserves right to split the order line item wise and/or quantity wise amongst more than one Bidder. Hence, all bidders are advised to quote their most competitive rates against each line item.
- Bidder has to mandatorily quote against each item of Schedule of Items *[Annexure I].* Failing to do so, TPCODL may reject the bids.

NOTE: *In case a new bidder is not registered with TPCODL, factory inspection and evaluation shall be carried out to ascertain bidder's manufacturing capability and quality procedures. However TPCODL reserves the right to carry out factory inspection and evaluation for any bidder prior to technical qualification.*

In case a bidder is found as Disqualified in the factory evaluation, their bid shall not be evaluated any further and shall be summarily rejected. The decision of TPCODL shall be final and binding on the bidder in this regard.

2.1 Price Variation Clause: The prices shall remain FIRM during the entire contract period.

3.0 Submission of Bid Documents

3.1 Bid Submission

Bidders are requested to submit their offer in line with this Tender document. TPCODL shall respond to the clarification raised by various bidders and the replies will be sent to all participating bidders through TPCODL e-tender system (Ariba).

Bids shall be submitted in 3 (three) parts:

FIRST PART: "EMD" as applicable shall be submitted. The EMD shall be valid for 210 days from the due date of bid submission in the form of BG / Bank Draft / Bankers Pay Order (issued from a Scheduled Bank) online NEFT/ RTGS transfer favoring 'TP Central Odisha Distribution Limited' payable at Bhubaneswar. The EMD has to be strictly in the format as mentioned in General Condition of Contract, failing which it shall not be accepted by TPCODL and the bid as submitted shall be liable for rejection. A separate non-refundable tender fee of stipulated amount also needs to be transferred online through NEFT/ RTGS in case the tender document is downloaded from our website.

TPCODL Bank Details for transferring Tender Fee and EMD is as below:

Account Name: TP CENTRAL ODISHA DISTRIBUTION LIMITED
Bank Name: SBI, IDCO Towers, Bhubaneswar
Bank Account No. : 10835304915
IFSC Code: SBIN0007891

For Tender Fee and EMD submitted via online transfer, bidder to ensure that the same are carried out through separate transactions.

The EMD in the form of Bank Draft / BG /Bankers Pay Order shall be delivered at the following address in sealed envelope clearly indicating the tender reference / enquiry number, name of tender and bidder name:

Chief (Procurement & Stores)
TP Central Odisha Distribution Limited
2nd Floor, IDCO Towers, Janpath, Bhubaneswar-751022

SECOND PART: "TECHNICAL BID" shall contain the following documents:

a) Documentary evidence in support of qualifying criteria
b) Technical literature/GTP/Type test report etc. (if applicable)
c) Qualified manpower (if available)
d) Testing facilities (if applicable)
e) No Deviation Certificate as per the Annexure III – Schedule of Deviations
f) Acceptance to Commercial Terms and Conditions viz. Delivery schedule/period, payment terms etc. as per the Annexure IV – Schedule of Commercial Specifications.
g) Quality Assurance Plan/Inspection Test Plan for supply items (if applicable)
h) Project Implementation Plan including Level 2 Schedule for the project
i) Unpriced mentioning "Quoted/Not Quoted" against all line items (Prices should not be mentioned)

The technical bid shall be properly indexed and is to be submitted through TPCODL E-tender platform (Ariba) only. Hard copy of Technical Bids need not be submitted.

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

THIRD PART: "PRICE BID" shall contain only the price details and strictly in format as mentioned in Annexure I along with explicit break up of basic prices, Taxes & duties, Freight etc. In case any discrepancy is observed between the item description stated in Schedule of Items mentioned in the tender and the price bid submitted by the bidder, the item description as mentioned in the tender document (to the extent modified through Corrigendum issued if any) shall prevail. Price Bid is to be submitted in soft copy through TPCODL E-Tendering system (Ariba) only. Hard copy of Price Bid not be submitted.

SIGNING OF BID DOCUMENTS:

The bid must contain the name, residence and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature.

The Bid being submitted must be signed by a person holding a Power of Attorney authorizing him to do so, certified copies of which shall be enclosed.

The Bid submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Bid on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Bid on behalf of the Company. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with bid.

A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his principal will be rejected.

The Bidder's name stated on the Proposal shall be the exact legal name of the firm.

3.2 Contact Information

Please note all correspondence regarding the tender, bid submission, bid submission date extension, Pre-bid query etc. will happen through TPCODL E-Tender system (Ariba).

All communication will be done strictly with the bidder who have done the above step to participate in the Tender.

Communication Details:

Package Owner

Name: Arijeet Choudhury
Designation: Procurement (Commercial Services)
Contact No.: 9871432126
E-Mail ID: arijeet.choudhury@tpcentralodisha.com

Escalation Matrix

Name: Mr. Sudhakar Behera
Designation: Sr. General Manager (Procurement)
Contact No.: 9437282663
E-Mail ID: sudhakar.behera@tpcentralodisha.com

Bidders are strictly advised to communicate with Package Owner through TPCODL E-tender System (Ariba) only. They need to pay Tender Participation Fee to receive the Ariba log-in.

3.3 Bid Prices

Bidders shall quote for the entire Scope of Supply/ work with a break up of prices for individual items and Taxes & duties. The bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total price with taxes, duties & freight up to destination at various sites of TPCODL. The all-inclusive prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during the execution of the supply work, breakup of price constituents.

Applicable GST to be specified clearly.

The quantity break up shown else-where other than Price Schedule is tentative. The bidder shall ascertain himself regarding material required for completeness of the entire work. Any items not indicated in the price schedule but which are required to complete the job as per the Technical Specifications/ Scope of Work/ SLA mentioned in the tender, shall be deemed to be included in prices quoted.

3.4 Bid Currencies

Prices shall be quoted in Indian Rupees Only.

3.5 Period of Validity of Bids

Bids shall remain valid for 180 days from the due date of submission of the bid.

Notwithstanding clause above, the TPCODL may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and responses thereto shall be made in writing.

3.6 Alternative Bids

Bidders shall submit Bids, which comply with the Bidding documents. Alternative bids will not be considered. The attention of Bidders is drawn to the provisions regarding the rejection of Bids in the terms and conditions, which are not substantially responsive to the requirements of the bidding documents.

3.7 Modifications and Withdrawal of Bids

The bidder is not allowed to modify or withdraw its bid after the Bid's submission. The EMD as submitted along with the bid shall be liable for forfeiture in such event.

3.8 Earnest Money Deposit (EMD)

The bidder shall furnish, as part of its bid, an EMD amounting as specified in the tender. The EMD is required to protect TPCODL against the risk of bidder's conduct which would warrant forfeiture.

The EMD shall be denominated in any of the following form:

- Banker's Cheque/ Demand Draft/ Pay order drawn in favor of TP Central Odisha Distribution Limited payable at Bhubaneswar.
- Online transfer of requisite amount through NEFT/ RTGS.
- Bank Guarantee valid for 210 days after due date of submission.

The EMD shall be forfeited in case:

a) The bidder withdraws its bid during the period of specified bid validity.

Or

b) The successful Bidder does not
   a) accept the Purchase Order, or

b) furnish the required Performance Security Bank Guarantee

4 Bid Opening & Evaluation process

4.1. Process to be confidential

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

4.2. Technical Bid Opening

Bids will be opened at TPCODL Office, Bhubaneswar. All tender bids shall be opened internally by TPCODL. Presence of any bidder will not be allowed during bid opening process. Technical bid must not contain any cost information whatsoever.

First the envelope marked “EMD” will be opened. Bids without EMD/cost of tender (if applicable) of required amount/ validity in prescribed format, shall be rejected.

Next, the technical bid of the bidders who have furnished the requisite EMD will be opened, one by one.

4.3. Preliminary Examination of Bids/Responsiveness

TPCODL 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. TPCODL may ask for submission of original documents in order to verify the documents submitted in support of qualification criteria.

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

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

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

4.4. Techno Commercial Clarifications

Bidders need to ensure that the bids submitted by them are complete in all respects. To assist in the examination, evaluation and comparison of Bids, TPCODL may, at its discretion, ask the Bidder for a clarification on its Bid with respect to the TPCODL specifications and attempt will be made to bring all bids on a common footing. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted owing to any clarifications sought by TPCODL.

4.5. Price Bid Opening

Price bids will be opened internally without the presence of any bidder representative. The EMD of the bidder withdrawing or substantially altering his offer at any stage after the technical bid opening will be forfeited at the sole discretion of TPCODL without any further correspondence in this regard.

4.6. Reverse Auctions

TPCODL reserves the right to conduct the reverse auction (instead of public opening of price bids) for the products/ services being asked for in the tender. The terms and conditions for such reverse auction events shall be as per the Acceptance Form attached as Annexure VI of this document. The bidders along with the tender document shall mandatorily submit a duly signed copy of the Acceptance Form attached as Annexure VI as a token of acceptance for the same.

5 Award Decision

TPCODL will award the contract to the successful bidder whose bid has been determined to be the lowest-evaluated responsive bid as per the Evaluation Criterion mentioned at Clause 2.0. The Cost for the said calculation shall be taken as the all-inclusive cost quoted by bidder in Annexure I (Schedule of Items) subject to any corrections required in line with Clause 4.3 above. The decision to place purchase order/LOI solely depends on TPCODL on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that TPCODL may deem relevant.

TPCODL reserves the rights to award contract to one or more bidders so as to meet the delivery requirement or nullify award decision without assigning any reason thereof.

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

6 Order of Preference/Contradiction

In case of contradiction in any part of various documents in tender, following shall prevail in order of preference:

1. Schedule of Items (Annexure I)
2. Post Award Contract Administration (Clause 7.0)
3. Submission of Bid Documents (Clause 3.0)
4. Scope of Work and SLA (Annexure VII)
5. Technical Specifications (Annexure II)
6. Acceptance Form for Participation in Reverse Auction (Annexure VI)
7. General Conditions of Contract (Annexure VIII)

7 Post Award Contract Administration

7.1. Special Conditions of Contract

a. Performance Bank Guarantee amounting to 10% of the contract value shall be submitted by the BA as per GCC for a period equivalent to contract validity period plus Guarantee Period plus Claim period.
b. The bids will be evaluated commercially on all-inclusive lowest cost on **line item basis** as calculated in Schedule of Items [Annexure I]. However, TPCODL reserves the right to split the order line item wise and/or quantity wise amongst more than one Bidder. Hence, all bidders are advised to quote their most competitive rates against each line item.
c. Any change in statutory taxes, duties and levies during the contract period shall be borne by TPCODL
d. All the terms and conditions of TPCODL General Conditions of Contract for Supply Orders shall be applicable.

7.2 Drawing Submission and Approval

The relevant drawings and GTPs need to be submitted by BA within two weeks of receipt of Rate Contract. In case, re-submission of drawings is required on request of TPCODL, same needs to be submitted back to TPCODL within 5 days of such request.

Wherever TPCODL specifications are not available, relevant IS/IEC to be followed. All Drawings mentioned in the Tender Specification and other required for the completeness of the tender shall be submitted. Drawing submission process shall not be deemed complete of all the requirements are not complied during the submission of the same

7.3 Delivery Timelines

Delivery shall be completed within 60 days from the Issuance of Order.

7.4 Warranty Period

As per technical specifications.

7.5 Payment Terms

100% payment shall be made within 30 days of submission of commercially clear invoice with full details and fulfilment of statutory compliances and other requirements, if any and verified by concerned TPCODL official after completion of work against progressive monthly bills.

7.6 Climate Change

Significant quantities of waste are generated during the execution of project and an integrated approach for effective handling, storage, transportation and disposal of the same shall be adopted. This would ensure the minimization of environmental and social impact in order to combat the climate change. Please refer attached Environment Policy and Sustainability Policy, Annexure-XI for more details.

7.7 Ethics

TPCODL is an ethical organization and as a policy TPCODL lays emphasis on ethical practices across its entire domain. Bidder should ensure that they should abide by all the ethical norms and in no form either directly or indirectly be involved in unethical practice.

TPCODL work practices are governed by the Tata Code of Conduct which emphasizes on the following:

- We shall select our suppliers and service providers fairly and transparently.
- We seek to work with suppliers and service providers who can demonstrate that they share similar values. We expect them to adopt ethical standards comparable to our own.
- Our suppliers and service providers shall represent our company only with duly authorized written permission from our company. They are expected to abide by the Code in their interactions with, and on behalf of us, including respecting the confidentiality of information shared with them.
- We shall ensure that any gifts or hospitality received from, or given to, our suppliers or service providers comply with our company's gifts and hospitality policy.
- We respect our obligations on the use of third party intellectual property and data.

Bidder is advised to refer Tata Code of Conduct (TCOC) attached at Annexure X for more information.

Any ethical concerns with respect to this tender can be reported to the following e-mail ID:

1) Chief Ethics Counsellor – bharat.chhabra@tpcentralodisha.com

8 Specification and standards

As per Annexure.

9 General Condition of Contract

Any condition not mentioned above shall be applicable as per GCC attached along with this tender.

10 Safety

All jobs are this tender have to be executed strictly in compliance to the Safety terms and Conditions of TP Central Odisha Distribution Limited. Please refer attached Safety terms and conditions, Annexure-IX, for details. Violation of Safety norms will result in Penalty as mentioned in the above document.

ANNEXURE I

SCHEDULE FOR ITEMS

TPCODL/P&S/1000000313/2022-23								
S. No.	**Item Description**	**HSN Code**	**Qty.**	**UoM**	**Unite Rate (Rs.)**	**GST (Rs.)**	**All Incl. unit rate (Rs.)**	**All incl. BOQ Price (Rs.)**
(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H=F+G)**	**(I=HxD)**
1	0.1 Accuracy Class ERS Testing Kits		10	EA			-	-
2	LT Portable Reference Standard Meter		70	EA			-	-
	TOTAL							**-**

- **The bidder can quote for any one item or both the line items.**
- The bidders are advised to quote prices strictly in the below above format and for all the line items as mentioned. Failing to do so, bids are liable for rejection.
- The bidder must fill each column of the above format. Mentioning “extra/inclusive” in any of the column may lead for rejection of the price bid.
- No cutting/ overwriting in the prices is permissible.
- The unit price to be indicated should be exclusive of taxes & duties, which are to be indicated in separate columns meant for the purpose.
- The prices shall be FOR TPCODL only

ANNEXURE II

TECHNICAL SPECIFICATIONS

Attached

ANNEXURE III

SCHEDULE OF DEVIATIONS

Bidders are advised to refrain from taking any deviations on this TENDER. Still in case of any deviations, all such deviations from this tender document shall be set out by the Bidders, Clause by Clause in this schedule and submit the same as a part of the ***Technical Bid.***

Unless specifically mentioned in this schedule, the tender shall be deemed to confirm the* TPCODL*'s specifications:

S. No.	Clause No.	Tender Clause Details	Details of deviation with justifications

By signing this document we hereby withdraw all the deviations whatsoever taken anywhere in this bid document and comply to all the terms and conditions, technical specifications, scope of work etc. as mentioned in the standard document except those as mentioned above.

Seal of the Bidder:

Signature:

Name:

ANNEXURE IV

SCHEDULE OF COMMERCIAL SPECIFICATIONS

(The bidders shall mandatorily fill in this schedule and enclose it with the offer Part I: Technical Bid. In the absence of all these details, the offer may not be acceptable.)

S. No.	Particulars	Remarks
1.	Prices firm or subject to variation (If variable indicate the price variation clause with the ceiling if applicable)	Firm / Variable
1a.	If variable price variation on clause given	Yes / No
1b.	Ceiling	--------- %
1c.	Inclusive of GST	Yes / No (If Yes, indicate % rate)
1d.	Inclusive of transit insurance	Yes / No
2.	Delivery	Weeks / months
3.	Guarantee clause acceptable	Yes / No
4.	Terms of payment acceptable	Yes / No
5.	Performance Bank Guarantee acceptable	Yes / No
6.	Liquidated damages clause acceptable	Yes / No
7.	Validity (180 days) (From the date of opening of bid)	Yes / No
8.	Inspection during stage of manufacture	Yes / No
9.	Rebate for increased quantity	Yes / No (If Yes, indicate value)
10.	Change in price for reduced quantity	Yes / No (If Yes, indicate value)
11.	Covered under Small Scale and Ancillary Industrial Undertaking Act 1992	Yes / No (If Yes, indicate, SSI Reg'n No.)

Seal of the Bidder:

Signature:

Name:

ANNEXURE V

CHECKLIST OF ALL THE DOCUMENTS TO BE SUBMITTED WITH THE BID

Bidder has to mandatorily fill in the checklist mentioned below:-

S. No.	Documents attached	Yes / No / Not Applicable
1	EMD of required value	
2	Tender Fee as mentioned in this tender	
3	Signed copy of this tender as an unconditional acceptance	
5	Duly filled schedule of commercial specifications (Annexure IV)	
6	Sheet of commercial/technical deviation if any (Annexure III)	
7	Balance sheet for the last completed three financial years; mandatorily enclosing Profit & loss account statement	
8	Acknowledgement for Testing facilities if available (duly mentioned on bidder letter head)	
9	List of Machine/tools with updated calibration certificates if applicable	
10	Details of order copy (duly mentioned on bidder letter head)	
11	Order copies as a proof of quantity executed	
12	Details of Type Tests if applicable (duly mentioned on bidder letter head)	
13	All the relevant Type test certificates as per relevant IS/IEC (CPRI/ERDA/other certified agency) if applicable	
14	Project/supply Completion certificates	
15	Performance certificates	
16	Client Testimonial/Performance Certificates	
17	Credit rating/solvency certificate	
18	Undertaking regarding non blacklisting (On company letter head)	
19	List of trained/untrained Manpower	

Seal of the Bidder:

Signature:

Name

ANNEXURE VI

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed and stamped by the bidder)

In a bid to make our entire procurement process more fair and transparent, TPCODL intends to use the reverse auctions as an integral part of the entire tendering process. All the bidders who are found as technically qualified based on the tender requirements shall be eligible to participate in the reverse auction event.

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

1. TPCODL shall provide the user id and password to the authorized representative of the bidder. *(Authorization Letter in lieu of the same shall be submitted along with the signed and stamped Acceptance Form).*
2. TPCODL will make every effort to make the bid process transparent. However, the award decision by TPCODL would be final and binding on the supplier.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of TPCODL, bid process, bid technology, bid documentation and bid details.
4. The bidder is advised to understand the auto bid process to safeguard themselves against any possibility of non-participation in the auction event.
5. In case of bidding through Internet medium, bidders are further advised to ensure availability of the entire infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitch, internet response issues, software or hardware hangs, power failure or any other reason shall not be the responsibility of TPCODL.
6. In case of intranet medium, TPCODL shall provide the infrastructure to bidders. Further, TPCODL has sole discretion to extend or restart the auction event in case of any glitches in infrastructure observed which has restricted the bidders to submit the bids to ensure fair & transparent competitive bidding. In case of an auction event is restarted, the best bid as already available in the system shall become the start price for the new auction.
7. In case the bidder fails to participate in the auction event due any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be out-rightly rejected by TPCODL.
8. The bidder shall be prepared with competitive price quotes on the day of the bidding event.
9. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR at TPCODL site.
10. The prices submitted by a bidder during the auction event shall be binding on the bidder.
11. No requests for time extension of auction event shall be considered by TPCODL.
12. The original price bids of the bidders shall be reduced on pro-rata basis against each line item based on the final all-inclusive prices offered during conclusion of the auction event for arriving at Contract amount.

Signature & Seal of the Bidder

ANNEXURE VII

SCOPE OF WORK AND SERVICE LEVEL AGREEMENT

N/A

ANNEXURE VIIa

PREFERENTIAL NORMS FOR PROCUREMENT FROM MSMES REGISTERED IN THE STATE OF ODISHA

1. Tender Fees

To participate in the tender, MSMEs registered in the State of Odisha shall pay Rs.1,000/- including GST towards cost of tender paper.

2. Earnest Money Deposit (EMD)

EMD shall be exempted for MSME registered in the State of Odisha. However, Bidder shall be barred to participate in the tendering process for a period of 2 years in case it backs out post award of the contract.

3. Qualification Requirement for Open Tenders

Qualification Requirement of Financial Turnover for MSME registered in the State of Odisha shall be reduced to 20% of the existing criteria.

For past experience, instead of relying on the volumes / value of earlier Supplies / Projects, assessment of the Bidder shall be done on the basis of feedback from Customers. Past performance experience at Tata Power and its Group Companies shall supersede feedback from other Customers.

4. Reservation for MSME

It shall be mandatory to procure at least 20% of the total volume of the procurement from MSME registered in the State of Odisha (however, it shall not apply where goods/services are not available with the MSME), subject to matching L1 discovered prices and meeting technical specifications including quality requirements.

5. Performance Bank Guarantees

Performance Bank Guarantee for MSME registered in the State of Odisha shall be 25% of the value normally prescribed.

ANNEXURE VIII
GENERAL CONDITIONS OF CONTRACT

Attached: General Conditions of Contract for Composite Orders

ANNEXURE IX

SAFETY POLICY AND SAFETY TERMS AND CONDITIONS

1. Objective

The Tata Power engages contractor workforce to execute, run and maintain various operating sites and facilities across locations for various business verticals including Generation, Transmission, Distribution and Renewable. The activities range from project execution, operation, maintenance to facilities management.

The management of contractor safety represents a significant challenge for management. Tata Power has a responsibility to ensure that contractors are provided with enough information and support to enable them to conduct their roles safely and without endangering health and safety of their own workforce or that of our staff.

To ensure reduction in reportable injuries and achieve goal of zero accidents, first edition of contractor safety code of conduct was launched successfully in the year 2014. Since last four years after the launch of CSCC, Tata Power could achieve the objective of reduction in reportable injuries and fatalities.

Over the period, as the system was being matured, a need was felt to make second revision of the CSCC process. Objective of second revision is improve existing CSCC system and make it user friendly.

2. **Scope:** This procedure applies to all operating and project sites of The Tata Power Company Ltd and Group companies including new businesses like EV charging, Home Automation etc.

3. **Definitions**

3.1. **Order Manager:** Order Manager is the Tata Power representative, who has the ownership of the given job.

3.2. **Site Safety Management Plan**: It is the safety plan agreed between Contractor and Tata Power. It will contain the entire job specific safety requirement and will be signed by the contractor.

3.3. **Contractor**: An individual or a company that provides services to Tata Power under a signed contract.

3.4. **Emergency:** a serious, unexpected or dangerous situation requiring immediate action, which may result in loss of revenue/property, business discontinuity. In case of Emergency*, services may be procured by selecting the qualified vendor based on the vendor category without the safety bid evaluation. It must be approved by MB level and above.

3.5. **Expert Service jobs:** Jobs which needs expert services of contractor which does not involve direct exposure to the potential risk or work which involves only supervisory work such as expert for turbine overhaul, expert for boiler overhaul, expert for pump and motor, expert for compressor overhaul.

3.6. **Head of the Division:** Business in charge of the division who is overall custodian of the generating station or transmission division or distribution division.

3.7. **Category A Vendor: Vendor** eligible to carry out Very High & High risk (as per Tata Power Hazard Identification and Risk Analysis Procedure) and /or Long-Term Contract related to operation and maintenance (O&M) of plant. Vendors must fulfil the requirement specified for Category A in Appendix 12-CSMF-5 of this document.

3.8. **Category B Vendor:** Vendors eligible to carry out technical jobs, that are classified under Medium /low risk. Vendors must fulfil the requirement specified for Category B in Appendix 12-CSMF-5 of this document.

3.9. **Category C Vendor:** Vendors eligible for to carry out low or very low risk administrative and office jobs. For this he must fulfil the requirement specified for Category C in Appendix 12-CSMF-5 of this document.

3.10. **Category D Vendor: All** Consultants, Medical Practitioners or vendors taking job from Tata Power and working from their own premises (e.g. motor rewinding at vendor's shop floor, equipment sent for repair to vendor's works etc.) are classified as Category D Vendor

3.11. **High Risk Jobs: A Job or its activities are considered as Very High or High Risk when Order manager apply the "Tata Power Hazard Identification and Risk Analysis" procedure and found safety risk associated with are under Very High or High category. Indicative lists of jobs are given in appendix 15 of this document.**

3.12. **Medium Risk Jobs: Jobs or its activities are considered as medium risk when Order manager apply "Tata Power Hazard Identification and Risk Analysis" procedure and found the same as Medium Risk.**

3.13. **Low Risk Jobs: Any job or its activities are considered as Low or Very low risk while Order manager, calculate it by applying "Tata Power Hazard Identification and Risk Analysis" procedure and found it under Low or Very Low category.**

3.14. Long Duration Jobs: When the duration of job is 12 months or more, it is considered as Long duration job

3.15. High Value Jobs: When the value of the job contract is Rs. One Crore or more it will be considered as High value job**.**

4. Responsibilities

4.1 Order Manager: Order Manager is the Tata Power representative, who is responsible for:

4.1.1 Finalizing the Site Safety Management Plan along with Contractor, Safety Concurrences Group, Divisional Safety Head and Expert (External or Internal) if required.
4.1.2 Supervise and ensure work is carried out as per the Site Safety Management Plan including agreed Risk Assessment (HIRA/JSA) and Method Statement.
4.1.3 Conduct audit and evaluate Safety Performance of contractor.
4.1.4 Ensure contractors adhere to all statutory provisions.
4.1.5 In case any deviation is needed in agreed safety management plan or in CSCC process for execution of job, Management of Change procedure will be applicable, and approval may be obtained from divisional head /Cluster head.

4.2 Contractor: The person, entity or organisation who is executing the job for Tata Power under a contractual agreement and will be responsible for the following

4.2.1 To follow all Tata Power Critical Safety Procedure, Rules and guidelines given in Safety Terms and Conditions
4.2.2 Undertake job as per Site Safety Management Plan CSM-F10 and method statements agreed with Tata Power.
4.2.3 Raise any concerns with regard to their work and its safety with the Tata Power Order Manager.
4.2.4 Report all injuries, near misses, unsafe acts/conditions, and occurrences to the Tata Power Order Manager immediately.
4.2.5 Ensure that all sub-contractors follow the Tata Power Safety Procedure and agreed Site Safety Management Plan CSM-F10.
4.2.6 To follow all statutory requirements as per the laws of the land.
4.2.7 All vendors applying for A category jobs or submitting quote for high risk jobs shall obtain certificates of ISO 9001, ISO14001 and ISO45001 before submitting quote for high risk Jobs.

4.3 Safety Concurrence Group: It is Cross Functional Team constituted by Corporate Safety Team, which will have representatives from Execution department, Divisional safety and Corporate / Divisional contracts. SCG will be responsible for the following

4.3.1 Assessment of Safety Potential of new vendor before registration as per CSM-F1-Safety Category Qualification Form.
4.3.2 Safety Evaluation of the bids as per evaluation format CSM-F-9 Safety Bid Evaluation Criteria
4.3.3 Finalization of the Site Safety Management Plan CSM-F-10 submitted by the contractor.
4.3.4 Corporate Safety Team / Cluster Safety Head will be part of SCG during Safety Bid Evaluation for following types of jobs
4.3.4.1 High-Risk jobs to be carried out in Annual Overhaul / Major Shutdowns and Outages.
4.3.4.2 Capex jobs of High-Risk Category

5.1 Vendor Registration

For Vendor Registration, Corporate Contract will issue following documents for evaluation of contractor's safety capability

1) CSM-F1 –Safety Category Qualification Form
2) Safety Terms and Conditions

The document Safety Terms and Conditions provides the information about Tata Power safety System to the contractor. Contractor will submit the CSM-F1- Safety Category Qualification Form with all relevant details and documents to Vendor Registration Initiator, which will in turn forward it to Safety Concurrence Group (SCG) for evaluation. The SCG will evaluate the details submitted by the contractor based on a predetermined criteria CSM-F-5 Safety Potential Evaluation Criteria for Vendor Registration and will determine the category (Category A/B/C/D) for which the contractor will be registered. As mentioned in the above criteria, a site visit may also be organized by SCG prior to registration under Category A and B. In case, the contractor does not qualify the safety criteria, the contractor will not be registered. However, he may apply afresh for registration after 6 months. Please refer Appendix 1: Process Flow Chart for Vendor Registration.

5.2 Bid evaluation

At the time of placing the Purchase Requisition (PR), Order Manager is required to declare the risk involved in the of the job (i.e. High Risk / Medium Risk / Low Risk jobs, based on the RPN in HIRA. If the Job is "High Risk" or "Long Duration", then RFQ will be attached with following documents:

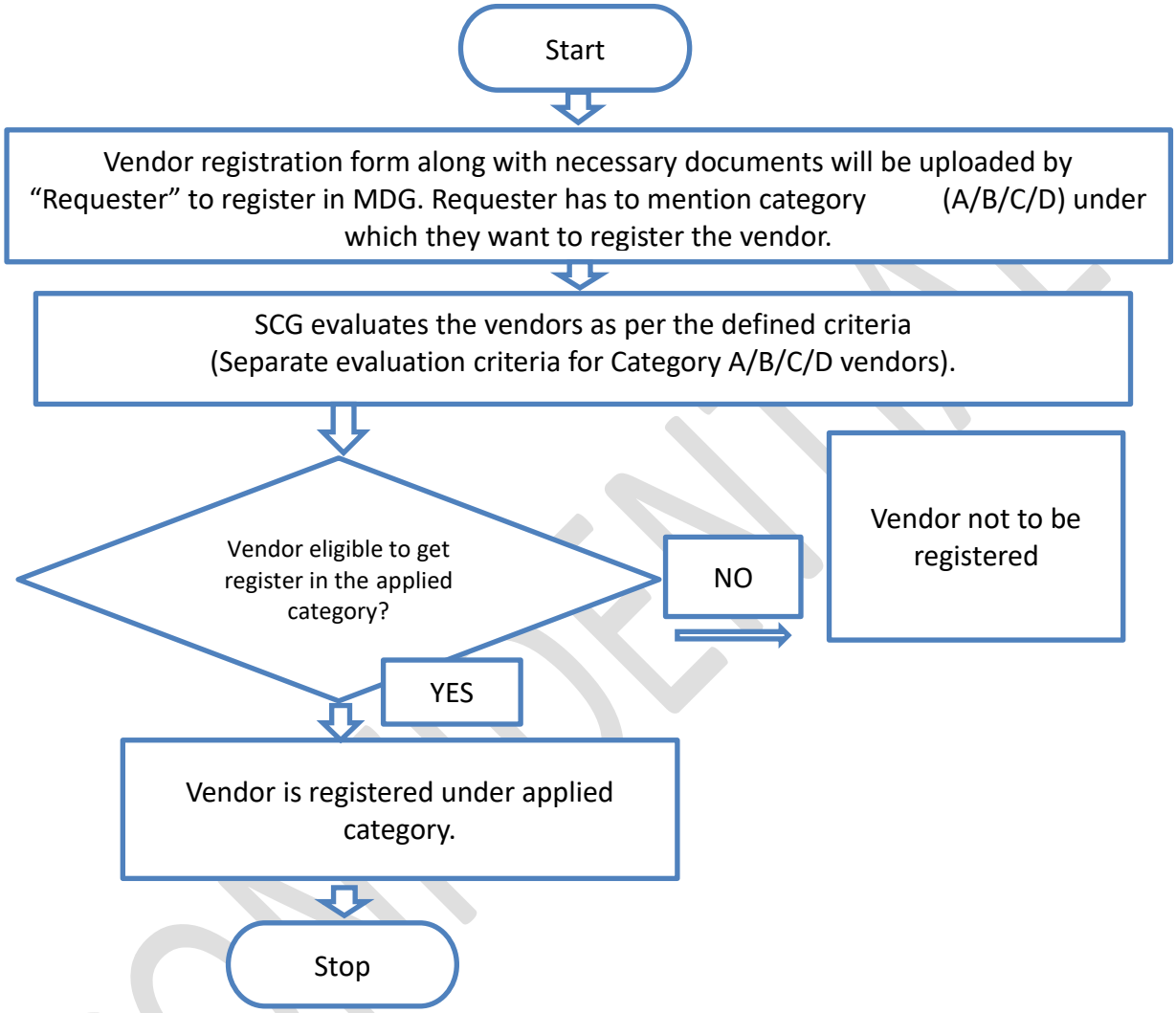
1) CSM-F7- Blank Safety Competency Form
2) CSM-F8 PPE requirements
3) Safety Terms and Conditions
4) Job Specific Safety Requirement (Educational and Professional Qualification, Skill & Experience Manpower, Tools and Tackles (e.g. man lifter, use of drone, use & availability of rescue kit), Work Methodology etc.)

Otherwise the RFQ will be attached only with Safety Terms and Conditions. Long term and low value jobs (see definition) are exempted from the CSCC process.
Corporate Contracts will collect duly filledCSM-F7 Safety Competency Form along with the bid. All other stakeholders will also put their efforts to get all relevant safety data during meeting / discussions with the vendor. SCG will evaluate the document as per the CSM-F9 Safety bid evaluation criteria. If any specific condition related to Contract is required to convey to contractor, Site safety team will attach the same as Annexure for specific conditions of job and submit it to contract team along with safety bid evaluation form. Commercial bid of contractor will be considered for evaluation by contract team only if contractor is qualified in safety bid. Site Safety Management Plan, defining the complete procedure of executing the job at site will be signed by the contractor and SCG after mutual agreement. CC will attach a copy of site safety Management Plan and any specific condition of contract along with PO to the successful bidder. Please refer Appendix 6: Process Flow Chart for issuing RFQ and PO significant health and safety risk associated with it.

5.3 Safety Performance Evaluation

During the time of job execution, regular site inspection will be carried out by the Tata Power officials and violations will be dealt as per CSM–F4 Safety Violation Penalty Criteria. Apart from this, monthly safety performance of the contractor will be evaluated based on the predetermined criteria as per CSM-F11 safety Performance Score and monthly score will be maintained by the Order Manager. Certain percentage of each running bill will be retained as Safety Retention amount and will be released on the basis of Safety Performance Score at certain intervals as defined in CSM- F-3- Safety Performance Evaluation Criteria. Please refer Appendix 10: Process Flow Chart for Safety Performance Evaluation. Percentage of retention amount is mentioned in safety terms and conditions.

Appendix 1: Process Flow Chart for Vendor Registration



Appendix 2: CSM-F-1 Safety Category Qualification form

1. "**Safety Category Qualification Form**" is part of vendor registration form. It needs to be filled by the contractor at the time of Registration and should submitted to Requester / order manager with all relevant documents.
2. The same will be evaluated by Safety Concurrence Group of the Division (SCG) as per the criteria given in CSM-F-5.
3. Information provided by contractor will be verified during site visit.

Safety Category Qualification Form

Please consider my application for

Category A Vendor: Vendor eligible to carry out Very High- and High-risk O&M jobs
Category B Vendor: Vendors eligible to carry out technical jobs, classified as Medium / low ris
Category C Vendor: Vendors eligible for to carry out low or very low risk administrative and office job
Category D vendor: All Consultants, Medical Practitioners or vendors taking job from Tata Power and working from their own premises.

<table>
<tr><td colspan="4">Name of the Vendor:</td></tr>
<tr><td>Sr. No</td><td>Safety Information</td><td>Remarks</td><td>Attachment</td></tr>
<tr><td>1</td><td>Certified for
i. OHSAS 18001/ ISO 45001,
ii. ISO: 14001
iii. ISO: 9001
(ISO certificates to be issued from reputed accreditation agencies specified by Tata Power)</td><td>i. Y/ N
ii. Y/ N
iii. Y/ N</td><td>Attach copy of the certification</td></tr>
<tr><td>2</td><td>Safety Statistics for Last Three (3) Years
- LTIFR
- LTISR</td><td>Yes/No</td><td><table><tr><td></td><td>Year 1 (Last FY)</td><td>Year 2</td><td>Year 3</td></tr><tr><td>LTIFR</td><td></td><td></td><td></td></tr><tr><td>LTISR</td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>3</td><td>Do you have Safety Policy?</td><td>Yes/No</td><td>Attach copy of the safety policy.</td></tr>
<tr><td>4</td><td>Do you have Safety training process?</td><td>Yes/No</td><td>Attach safety training process.</td></tr>
<tr><td>5</td><td>Do you have Safety organization structure e.g. Safety Officers and Safety Committees?</td><td>Yes/No</td><td>Attach copy of the safety organization structure.</td></tr>
<tr><td>6</td><td>Name and address of sites where work is in progress or worked earlier</td><td>Yes/No</td><td>Site details to be attached for inspection by Officials.</td></tr>
</table>

Signature :
Name and Designation :
Stamp of Organization :

Appendix 3: Safety Terms and Conditions

Please refer the attached document Safety Terms and Conditions.

Appendix 4: CSM- F-3- Safety Performance Evaluation Criteria

1. A certain percentage of the bill value will be retained against every running bill as safety performance retention. The amount will be released with the last invoice or every six-month based on Safety Performance Score of contractors. The retention amount will be calculated based on contract value as below.

Contract Value	Retention Amount (%)
Up to 10 Lakhs	2.5
10 – 50 lakhs	2
0.5 to 10 Cr	1.5
>10 Cr	1

2. The evaluation criteria include Lead Indicators such as CFSA (Contractor Field safety Audit) score, percentage of workers trained in TPSDI, inspection of critical equipment. Lag indicators such as Fatalities, LWDC and man days lost.
3. The retention amount saved will go to a separate Safety Improvement Fund.
4. For the contract value of more than Rs 1 Cr or contract duration more than 12 months, the retention amount shall be released half yearly based on safety performance. For all remaining contracts, the retention amount will be released with the final bill.
5. Long term jobs with low value (Less than Rs. 1 Cr.) are exempted from the safety retention. Invoice of these type of jobs can be cleared without safety retention.
6. In case of job stoppage due to safety violations / unsafe observations at the site, no time extension shall be given to the contractor, if such delays are attributable to contractor.
7. In case of fatality, limb loss or loss of property, vendor must pay for liability, legal, statutory and additional mutually agreed settlement charges imposed by the appointed committee. This charge is over and above the retention amount.
8. The committee will finalize an amount between 5 -50 lakhs based on factors such as advise by statutory authorities, contract value and impact of accident etc.
9. Safety performance bonus 1% (limiting to 50 lakhs) of the invoice value will be considered at the end of the job if the contractual safety performance score 100%.
10. During the progress of the work, concerned Supervisor/Engineer will visit and inspect the work site regularly and evaluate the safety performance of the contractor based on matrix attached herewith and apply the Consequence management policy as applicable.
11. Order Manager, divisional chief and SBU head have the authority to terminate the contract in case of three consecutive serious violations.

Safety Performance Evaluation report- CSM-F-3

	Lead Indicators	**Unit Of measurement**	**Target**	**weight age**
1	% of Employee certified in TPSDI/Authorized agency	%	50%	10
2	CFSA score (Annexure 6.1)	Average Severity of Violations	1.49	20
3	Monthly inspection completed by contractor for Critical Equipment, lifting Tools & Tackles and hand tools used at site as per Tata Power Checklist	%	80	5
4	Revalidation of Condition of tools, tackles and equipment by Order Manger.	%	100	15
	Lag Indicators			
1	Number of Fatalities	No.	0	30
2	Number of Lost workday case (LWDC)	No.	0	10
3	Man-days Lost	No.	0	10

Appendix 5: CSM- F-4 Safety Violation Penalty Criteria

Penalty shall be imposed on the contractors under the following circumstances for breaching the contractual agreements:

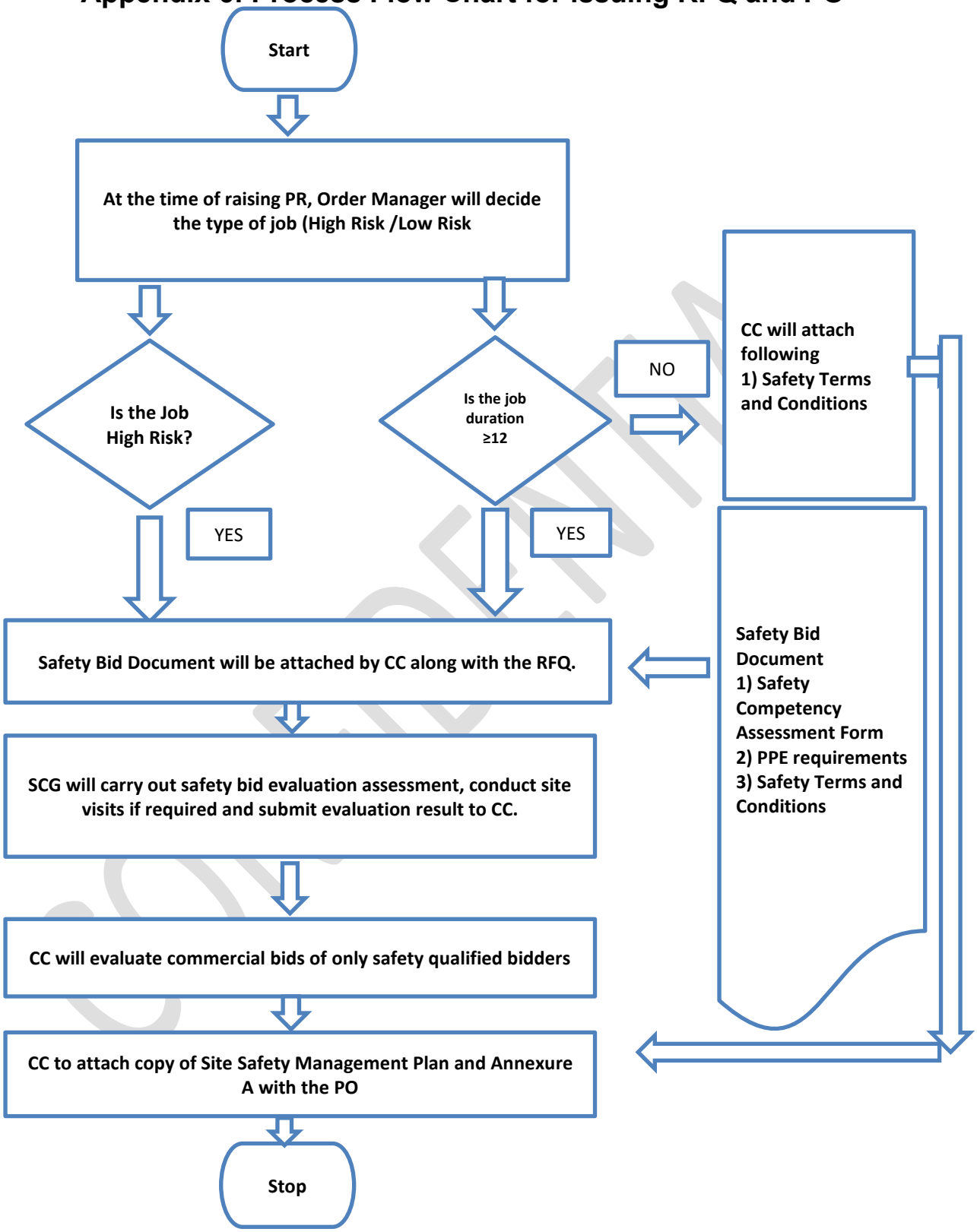
S No	Description of violation	Severit	Penalty
1.	Working without Permit	5	5000/-
2.	Untrained (TPSDI) worker on high-risk jobs.	5	5000/-
3.	Unhygienic/Bad condition of PPE	2	250/-
4.	Not following Tata Power Procedure & Standard	4	2000/-
5.	Unsafe Act/Condition of Severity 4	4	2000/-
6.	Unsafe Act/Condition of Severity 5	5	5000/-
7.	No Earthling of Electrical equipment	5	5000/-
8.	Damaged welding cable	5	5000/
9.	Violation of Positive Isolation Procedure (LOTO Not followed)	5	5000/
10.	ELCB of more than 30 mA/ELCB not working	5	5000/
11.	On/Off switch of welding m/c not working	5	5000/
12.	Electric cable tied with metal wire	5	5000/
13.	Leakage found DA hose / cylinder	5	5000/
14.	Use of LPG	5	5000/
15.	Use of IC engine based Three-wheeler at the work site.	5	5000/
16.	Starting the job without Toolbox Talk	5	5000/
17.	Spatter falling on DA hose / Gas-line/ pathways / Equipment	5	5000/
18.	No safety latch in crane hook	5	5000/
19.	Load raised or swung over people or occupied areas of buildings	5	5000/
20.	Persons standing in swing area of construction equipment.	5	5000/
21.	Using damaged slings.	5	5000/
22.	Unstable scaffolding/nonstandard Scaffolding in use	5	5000/
23.	Handrails and mid-rails are missing	5	5000/
24.	Safety Harness not anchored with lifeline/fixed structure	5	5000/
25.	Fall arrestor not provided/ Not being used.	5	5000/
26.	Double lifeline not used for working at height	5	5000/
27.	No rubber mat in Electrical Distribution (DB) room	4	2000/-
28.	Water found accumulated in Electrical Distribution room/near welding machine.	4	2000/
29.	Inserting electric cables into socket, without using plug.	4	2000/
30.	Use of damaged electrical cable/two core cables.	4	2000/
31.	Inflammable material found in Distribution Room / welding areas.	4	2000/
32.	Loose material falling into excavated pit	4	2000/
33.	Water logging into excavated pit /trenches	4	2000/
34.	No / inadequate Barricade	4	2000/
35.	Undercut / cave-in found on sides of excavated pits	4	2000/

36.	Grinding wheel/ Coupling/ Piling winch/other rotating parts without guard	4	2000/
37.	The HMV/Mobile Crane operator does not have a valid HMV driving license.	4	2000/
38.	The loading area is not leveled properly.	4	2000/
39.	Ladder not anchored at top	4	2000/
40.	Opening found in working platform of scaffolding/floor	4	2000/
41.	Inadequate illumination at the working area	4	2000/
42.	Loose material lying on Gantry, platform	4	2000/
43.	Cleaning with Compressed Air.	3	500/-
44.	Gas Cylinders using without cap.	3	500/
45.	Gas Cylinders stored without securing	3	500/
46.	Bringing inside any other chemicals, apart from approved by Safety dept.	3	500/
47.	Using drum for sitting or accessing height.	3	500/
48.	Misusing emergency facilities like fire hydrant line/ hose box/ spray system/ eye wash etc.	3	500/
49.	No provision of Safety net where falling materials or tools may occurs	3	500/
50.	Taking electrical supply from non-designated outlet (other than socket).	3	500/
51.	Restricted gangways due to unwanted materials.	3	500/
52.	Not reporting incident.	3	500/
53.	Entering into restricted area like switch yard/ hazardous storage	3	500/
54.	Work without supervision	3	500/
55.	Parking of vehicle without applying wheel choke at right front-front and left rear-rear wheels other than passenger cars.	3	500/
56.	Heavy Vehicle without helper or co-driver.	3	500/
57.	Not wearing florescent safety jacket at site.	3	500/
58.	People travelling in load body of vehicle.	3	500/
59.	Parking of vehicles at non designated area.	3	500/
60.	Shifting heavy materials without guide ropes.	3	500/
61.	Using other than 24V lamp inside the confined space/Use of other than 24V lamps.	3	500/
62.	Angular loading/ lifting with Crane or hoist.	3	500/
63.	By passing the limit switch/ Safety Interlock.	3	500/
64.	Housekeeping activities on road without proper barricade.	3	500/
65.	Trying to board or alit from running vehicle.	3	500/
66.	Cylinder Valves of Gas cylinders not closed when not in use.	3	500/
67.	Flash-back arrester not used.	3	500/
68.	Hand Trolley wheel found damaged.	3	500/

69.	Guy ropes of required length on both sides of object are not used during movement with load.	3	5/ 00/
70.	Scotch block/wedge not provided, when the vehicle is parked.	3	500/
71.	Suitable Trolley not provided to hold the cylinders.	3	500/
72.	Locked First Aid box	3	500/
73.	Caution boards, danger signs (luminescent /red) along with emergency contact number are not found displayed.	3	500/
74.	Person found jumping barricading tape	3	500/
75.	Stacking of pipes, pile casing, drums without chock blocks/wedges	3	500/
76.	The terrain on which Heavy Equipment/Machinery moves is not reasonably hard.	3	500/
77.	Without Safety Helmet at working sites	4	250/-
78.	Without Crash Helmet (on bikes)	4	500/-
79.	Without Full body double lanyard Safety Harness (for work at height)	5	5000/-
80.	Without Hand gloves - Material Handling, Welding, Cutting,	4	100/-
81.	Without Safety goggles/ face shield - Welding/Cutting /Grinding	5	5000/-
82.	Handling Chemical without PVC Apron	5	5000/-
83.	Smoking in prohibited area (Closed Go-downs, Storage of flammable material, Storage of Gas cylinders)	5	1000/-
84.	Sleeping at Workplace	3	100/-
85.	Driving beyond speed limit	3	1000/-
86.	Seat Belt While Driving (for front seat passengers and driver)	3	500/-
87.	Driving without license	4	1000/-
88.	Heavy Commercial vehicles without reverse horn	3	500/-
89.	Nonfunctional Head light/ taillight and side indicators	3	100/-
90.	Using Mobile Phone During Driving	5	5000/-
91.	Poor visibility of registration number/ without registration number	3	100/-
92.	Broken/ without Side view mirror	3	100/-
93.	Over speeding above specified limit	3	500/-
94.	Broken/ Without Pressure gauge on Oxygen/ LPG / Acetylene cylinder.	3	500/-
95.	Without Flash back arrestor on Industrial Acetylene & Oxygen cylinders.	5	5000/-
96.	Spillage of hazardous material/chemicals during transportation	4	2000/-
97.	Electrical equipment without Earthing/ ELCB/ Double Insulation Cable.	5	5000/-
98.	Lifting Tools & Tackles used without/ expired Test Certificates.	5	5000/-
99.	Housekeeping repeatedly not maintained		

100.	• First Time	3	Warning
101.	• Second Time	4	1000/-
102.	• Third Time	5	5000/-
103.	Serious Violation of House Keeping (after 1st or 2nd warning to be decided by Project Manager depending on the severity)	5	Rs.10000/- and above
104.	Repeat Violation of same nature	5	5 X Penalty for Violation
105.	Appointment of subcontractor without his Safety Bid Evaluation and/or without the permission of engineer in charge or Order manager.	5	5% of Contract Value

Appendix 6: Process Flow Chart for issuing RFQ and PO



Appendix 7: CSM-F-7 Safety Competency Form (Template)

Name of the Vendor/Bidder : -

Name of the Sub Vendor (If job is given to Sub Vendor) : -

Description of the Job : -

Request for Quotation (RFQ) No. :-

Vendor/Bidder to mandatorily provide the below safety competency related information.

1. Proposed Manpower Deployment Schedule: -

Category of Manpower Deployed	Minimum Qualification & Experience	Proposed Numbers against each category month-wise			
		Month 1	Month 2	…	Month n
Project Manager					
Site-In-Charge (Site Manager)					
Shift-in-Charge					
Safety Officers					
Supervisors					
Technicians					
a……					
b……..					
Highly Skilled Workmen					
a……					
b……..					
Skilled Workmen					
Semi-Skilled Workmen					
Unskilled Workmen					
Total Manpower					

Instructions to Bidder to fill:

1. Bidder to provide the overall site manpower deployment schedule as above.
2. Bidder to indicate (through colour code mentioned below) their direct and sub-contracted employees

Direct bidder employee
Partly Direct / Partly sub-contracted
Sub-Contracted

3. Against each of the category, bidder to indicate the minimum qualification and experience of the proposed manpower.
4. Rows can be added to also identify other specialised manpower e.g. specific details to be included for high risk activities operators
5. Columns can be extended to the actual duration of Site activities.
6. Bidder to note that if operations is in shifts, then Shift-in-charge / safety officers are required for each shift of operation.

2. List of Tools, Tackles, Machines and Equipment: -

Bidder/ Vendor to provide the list of tools, tackles, equipment **to be used during the job / project execution**. Bidder/Vendor to ensure that all the lifting tools and tackles, pressure

vessels are duly certified by the competent person authorised by the Chief Inspector of Factories of the respective state prior to start of the job

Sr. No.	Description of Tools / Tackles	Capacity / Rating	Quantity	Make	Remarks
1					
2					
3					
4					
5					
6					
7					
...					

3. Safety Records:

Bidder to provide the details of fatalities and lost workday cases (LWDC), occurred in last three years (data to be provided for the last completed FY and preceding 2 years).

Description	Safety Data for Last 3 Years		
	ar 1 (Last FY)	Year 2	Year 3
	20__ - __	20__ - __	20__ - __
Fatalities (Nos.)			
Lost Workday Cases (Nos.)			

In case of no fatalities, LWDC during any year, the form may be filled stating NIL against the respective year. Bidders are encouraged to also submit the RCA / incident investigation reports and the learning's implemented out of the above reported incidents

4. Job Safety Plan/ Method Statement:

Bidder to provide / enclose a detailed Site/Job Safety Plan along with a Method statement detailing the execution philosophy (how the bidder intends to execute the Job/Project), identifying all key activities which are required to be performed by the contractor at Site. Bidder to also list down all high-risk activities and provide the Hazard Identification and Risk Assessment (HIRA) for all such high-risk activities involved in the site work.

(Use Method Statement template attached as annexure A and sample as attachment B)

5. Management System Certification: -

Sr.	Certification	Yes / No	If Yes, ar of Certification	If No, et date for Certification
	ISO 9001			
	ISO 14001			
	OSHAS 18001 / ISO 45001			
	Any other (please specify……..)			
Note: Please attach certificates to support above. In case not accredited for above but applied for, application letters may be attached.				

Appendix 8: CSM-F-8 PPE requirements

The Contractor shall ensure that the following PPE of Approved standards shall be available at all time and shall be used by his employees with no exception whatsoever.

1	All contractor's employees at site	Safety Florescent Jacket (orange color), Safety helmet & safety shoes with Composite or steel toe cap
2	Workers mixing asphalt, cement, lime / concrete	Safety goggle & protective Hand gloves and footwear, Nose mask.
3	Welders / Grinders	Welding screen/goggles, safety shoes, leather hand gloves, aprons, leg guard
4	Stone breaker	Protective goggle, hearing protection, anti-vibration hand gloves and Protective clothing.
5	Electricians	Rubber hand gloves & Electrical resistant shoes.
6	Workers engaged in insulation using glass wool etc.	Respiratory mask & leather Hand gloves, goggles.
	Workers engaged in coal handling plant, ash handling plant and working in high dust area.	Dust mask, Hand gloves, protective goggles.
7	Workers working at a height of 1.8 Meter or above.	Double lanyard full body harness, fall arrestor and safety net made of reinforced nylon fiber ropes firmly supported with steel structures

• **PPE shall be conforming to BIS/DGMS/DIN specifications**, **in good condition and shall be comfortable to his employees, when used.**

Appendix 9: CSM- F-10 Site Safety Management Plan / Method Statement

Site Safety Plan / Method Statement (Template)

This Method Statement describes the specific safe working methods which will be used to carry out the described work. It gives details of work procedure with control measures to counter health and safety issues related to this work. The listed content of this Method Statement can be changed/modified subjected to job scope / specifications, but task specific method statement once finalized & approved, that should not be modified during work execution without permission from the approving authority.

Project/Job Name			
Scope of work: -			
Drawing References: -			
Detail of Sub contractors involved: -			
Method Statement Prepared By: - Designation: - (e.g. Site Manager)		Signature	Date

1.0 Introduction (*Describe purpose of the work, give details of type and scope of work being carried out);*

2.0 Location of Work (*Give site address and precise location on site where work is to be carried out.)*

3.0 Safety Document /Specific Approval Required (Details of any safety documents or specific approval i.e. Client specific approval required to undertake the work)

5.0 Role & Responsibilities of Personnel/Parties Involved in activities: -Clearly define role and responsibilities of all personnel involved in activity i.e. Site management staff including subcontractors' parties- Main contractor Project/Site Manager, Sub Contractor Site Manager, Project Engineer, Safety officer, Competent Supervisory Staff)

6.0 Working/Activity Description: - It *is important that all operatives should have clear idea of those operational sequences and responsible supervisor must verify their competency prior to their engagement in operation.*

6.1 Pre-Working Checks

6.2 Resources (Equipment, tools including manpower) Details *i.e. Equipment and Tools, specific operational equipment, test kits, lifting resources, Details of materials to be used in operation, including any reference to COSHH assessments in case of use of any chemicals, Details of the manpower allocated to the task, e.g. titles, qualifications, competences, direct manpower, contractors. Details of plant, tools and equipment to be used for the work, including the availability of relevant statutory documents, checks or inspections etc. Details of fencing, barriers, cones, chains, dangers notices, warning signs etc.*

Tools required for work:

Sr.No	Tools /Equipment /Machine	UOM	Required Qty.	Remark
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

6.4 Operational Sequence of work*: - Full description of the work, setting out the methodology in a sequential manner, including any reference to any identified operational restraints. Also refer here sec. 5.0 responsibilities part for every step of work sequence).*

Sr.No	Activity	Details of job sequence	Risk Involved	Control Checks

1.				
2.				
3				
4				
5.				

6.7 Final Checks & restoration of work area after completion of work :- *Those checks to be carried out by responsible supervisor in witness of his line hierarchy by use of specific checklist of certain operational checks and once those completed satisfactory, PTW (if applicable) to be closed and isolation arrangements to be restored by removing barricades/cautionary tags.*

7.0 Task Specific Hazards: - *Refer to Task Specific Risk Assessment and attach in appendix*

Attachment: - Specific Risk Assessment

In addition, please provide below control measures in risk assessment *(as applicable).*

Fall Protection Measures: (Where Work at height cannot be avoided)							
Control Measures for Electrical Hazards							
Others Hazard if any (please provide details)							
Hazardous Substances to be used in job : (Attach MSDS if required)	 Acute Toxic	 Health Hazard	 Corrosive	 Dangerous For the environment	 Oxidising	 Highly flammable	 Explosives
	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No

7.0 Emergency Provisions: -*Relevant operational possibility of a programme in the case of emergency situation i.e. electrical supply restoration. In addition emergency response provisions i.e. first aiders, fire fighting, and first aid arrangements, nearest onsite/offsite emergency response also to be considered during emergency planning.*

8.0 "5S issues" / Waste Disposal/ Housekeeping and Environmental issues: -*Details waste disposal processes and or housekeeping activities, Details of environmental impacts and control measures.*

9.0 Personal Protective Equipment (PPE):- (*Tick on PPE requirements for the task/Job*

Required Personnel Protective Equipment:	 Safety Boots	 Hard Hats	 Safety Gloves	 Hearing Protection	 Eye Protection	 Respiratory Protection	Other: 1. Hi-Viz 2. Coveralls 3.

10.0 First Aid facilities and Nearby Hospitals Details

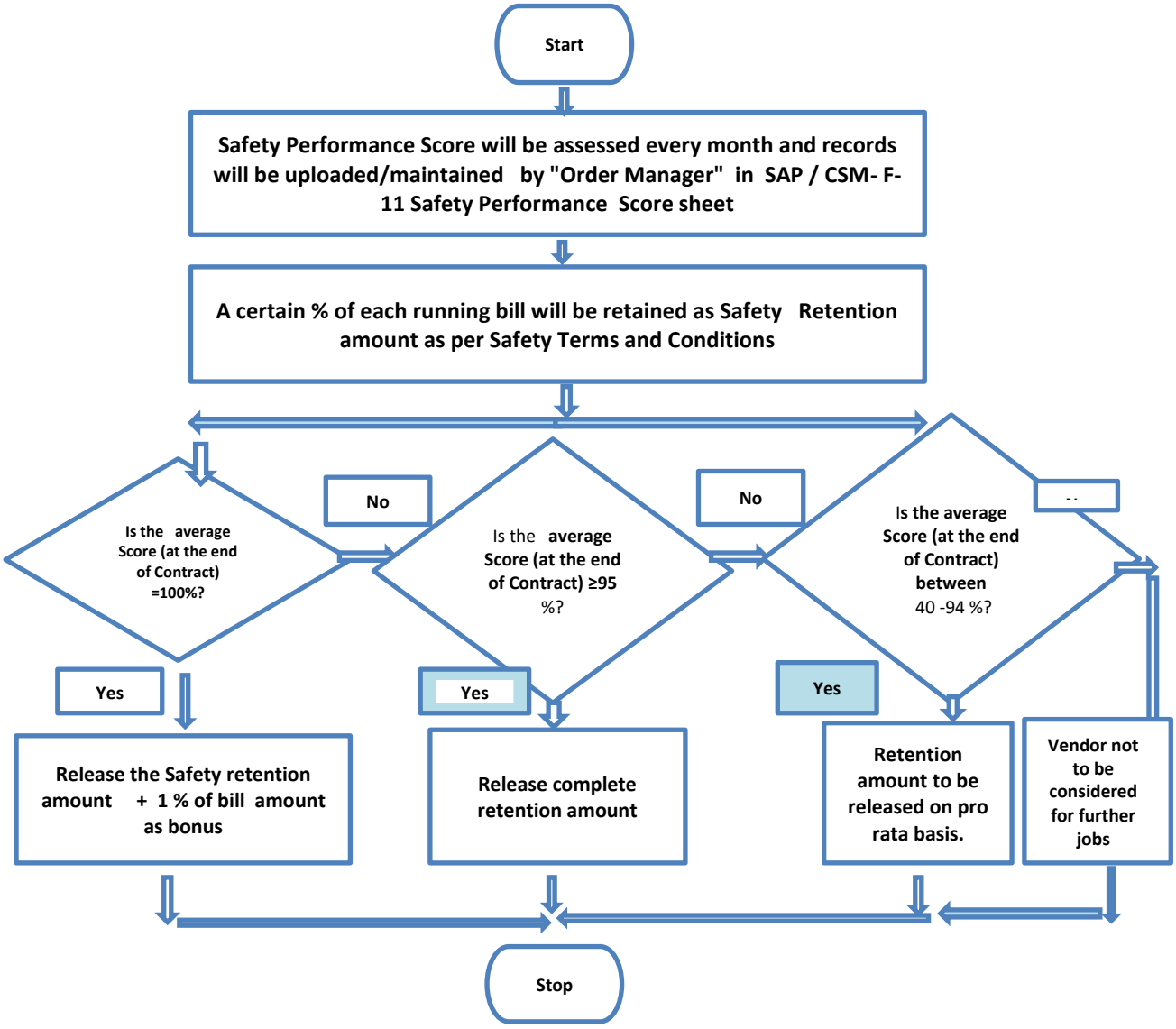
	First Aid Facilities:	Name of On-Site First Aider:	
		First Aid Box Location:	
		Location of Nearest Hospital:	

11.0 Occupational Health, Fitness and COVID-19 related Preparedness:

1. Please give a brief writeup / methodology of your organization planned to avoid impact of the COVID-19 pandemic at Tata Power working site.

2. Please give brief details of occupational health and hygiene related interventions planned by your organisation to ensure good health and fitness of workforce at Tata Power site.

Appendix 10: Process Flow Chart for Safety Performance Evaluation



Appendix 11: CSM- F-11 Safety Performance Score

S. No	Parameter	Unit of Measurement	Target	Weightage	Actual Performance	Actual Score
Lead Indicator						
1	% of Employee certified in TPSDI/Authorized agency	Number	50%	10		
2	CFSA score (Annexure 6.1)	Average Severity of Violations	1.49	20		
3	Monthly inspection completed for Critical Equipment, lifting Tools & Tackles and hand tools used at site	Number	80%	10		
4	Condition of critical tools, tackles and equipment	Number	100%	10		
Lag Indicator						
1	Number of Fatalities	No	0	30		
2	Number of Lost workday case (LWDC) (reportable)	No	0	10		
3	Man-days Lost	Man-days	0	10		
					Final Score	
					Invoice Value	
					Amount to be released	

Safety Performance Evaluation Criteria

Lead Indicators

	Target			
% of Employee certified in TPSDI/Authorized agency	50%	100%	Less than 100%	
Score		10	5	
	Target			
CFSA score	<=1.49	1.5 to 2.5	2.51 to 3.5	>=3.51
Score	20	15	10	0
	Target			
Monthly inspection completed for Critical Equipment, lifting Tools & Tackles and hand tools used at site	>=80%	79 to 50%	<50%	
Score	10	7	0	
	Target			
Condition of critical tools, tackles and equipment	100%	<100%		
Score	10	0		

Lag Indicators

Number of Fatalities	0	>0	
Score	30	0	
Number of LWDC (reportable)	0	>0	
Score	10	0	
Number of man days lost	0	1 to 5	>5
Score	10	5	0

Appendix 12: CSM-F-5 Safety Potential Evaluation Criteria for Vendor Registration

At the time of vendor registration, vendor will be registered under 3 categories

1) **Category A**- Vendors eligible to carry out High risk Jobs
2) **Category B**- Vendors eligible to carry out technical jobs that are low risk
3) **Category C**- Vendors eligible to carry out administrative and office jobs
4) **Category D**- Outsourced Jobs / Consultants /Medical Practitioners / Suppliers etc

For vendors to be registered under **Category A**, a safety potential evaluation will be carried out based on following parameters.

Sr. No	Description	Weightage (%)	Actual Score	Remarks
1	Does the contractor have a valid ISO 45001/ OHSAS 18001/ Certification?	30		
2	During site visit check for safety adequacy at site	30		Annexure - 12.1
3	Check the Safety statistics of Contractor	10		Annexure - 12.2
4	Check the Safety orientation & training process of Contractor	15		Annexure 12.3
5	Check the organizational structure for safety professionals & engineers / supervisors.	10		Annexure - 12.4
6	Certified/skilled workers as a percentage of overall workforce	5		
	Total	100		

Evaluation Criteria for Category B

Sr. No	Description	Weightage (%)	Actual Score	Remarks
1	Does the contractor have a valid ISO 9001 certification?	30		
2	During site visit check for safety adequacy at site	30		Annexure -12.1
3	Check the Safety statistics of Contractor	10		Annexure -12.2
4	Check the Safety orientation & training process of Contractor	15		Annexure -12.3

5	Check the organizational structure for safety professionals & engineers / supervisors.	10		Annexure -12.4
6	Certified/skilled workers as a percentage of overall workforce	5		
	Total	100		

Evaluation Criteria for Category C

Sr. No	Description	Weightage (%)	Actual Score	Remarks
1	Does the contractor have a valid ISO 9001 certification?	40		
2	Check the Safety statistics of Contractor	40		Annexure - 12.2
3	Check the Safety orientation & training process of Contractor	20		Annexure - 12.3
	Total	100		

Annexure 12.1: Evaluation Criteria for Category D:

Category D does not require any evaluation as it is for outsourced job outside the Tata Power company premise.

Annexure 12.2

Check List – Adequacy of Safety Statistics of Service Provider			Actual Marks obtained	Remarks
1	Check the safety statistics for last 3 years (LTIFR and LTISR)	Marks Statistics available: 5 Statistics not available: 0		
2	Check the trend LTIFR for last 3 years	LTIFR value / Marks 0 to 0.2: 5 0.21 to 0.3: 2.5 >0.3: 0		
3	Check the trend of LTISR last 3 years	LTISR value / Marks 0 to 2: 5 2 to 3: 2.5 >3: 0		
4	Has there been any Prosecution/Conviction for any contravention with regard to Safety & Health provisions under the Factories Act /Electricity Act/ BOCW Act and Rules framed there under?	Marks No Prosecution: 10 Prosecution: 0 To be provided in written on letter head		
	Total	**25**		

Annexure 12.3

Check List – Adequacy of Safety orientation & training process of Service provider			Actual Marks obtained
1	Records of safety trainings provided to safety officer/supervisor/workmen during last 1 year as percentage(%) of total employed by service provider	**Safety Officer** / Marks ≥80% of employees / 5 50 to 79 % of employee / 2.5 <50% / 0	
		Safety Supervisor / Marks ≥80% of employees / 10 50 to 79 % of employee / 6 <50% / 0	
		Workmen / Marks ≥80% of employees / 10 50 to 79 % of employee / 6 <50% / 0	
	Total	25	

Annexure 12.4

Check List – Adequacy of organizational structure for safety professionals & engineers / supervisors.			Actual Marks obtained
1	Check availability of number of safety officers from government recognized institute as per workforce strength.	Marks 1 in 50 employees / 10 1 in 100 employee / 6 Any other / 0	
3	Check availability of qualified workforce from government recognized institute/TPSDI.	Marks 100% of safety officers qualified / 5 50 – 99% of safety officers qualified / 3 <50 / 0	
	Total	15	

Appendix 13: CSM-F-9 Safety Bid Evaluation Criteria

The User has to select whether the job is high risk/ long duration at time of raising the PR.

1) The decision whether job is "**high risk** "or not has to be made by order manager on the basis of Risk involved (Risk Priority Number in HIRA) of the Jobs. An indicative list of high-risk jobs is attached as annexure
2) If a technical job is of low risk with estimated duration of the contract is 1 year or more the job should be treated as "**long duration**".
3) All Safety bids will be evaluated by Safety Concurrence Group. Structure of SCG will be declared by Corporate safety. Corporate safety team will audit bid evaluation process of a few selected jobs and Quality of evaluated safety Bids.
4) Records of jobs sent by for Safety Bid evaluation shall be maintained by Corporate Contract team in existing tracing sheet along with other jobs.
5) For Safety Bid Evaluation will be based on following parameters.

		Minimum Requirement	**Weightage (%)**	**Score Obtained**
Manpower	**Safety Officer (1 per 500 workers)**	**Qualification-** Officer shall possess Advance Diploma In Industrial Safety by state technical board. **Experience**- Minimum 1-year experience in relevant field as mentioned in the job in PR.	5	
	Safety Supervisor (1 per work site up to max. 50 workers)	**Qualification-** Supervisor shall possess ITI/ Diploma in relevant field. **Experience**- Minimum 2-year experience in relevant field as mentioned in the job in PR. **Training** – Trained and certified by TPSDI or equivalent institute in relevant safety procedures. **Note:** On request of the contractor/Users -TPDSI should vet & certify the skilled & experienced Technician if Technical Qualification is not adequate.	5	
	Technician (Skilled workers as electrician, rigger, fitter, welder, cable jointer, line men etc)	**Experience**- Minimum 2 year experience in relevant field as mentioned in the job in PR. **Training** – Trained and certified by TPSDI or equivalent institute in relevant safety procedures.	5	

Tools & Tackles	Equipment / Machines/ Tools & Tackles(lifting and shifting tools)	The list of Equipment /Machines / Tools and tackles to be used for job to be submitted by the contractor. Evaluation of the list will be carried out based on 1) Suitability as per the relevant job 2) Make and age of the tools from authorized agencies defined by the user. 3) Certification by the competent authority of respective state.	30	
Safety Records	Safety Records	Safety Records for last 3 years (as per vendor or as per our knowledge) – Recommendation?	15	
Safety Plan	HIRA/Contract Job Safety Plan	Adequacy of HIRA and Job Safety Plan with respect to relevant job. More weight age will be given to vendor for using mechanized work and advanced tools and equipment	20	
Accredited Bodies certificate	ISO-9001	ISO-9001	2	
	ISO-14001	ISO-14001	3	
	OHSAS 18001 ISO 45000	OHSAS 18001/ISO 45000	15	
		Total Score		

6) Vendor entitled to carry out the job only when qualified for the safety evaluation as follows:
   Contractor is qualified in safety bid only if his total score is more than 70% in all category 1 jobs such as high risk/long duration.
7) The Corporate Contract has to ensure that the vendor provides the filled “Safety Competency Form” along with the quotation.
8) Corporate Contract will forward the Safety Competency Form received from the contractor to the Safety Concurrence Group for evaluation.
9) In case SCG wants to visit the site, the Safety Competency will be based on evaluation at the time of site visit Annexure 13.1

Annexure -13.1:

Checklist to be used: During site visit to check the adequacy Safety systems.			
		Observation	Score* (1-5)
1	Check the adequacy of safety policy and Safety Management system of the contractor.		
2	Does the contractor have written down safety procedures?		

3	Check the records of Near miss, unsafe act, unsafe conditions and incidents.		
4	Check the organization setup to implement the safety systems at site (safety officer, safety supervisor)		
5	Check whether safety meeting and toolbox talk carried out regularly and records maintained or not.		
6	Is the process of incident investigation adequate or not?		
7	Verify incident reporting and recording system		
8	Check the usage of equipment/tools and tackles.		
9	Check for housekeeping at site		
10	Check the use of PPEs and general behavior of workforce towards safety		
	Total Score		
	Site Visit Score		

Score*- rating on the scale of 1-5 to be given based on the observations on site. Score of 1 is the lowest and core of 5 is the highest.

Appendix 14: CSM-F-11.1 CFSA Format

CONTRACTOR FIELD SAFETY AUDIT						
Project Name :						
Date:						
Description of Severity rating:			**Audit Team:**			
	1 = Untidy area, minor issues, sets poor example					
	2 = Restricted access, unacceptable trash, disorderly					
	3 = Rule or procedure violation, potential injury					
	4 = Unsafe condition, serious injury potential					
	5 = Immediate serious injury potential, stop activity immediately and correct		**Audit Time:**			10:00hrs -11:30 hrs
			Weather:			cloudy
	Description	**Responsible**	**Number Personnel Observed**	**Violations**	**Remarks**	Leading Indicators

		Engineer	Contractors	Good Citizens	Violators	Number of Violations	Severity	Violations x Severity		4 & 5	PPE	Unsafe Act	Unsafe Condition
Area													
1													
	Sub Totals			**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**
	% of Observed People Working Safely												
	Number of Violations												
	Average Severity of Violations												
	Number of Severity 4 & 5 Violations												
	% of 4 & 5 Violations												
	Approximate Number of Workers Observed												
	Number of People on Site												
	% of Workers Observed												

Appendix 15: Indicative List of High-Risk Jobs

To access the exhaustive list of High-risk jobs, please refer the following documents

1) High Risk Jobs- Generation
2) High Risk Jobs- T&D
3) High Risk Jobs- Renewable

Indicative List of High-Risk Jobs -Generation Cluster						
Sl. No.	**Jobs**					
1	Demolition / Painting of Chimney					
2	Survey Sounding Jobs in Sea					
3	Dredging at Coal Birth Jetty					
4	Maintenance / Testing and Replacement of Extra High Voltage (132 KV etc.) Switchyard equipment					
5	Maintenance of EOT Cranes					
6	Deep excavation (5 feet or more) near existing buildings /Structure s					
7	Working inside confined spaces (entry through manhole)					
8	Operation Maintenance of elevators					
9	Working on Live control Circuits for identification of faults					
10	Cable laying and termination Jobs					

Indicative List of High-Risk Jobs - T&D Cluster						
Sl. No.	**Jobs**					
1	Transmission Line Tower Erection on columns, near live lines, In congested areas, In creeks, In the Sea					
2	Conductor Stringing on Tower Using Tensioner & Puller in the area such as Line Crossing, Near Live lines, Congested Areas, Road Crossing, Bridge Crossing, Railway line Crossing, In creeks ,In the Sea					
3	Cable Pulling by Using winch Machine in City and Rural Areas					
4	Hot Washing of HT and Extra HT lines, Towers and switchyards equipment					
5	Installation of Lifts					
6	Installation of EOT Cranes					
7	Tower Dismantling					
8	Working on H Frame /Pole mounted Transformers					
9	Excavation in operational Area heaving power cables in receiving station					
10	Identification and spiking of cable / disconnection of cables from poles					

Indicative List of High-Risk Jobs - Renewable Cluster					
Sl. No.	**Jobs**				
1	Working on Electrical Panels				
2	Hi Potting of Equipment				
3	Battery commissioning and maintenance				
4	Working on the nasal of Wind Turbine				
5	Working on live electrical switchyard, material Handling and Equipment installation				
6	Roof Top Solar Panels Installation and maintenance				
7	Working in live Electrical Switchyard, Material Handling, equipment installation				
8	All maintenance activities that requires climbing on Towers /Structures / Transformer/ GODs				
9	Loading and Unloading of Solar Panels on trucks				
10	Structural Repair /Dismantling work at height.				

ANNEXURE X
TATA CODE OF CONDUCT

The Owner abides by the Tata Code of Conduct in all its dealing with stake holders and the same shall be binding on the Owner and the Contractor for dealings under this Order/ Contract. A copy of the Tata Code of Conduct is available a tour website:

https://www.tatapower.com/pdf/aboutus/Tata-Code-of-Conduct.pdf

The Contractor is requested to bring any concerns regarding this to the notice of our Chief Procurement & Stores e-mail ID: pkjain@tatapower.com.

ANNEXURE XI
ENVIRONMENT & SUSTAINABILITY POLICY

CORPORATE ENVIRONMENT POLICY

Tata Power is committed to a clean, safe and healthy environment, and we shall operate our facilities in an environmentally sensitive and responsible manner. Our commitment to environmental protection and stewardship will be achieved by:

- Complying with the requirements and spirit of applicable environmental laws and striving to exceed required levels of compliance wherever feasible
- Ensuring that our employees are trained to acquire the necessary skills to meet environmental standards
- Conserving natural resources by improving efficiency and reducing wastage
- Making business decisions that aim towards sustainable development
- Engaging with stakeholders to create awareness on sustainability

(Praveer Sinha)
CEO & Managing Director

Date: 15th June, 2018

TATA POWER
Lighting up Lives!

CORPORATE SUSTAINABILITY POLICY

At Tata Power, our Sustainability Policy integrates economic progress, social responsibility and environmental concerns with the objective of improving quality of life. We believe in integrating our business values and operations to meet the expectations of our customers, employees, partners, investors, communities and public at large

- We will uphold the values of honesty, partnership and fairness in our relationship with stakeholders
- We shall provide and maintain a clean, healthy and safe working environment for employees, customers, partners and the community
- We will strive to consistently enhance our value proposition to the customers and adhere to our promised standards of service delivery
- We will respect the universal declaration of human rights, International Labour Organization's fundamental conventions on core labour standards and operate as an equal opportunities employer
- We shall encourage and support our partners to adopt responsible business policies, Business Ethics and our Code of Conduct Standards
- We will continue to serve our communities:
  - By implementing sustainable Community Development Programmes including through public/private partnerships in and around our area of operations
  - By constantly protecting ecology, maintaining and renewing bio-diversity and wherever necessary conserving and protecting wild life, particularly endangered species
  - By encouraging our employees to serve communities by volunteering and by sharing their skills and expertise
  - By striving to deploy sustainable technologies and processes in all our operations and use scarce natural resources efficiently in our facilities
  - We will also help communities that are affected by natural calamities or untoward incidence, or that are physically challenged in line with the Tata Group's efforts

The management will commit all the necessary resources required to meet the goals of Corporate Sustainability.

(Praveer Sinha)
CEO & Managing Director

Date: 15th June, 2018

TATA POWER
Lighting up Lives!

TECHINICAL SPECIFICATION FOR 0.1 ACCURACY CLASS ERS TESTING KITS

1.0 SCOPE :

This specification covers Design, Manufacture, Testing, Supply and Delivery of Portable Three Phase Calibrators of accuracy class 0.1 on Direct Mode and accuracy class 0.2 with Clamp on CT of 300 A with necessary cables and accessories suitable for calibration of Electronic and Electro Mechanical Energy Meters at site as well as in the laboratory.

2.0 APPLICATION :

The function of the Portable Three Phase Calibrators shall be suitable to measure the system parameters and verify the accuracy of Three Phase and Single Phase Electronic and Electro Mechanical Energy Meters without disconnecting consumer supply at site and in the laboratory. The equipment shall be capable of calibrating 3 phase, 3 wire & 4 wire (2 Element & 3 Element) Active, Reactive & Apparent energy meters.

3.0 SYSTEM TECHNICAL DATA :

The Portable Three Phase Calibrators shall have facility to power up from auxiliary power supply having Voltage range of 85 V to 265 V (phase to neutral), and frequency range of 47 to 63 Hz.

4.0 SERVICE (CLIMATIC) CONDITIONS :

Sl. No.	Location	In the state
i.	Max. ambient air temperature (Deg. C)	50
ii.	Min. ambient air temperature (Deg. C)	7.5
iii.	Average daily ambient air temperature (Deg. C)	35
iv.	Max. Relative Humidity (%)	74
v.	Max. altitude above mean sea level (m)	1000
vi.	Average Annual rainfall (mm)	925
vii.	Max. wind pressure (kg./sq.m)	200
viii.	Isoceraunic level (days per year)	50
ix.	Seismic level (Horizontal acceleration)	0.3 g.
x.	Average No. of thunderstorms days/years	40
xi.	Average number of rainy days/years	90
xii.	Average number of months/tropical monsoon condition per year	3
xiii.	Noise level	45 dB

5.0 STANDARDS APPLICABLE :

Unless otherwise Specified elsewhere, the Portable Three Phase Calibrators shall conform to relevant clause of the following standards in all respects including performance and testing thereof to the following Indian/ international Standards to be read with upto-date and latest amendments / revision thereof. In case certain details are not covered in these specifications other suitable Indian/ International Standard shall be applicable.

IS 15707: Testing, evolution, installation and maintenance of AC Electricity Meters-Code of Practice

IS 12346: Testing equipment for AC Electrical Energy Meters

IEC 60736: Testing equipment for Electrical Energy Meters.

6.0 GENERAL REQUIREMENTS :

a) All the materials, electronic and power components and ICs used in the manufacture of the Portable Three Phase Calibrators shall be of highest quality and reputed make to ensure

higher reliability, longer life and sustained accuracy.

b) The electronic components shall be mounted on the PCB using latest Surface Mount Technology (SMT).

c) The Portable Three Phase Calibrators shall be of rugged construction, lightweight, compact and handy. It shall have ergonomic design.

d) The Portable three phase calibrator shall have inbuilt voltage measurement and current measurement circuit for direct mode up to 12 A in-built in the equipment. External type measurement circuit/transducer will not be acceptable for field testing purpose.

e) The Portable three phase calibrator shall have six nos. (i.e. R/Y/B – In and R/Y/B – Out) separate terminals for current measurement up to 12 A and four nos. for Voltage measurement up to 300 V AC. The banana type terminals shall have of minimum dia. 4 mm having safety socket of CAT-III 600 V. Single connector on equipment won't be acceptable for direct current measurement.

f) A set of voltage & current leads with suitable connectors which enable the testing without isolating or interrupting the supply of the consumer shall be supplied along with the Portable Three Phase Calibrators. The Voltage and Current leads used with the equipment shall have minimum CAT III 600 V marking. Supplier shall submit necessary document for measurement category.

g) A set of clamp on CTs consisting of three CTs of 300 Amps with minimum internal diameter of 50 mm shall be provided along with the equipment. The connecting cable length of clamp-on CT & voltage cables shall be minimum of 2 m. There shall be only one port to connect compensated CTs 300A so that one time only one type of clamp on CT can be connected as per requirement at the time of testing to the equipment to prevent any malfunction due to mistake in CT connection in field. Clamp on CT shall have minimum measurement category of CAT III 600 V. Supplier shall submit necessary document for stated measurement category.

h) An error calculator shall be incorporated in the Portable Three Phase Calibrator, which shall have facility to calculate error in percentage by feeding the meter constant and number of pulses through the inbuilt key board.

i) The Equipment shall be compatible for carrying out tests as per IEC/IS standards.

j) A Real Time Clock shall be provided in the Portable Three Phase Calibrator.

k) User friendly Alpha numeric key pad shall be provided for Data input like Consumer Details & meter under test details.

l) The equipment shall have adequate built in features to protect the instrument from over voltage.

m) The Unit shall be powered from the power supply of meter under test or from the auxiliary supply in the range as indicated in clause 4.0 above and should not require battery backup for its operation & data storage.

n) Equipment shall have facility to conduct dial test for active, reactive and apparent simultaneously.

o) Equipment should have facility to measure active, reactive and apparent powers due to harmonics along with sign (to show the direction of flow of harmonics) and also should have facility to measure THD.

p) Facility to select measurement mode for fundamental power or total power for 4 wire Active, Reactive & Apparent measurement.

q) Facility to select the calculation of apparent power either arithmetically or geometrically for individual phases and for summation of all three phases.

r) The offered equipment shall have CE marked. The bidder shall submit CE declaration for the same.

s) The offered equipment shall have test output in the form of frequency on BNC socket for its own calibration. Separate frequency output for Active and Reactive mode in form of LED will

not be acceptable.

t) The offered equipment shall have facility in the form of potential free relay contacts to switch on & off the source for carrying out the dial test. (General arrangement drawing of Equipment shall be submitted along with bid which indicate the above mention outputs)

7.0 MEASUREMENT RANGES :

The Portable Three Phase Calibrators shall have following measurement ranges to carry out the testing of Three Phase and Single Phase Energy Meters

Voltage Measurement Range	100 mV to 300V
Voltage Resolution	0.01V
Voltage Accuracy	<0.05% (30 … 300 V)
Current measurement range in direct mode	1 mA to 12A
Current Resolution in direct mode	0.01 mA to 0.001 A
Current Accuracy in direct mode	<0.05% (10 mA … 12 A)
Current Measurement range in 300A clamp on CT	5 mA to 300 A
Current accuracy with 300 A clamp on CT	<0.15% (250 mA … 300 A)
Phase Angle measurement range	0 to 360 deg.
(It shall measure PF with the resolution of 0.001)	
Frequency range	40 to 70 Hz
Resolution	0.01 Hz
Power/energy measurement error	0.1% (30 … 300 V)
(Both for active and reactive measurement)	(10 mA … 12 A) (in direct mode)
	0.2% (30 … 300 V)
	(250 mA … 300 A) (in CT mode)
Power/Energy measurement Temperature Drift	<30 PPM/K (In direct Mode)
Power/Energy measurement stability	<100 PPM

8.0 MEASUREMENT-MODE :

The Portable Calibrator shall have the following measurement modes.

- Direct Mode : 10 mA – 12 Amps
- 300 A Clamp on CT mode : 250 mA – 300 Amps

Facility to select measurement mode between fundamental power and total power for 4 wire Active, Reactive & Apparent measurement.

The measuring mode shall be selectable using key pad of the equipment.

9.0 ACCURACY REQUIREMENT :

The class of accuracy of the offered calibrator in active and reactive power & energy measurement shall be 0.1 for inbuilt direct mode without using any external measuring circuit and 0.2 with clamp on CTs of 300 A. **The equipment shall have facility tointerchange the clamp on CT from one equipment to another equipment without affecting the overall accuracy.** Sample test report confirming accuracy for both measuring modes shall be submitted along with the offer. One sample shall be submitted to NPL/CPRI to verify the accuracy of the offered reference meter as per attached annexure A.

10.0 DISPLAY :

The offered calibrator shall have inbuilt legible back lit LCD of at least 6”, which shall be capable of displaying certain parameters in graphical mode.

The Calibrator shall display the following system parameters namely:

- Phase to neutral voltage
- Phase to Phase voltage
- Equipment shall have facility to measure and display active, reactive and apparent power, with sign for each phase.
- Total harmonic distortion phase wise
- Phase current
- Phase angle between three phase voltages
- Phase angle between voltage and current
- Continuous updating of energy as per selected measuring mode during error testing using scanner or snap switch.
- Active, Reactive and apparent power of each phase
- Total Active, Reactive and apparent power
- Power factor of each phase
- Total power Factor
- Frequency
- Phase Sequence
- Error in Percentage
- Power due to each Harmonics with Flow Direction of Harmonic Analysis.
- Equipment shall display the details of previous test results with consumer & meter details (which is stored in the memory).

Offered equipment shall have facility to view/monitor system parameters during the Error testing, Dial testing, Energy Register testing, Power (Demand) register testing, operating burden testing and current transformer testing.

11.0 DISPLAY RESOLUTIONS :

Minimum resolutions-of-various parameters shall be as follows:

- Voltage : 0.01 V
- Current: 0.01 mA to 0.001 A
- Frequency: 0.01 Hz
- Power factor: 0.001
- Energy : 0.0001 Wh
- % Error Resolution: 0.01

12.0 INSTALLATION CHECKING :

The Equipment shall be capable of indicating the following conditions by vector diagram and instantaneous values for following conditions:

- Missing potential
- Missing current
- Reverse current
- Phase sequence

13.0 MEMORY :

The Equipment shall have the facility to store up to 500 error test results along with following Instantaneous parameters and consumer details:

- Voltage of each phase
- Current of each phase

- Angle between voltage and current of each phase
- Measuring mode
- No of revolution
- Meter Under Test (MUT) constant
- Error in percentage
- Energy logged/recorded by Portable Three Phase Calibrator during test performed with scanner or snap switch.
- Test duration in hour, minute and seconds with time of commencement of test and completion.
- Phase to phase voltage
- Distortion in voltage circuit.
- Distortion in current circuit.
- Phase angle between voltages
- Phase angle between voltage and current
- Selected current and voltage ranges
- Voltage ratio (if any) (As per meter under test rating plate)
- Current ratio (if any) (As per meter under test rating plate)
- Frequency in Hz
- Phase sequence
- Total power active, Reactive and apparent

The Portable Three Phase Calibrator should also have facility to store:

- The error data up to at least 500 tests, shall be stored in memory in selective manner (and not block method) and give information in percentage about used memory & free memory and these can be down loaded to computer using communication cord & RS232 port so that print outs of test results can be taken out with compatible software.
- Harmonics in the tabular form of table with absolute value of harmonics and angle of harmonics.
- Harmonics in the form of bar graph.
- Equipment should have facility to store active, reactive and apparent powers due to harmonics along with sign (to show the direction of flow of harmonics) and also should have facility to measure THD.
- Vector diagrams for selected voltage and current ranges and measuring mode

14.0 INTERFACE :

The Portable Three Phase Calibrator should have following interface provisions:

- Error compensated Clamp on CTs of class 0.2 (up to 300A).
- RS 232 to read the test results
- High Frequency signal output in form of BNC to calibrate the equipment against higher accuracy reference standard. Separate frequency output for Active and Reactive mode in form of LED will not be acceptable.
- Potential free relay contact to switch on & off the source for carrying out the dial test.
- The optical scanner head shall be capable to evaluate the error through calibrating pulses output of electronic meter & Red/Black mark on the rotor disc of electromechanical meter.
- Snap Switch with connecting cable length of min 1.5 m to count pulses.

15.0 SAFETY REQUIREMENTS :

The Portable Three Phase Calibrator shall be designed and constructed in such a way as to avoid introducing any danger in normal use and under normal working conditions, so as to ensure especially;

a) Personal safety against electric shock
b) Personal safety against effects of excessive temperature
c) Safety against spread of fire

All parts, which are subject to corrosion, shall be suitably protected and any protective coating shall not be liable to damage by normal handling.

All the cords/connectors/accessories supplied along with the instrument must conform to IEC-1010 and the international standards of safety. Adequate built in features to protect the instrument itself from over-voltage shall be provided.

Note: The voltage, current leads and Clamp on CTs to be supplied along with equipment will have minimum CAT-III 600 V measurement category.

16.0 POWER CONSUMPTION :

The power consumption of the Portable Three Phase Calibrator at reference voltage, frequency, temperature and rated current shall not be more than 30 VA.

17.0 CONSTRUCTIONAL FEATURES :

- Calibrator shall be provided with suitable leads of voltage and current connection. These leads shall be provided with various connectors to connect energy meter in different options/ conditions.
- Calibrator shall be provided with Alpha- numeric keypad to select measuring mode, to enter consumer details namely, name & address, meter make, type class, etc. MUT constant, CT&PT ratio, number of test revolutions and to move the cursor on the screen. The operation of key pad must be user friendly.
- The equipment shall be rugged, compact, Lightweight and handy.
- The calibrator shall be provided with an optical sensor with suitable mounting arrangement so as to align the sensor properly with the LED impulse counter to sense, the LED impulses from the optical head of meter. The optical sensor along with the mounting arrangement shall be capable of being clamped to the meter body.
- The calibrator shall have inbuilt and fixed display, which shall be integral part of equipment. Any chargeable type of battery & DC Adaptor to power on display & main equipment are not acceptable.

18.0 FUNCTIONS :

The equipment shall be used effectively for the following:

- Verification for accuracy of energy meters using scanner and using key pad start stop push button.
- It shall have facility to enter meter constant in imp/kwh, imp/kVArh, imp/kVah and Wh/imp, VArh/imp and Vah / imp.
- Equipment shall have facility to view/monitor system parameters during performing the Error testing, Dial testing, Energy Resistor testing, Power (demand) register testing, operating burden testing and current transformer testing .
- It shall have facility to enter No. of pulses and revolutions of the meter under test. The no. of pulses and constant shall be entered up to 10 digits.

- The equipment shall have facility to interchange the clamp on CT from one equipment to another similar equipment without affecting the overall accuracy.
- The equipment shall be capable of conducting the Dial test without disconnecting the load.
- It should have facility to display the energy logged while test is performed by Scanner/ snap switch.
- Equipment should have facility to perform the harmonic analysis of the supply and to store active, reactive and apparent power along with sign (to show direction of flow) of each harmonics. Equipment should also have facility to show harmonics of each voltage and current with superimposition angle. Harmonics display should be in tabular form as well as in bar graph form.
- Ratio and phase error testing of LT CT ratio error should be displayed in % and phase error in gradient / minute.
- Burden measurement of CT and PT.
- Waveform and vector display to analyze the circuit connections.
- Power register test to test Demand meters.
- Facility to select measurement mode for fundamental power or total power for 4 wire Active, Reactive & Apparent measurement.
- Facility to select the calculation of apparent power either arithmetically or geometrically for individual phases and for summation of all three phases.

19.0 CARRYING CASE :

Each Portable Three Phase Calibrator shall be supplied in a suitable, rugged, lightweight carrying case to prevent damage during transit. The Portable Three Phase Calibrator should be immune to vibrations and shocks in normal transportation and handling.

20.0 SOFTWARE :

Each Portable Three Phase Calibrator shall be supplied along with PC Software. The software shall be suitable for downloading the test results into IBM compatible PC using RS 232 port. The software shall have facility to generate the test report.

21.0 ACCESSORIES :

Each Portable Three Phase Calibrator shall be supplied along with following accessories:

i) Common optical sensor for automatic testing, which can be used to sense disc revolutions in electromechanical meters as well as indicating LED's in static meters.

ii) Mounting arrangement with clamp for the optical sensor.

iii) Compensated Clamp on CT of class 0.2 up to 300 A with minimum internal diameter of 12 mm for on-line testing.

iv) 1 Set of 4 nos. of voltage leads with insulated clips. (Red, Yellow, Blue, Black). External type measurement circuit / voltage transducer will not be acceptable for field testing purpose.

v) 1 set of clips and connectors each consisting of:

- Cable Adopter / connection Pins 10Nos
- Voltage adopters 4 Nos
- Banana clips (straight) 6 Nos.
- Banana clips (bent) 4 Nos
- Crocodile Clips 3 Nos.
- U clips 6 Nos.

vi) 1 set of 6 nos. of Current leads to connect Portable Three Phase Calibrator in direct mode.

(2 Red, 2 Yellow, 2 Blue). External type measurement circuit / current transducer will not be acceptable for field testing purpose.

vii) Serial communication cord with RS232 connector to retrieve stored data from the Portable Three Phase Calibrator and download the data to a PC.

viii) Snap switch along with cable.

ix) Base Computer Software (BCS)

x) Operating Manual.

Note: The voltage, current leads and Clamp on CTs to be supplied along with equipment will have minimum CAT-III 600 V measurement category.

22.0 Additional Indications:

Provision shall be made for the following additional indications:

- The Energy flow direction.
- Warning for over load beyond the limits specified in the voltage & current circuits.

23.0 Auxiliary Power Source:

The unit can be powered either from the measuring circuit or from an auxiliary single phase supply. In any case auxiliary power consumption of the device shall be less than 30 VA.

24.0 Circuit Protection:

Adequate protection fuses should be provide in for current circuits(s).

25.0 Shock and Vibration Protection:

The equipment must be immune to Vibration and dumping due to transport. Suitable transportation case shall be provided along with the equipment.

26.0 Test Certificate:

Routine test report, Calibration Certificate & operation manual is to be provided along with each meter. The routine test certificate of the equipment shall be provided along with each equipment and it will be in form of CD (Compact Disc).

27.0 Calibration Certificate:

The bidder shall have to submit calibration certificate from CPRI/ERDA/any Govt. NABL or any International accredited laboratory of reference ERSS. The offer without certificate not be considered for further evaluation. Also the certificate shall not be older than 5 years from the date of tender.

28.0 After Sales Service:

The bidder has to indicate clearly what type after sales service will be provided within guarantee period and outside guarantee period and Address of Sales Service Centre, details of Engineers shall be submitted with offer.

TECHINICAL SPECIFICATION FOR 0.1 ACCURACY CLASS ERS TESTING KITS

GURANTEED TECHNICAL PARTICULARS FOR PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD METER (ERS) OF ACCURACY CLASS 0.1 ON DIRECT MODE AND ACCURACY CLASS 0.2 WITH CLAMP ON CTs OF 300 AMPS FOR CALIBRATION OF ENERGY METERS.

Sr. No.	Item	Requirement	Bidder's Remark
1.	Name & address of Bidder with contact no.	Please specify name.	
2.	Essential requirement	As per Clause No. 3 of Technical Specification	
3.	Accuracy class	a) Direct mode : 0.1 (30 … 300 V) (10 mA … 12 A)	
		b) Clamp on mode : 0.2 (30 … 300 V) (250 mA … 300 A)	
4.	System Technical Data	Voltage : 85 to 265 V & 47 to 63 Hz	
		Power Factor : Zero lag - Unity - Zero lead	
5.	Voltage measurement range	100 mV to 300 V (Phase to Neutral)	
6.	Voltage Accuracy	<0.05% (30 … 300 V)	
7.	Current measurement range	1 mA to 12 Amp in direct mode in-built in the equipment and without using any external measuring circuit/transducer.	
		5 mA to 300 A – with 300 A Clamp on CT	
8.	Current Accuracy in direct mode	<0.05% (10 mA … 12 A)	
9.	Clamp on CT	A set of clamp on CTs consisting of three CT's of 300 Amps with minimum internal **diameter of 50 mm** shall be provided along with the equipment. The connecting cable length of clamp-on CT & voltage cables shall be minimum of 2 m.	
10.	Current accuracy with 300 A clamp on CT	<0.15% (250 mA …300 A)	
11.	Power/energy measurement error	0.1% (in direct mode) (30 … 300 V) (10 mA to 12A) for both active & reactive measurements	
		0.2% (in 300 A clamp on CT mode) (250 mA to 300A) for both active & reactive measurements.	
12.	Display Type	Inbuilt legible graphical back lit LCD of at least 6" display	
13.	Parameters to be displayed	Phase to neutral voltage	
		Phase to Phase voltage	
		Equipment shall have facility to measure and display active, reactive and apparent power with sign of each phase	

		Total harmonic distortion.	
		Phase current	
		Phase angle between voltage	
		Phase angle between voltage and current	
		Continuous updating of energy as per selected measuring mode during error testing using scanner or snap switch.	
		Active, Reactive and apparent power of each phase	
		Total Active, Reactive and apparent power	
		Power factor of each phase	
		Total power Factor	
		Frequency	
		Phase Sequence	
		Error in Percentage	
		Power due to each Harmonics with Flow Direction of Harmonic Analysis.	
		Equipment shall display the details of previous test results with consumer & meter details.	
		Offered equipment shall have facility to view/monitor system parameters during performing the Error testing, Dial testing, Energy Resistor testing, Power (demand) register testing, operating burden testing and current transformer testing.	
14.	Display resolution	Voltage : 0.01 V	
		Current : 0.01 mA to 0.001 A	
		Frequency : 0.01 Hz	
		Power factor : 0.001	
		Energy : 0.0001 Wh	
		Error Resolution : 0.01 %	
15.	Measurement Mode	Direct Mode : 10 mA – 12 Amps	
		300 A Clamp on CT Mode : 250 mA – 300 Amps	
		Facility to select measurement mode between fundamental power and total power for 4 wire Active, Reactive & Apparent measurement. The measuring mode shall be selectable using key pad of the equipment.	
16.	Memory	The error data up to at least 500 tests (including Consumer details, MUT details & Test results), shall be stored in memory in selective manner (and not block method) and give information in percentage about used memory & free memory and these can be down loaded to computer using communication cord & port RS232 so that print outs of test results can be taken out with compatible software.	
17.	Interfaces	Error compensated Clamp on CTs of class 0.2	

		(up to 300 A).	
		RS 232 to read the test results	
		High Frequency signal output in form of BNC to calibrate the equipment against higher accuracy reference standard. Separate frequency output for Active and Reactive mode in form of LED will not be acceptable.	
		Potential free relay contact to switch on & off the source for carrying out the dial test.	
		The optical scanner head shall be capable to evaluate the error through calibrating pulses output of electronic meter & Red/Black mark on the rotor disc of electromechanical meter.	
		Snap switch	
18.	Instantaneous parameters to be logged in memory during each test	Voltage of each phase	
		Current of each phase	
		Angle between voltage and current	
		Power factor	
		Measuring mode	
		No of revolution	
		MUT constant	
		Error in percentage	
		Energy logged/recorded by Portable Three Phase Calibrator during test while test was performed by scanner or snap switch.	
		Test duration in hour, minute and seconds (with time of commencement of test and completion).	
		Phase to phase voltage	
		Distortion in voltage circuit.	
		Distortion in current circuit.	
		Phase angle between voltages	
		Phase angle between voltage and current	
		Selected current and voltage ranges	
		Voltage ratio (as per meter under test rating plate)	
		Current ratio (as per meter under test rating plate)	
		Frequency in Hz	
		Phase sequence	
		Total power active, Reactive and apparent	
		Harmonics in the form of table with absolute value of harmonics and angle of harmonics.	
		Harmonics in the form of bar graph.	
		Equipment should have facility to measure and store active, reactive and apparent powers due to harmonics along with sign (to show the direction of flow of harmonics) and also should	

		have facility to measure THD.	
		Vector diagram with selected voltage and current ranges and measuring mode	
19.	Scanning head	Common for rotor mark & LED pulses	
20.	Snap switch	Snap switch to operate equipment remotely to count pulses	
21.	Key Board	Alphanumeric key pad	
22.	Test certificate	Routine test report, Calibration Certificate & operation manual is to be provided along with each meter. The routine test certificate of the equipment shall be provided along with each equipment and it will be in form of CD (Compact Disc).	
23.	Measurement of Harmonics	Measurement up to Harmonics of harmonics with display of effective active, reactive and apparent power due to each harmonic under selective measurement mode.	
24.	Carrying case:	Each Portable Three Phase Calibrator shall be supplied in a suitable, rugged, lightweight carrying case to prevent damage during transit. The Portable Three Phase Calibrator should be immune to vibrations and shocks in normal transportation and handling.	
25.	Software	Each Universal Portable Three Phase Calibrator shall be supplied along with PC Software. The software shall be suitable for downloading the test results into IBM compatible PC using RS 232 port.	
26.	Accessories	As per Clause No. 22.0 of Technical Specification	

CONTENTS

1	**SCOPE**	This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site and performance of LT Portable Reference Standard Meter (Reference standard Meter)
2	**APPLICABLE STANDARDS**	The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian/International standards and shall conform to the regulations of the local statutory authorities. IS 12346 : Testing equipment for AC Electricity– Energy Meters IEC 62053-22 : Electricity Metering Equipment (A.C.) IS 15707: Testing, evolution, installation and maintenance of AC Electricity Meters-Code of Practice IEC 60736: Testing equipment for Electrical Energy Meters.
3	**CLIMATIC CONDITIONS OF THE INSTALLATION**	a) Max. Ambient Temperature : 50 deg.C b) Max. Daily average ambient temp. : 40 deg.C c) Min Ambient Temp : 0 deg C d) Maximum Humidity : 95% e) Minimum Humidity : 10% f) Average No. of thunderstorm days per annum : 50 g) Maximum Annual Rainfall : 1450 mm h) Average No. of rainy days per annum : 60 i) Rainy months : June to Oct. j) Altitude above MSL not exceeding : 1000 meters k) Wind Pressure : 150 kg/sq m The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months. The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.3 g.
4	**GENERAL TECHNICALREQUIREMNTS**	

S.NO.	CHARACTERISTICS	STANDARD VALUES
1	Material Description	LT Reference standard Meter
2	Suitable for	3 Ph Whole Current Meter & LTCT Meter. It should be suitable for Single Phase meter also.
3	Accuracy Class	0.2S for Direct Mode /0.5 S for Clamp On Mode
4	Automatic error computation	Should be Available
5	Optical sensor for electro mechanical and electronic meters	Should be Available
6	Test Results storage facility	Min. 500 test results
7	Voltage	240 V $\pm$ 1 %

8	Current in Direct Mode using Ring CT (Imin to Imax)	1 -2 Amp & - 10Amp (separate terminals)
9	Current using Clamp on CT (Imin to Imax)	100/ 200/ 300/ 500 Amp
10	Frequency	50 Hz± 5%.
11	Power Factor	Zero lag to Zero lead.
12	Degree of Protection	IP 51
13	Display	Backlit LCD
14	Dimensions	To be submitted by the bidder. Suitable for carrying on 2 wheeler vehicle.
15	Weight along with the case	Less than 2.5 Kg

5.0	**GENERAL CONSTRUCTION**	
5.1	**Manufacture**	LT Reference standard Meter is used to test the single phase, LTCT Meters and three phase Whole Current energy meters at site without interrupting the customer service connections. LT Reference standard Meter computes the error in the field and the test report can be printed using a portable printer. All the materials, electronic and power components ICs used in the manufacturing of the reference standard meter shall be of highest quality and reputed make to ensure higher reliability, longer life and sustained accuracy. The electronic components shall be mounted on the PCB using latest surface mount technology (SMT). The Reference standard Meter shall be of rugged construction, lightweight and shall be of portable, handy and compact type. It shall have ergonomic design. The Reference standard Meter shall be suitable for laboratory and field testing of single & three phase electronic/electromechanical meters (house service meters) of accuracy class 1 and 2 for LT meters of 0.2 class as per relevant standard. An error calculator shall be incorporated in the Reference standard Meter which shall have facility to calculate error in percentage of meter under test by feeding the meter constant and number of revolutions / pulses for which meter was tested with RSM, through the inbuilt key board. The Reference standard Meter shall consist of display window with features elaborated in cl 5.4 and keypad with sealed membrane with alpha numeric keypad with separate keys for alphabets and numbers. The enclosure shall be of high strength and Calibration LED shall be available for Primary Calibration.

		The RSM shall be designed and constructed in such a way as to avoid introducing any danger in normal use and under normal working conditions, so as to ensure especially; 1. Personal safety against electric shock 2. Personnel safety against effects of excessive temperature All parts which are subject to corrosion shall be suitably protected and shall not be liable to damage by normal handling. The Portable Electronic Reference Standard Meter should be capable of conducting an automatic built in internal test which verifies all indicators whenever it is turned on • It should do display initialization at power up. • It should do self test of LCD for 2 Seconds. An error calculator shall be incorporated in the RSM which shall have facility to calculate error in percentage of meter under test by feeding the meter constant and number of revolutions / pulses for which meter was tested with RSM, through the inbuilt key board.
5.2	**Measurement Mode**	The portable RSM shall have two measurement modes as follows: **Clamp On CT Mode:** LT Single phase:-One number clamp on type current transformer (CT) shall be provided along with suitable connecting cable length to measure from 500mAmp to a maximum current of 60 Amp. The accuracy class shall be 0.5 at UPF in this range. LT Three phase:- A set of 3 LT clamp on type CT to be provided with suitable connecting cable to measure from 100mA to 1000A.
5.3	**Operating Mode**	**Auto mode:** A compatible common scanner shall be provided along with the equipment to test electromechanical meters by sensing the rotor mark and static (electronic) meters by sensing the LED pulses **Manual mode:** The equipment shall have facility to test in manual mode using snap switch. Snap switch along with detachable lead to start and stop the test shall be supplied along with the RSM.
5.4	**Communication Facility & Software**	The Accuchek shall have facilities for data transfer through either USB port or RS- 232 communication port. The BCS software shall be supplied by the bidder for free of cost. Training for the use of the software shall also be provided by the bidder. Reference standard Meter shall be software calibrated at factory and modifications in calibration shall not be possible at site by any

		means. The Reference standard Meter shall have provision for interfacing with the scanner which can sense a pulses / rotor mark up to 200 Hz and Snap switch to count pulses.
5.5	**Accessories**	The bidder shall supply following accessories along with the every Reference standard Meter: i) Adaptor for charging, however, the Reference standard Meter shall also have the feasibility of powered by measuring circuit ii) A set of suitable Clamp on CT with Cable For LT RSM – LT 3phase - clamp with range 300A min. For LT RSM – LT 1 phase - clamp with range 60A min. iii) Cable for direct mode with plugs iv) Cable assembly for voltage input with clips v) A set of injection type crocodile clamps for safe connection vi) Scan Head for LED/Disc vii) Snap Switch viii) Carrying Case- Soft Case should be suitable to protect equipment. It should be safe and easy for transport on 2 wheeler vehicle. The bidder shall supply following accessories along with the every LOT of Reference standard Meter: i) Universal Stand for Scan Head ii) BCS Software in CD
5.6	**Display Parameters**	The display shall have day light visibility and LCD backlight. There shall be following parameters shall be available in the display and subsequently saved in the memory along with the consumer information upto 500 test results for LT Reference standard Meter: 1. Real Time 2. R phase Voltage (Vr) 3. Y phase Voltage (Vy) 4. B phase Voltage (Vb) 5. Line current R phase (Lr) 6. Line current Y phase (Ly) 7. Line current B phase (Lb) 8. Active current R phase (Ir) 9. Active current Y phase (Iy) 10. Active current B phase (Ib) 11. Active current B phase (Ib) 12. Reactive current R phase (ir) 13. Reactive current Y phase (iy) 14. Reactive current B phase (ib) 15. Frequency 16. Three phase Active power (Fundamental) 17. Three phase Reactive power 18. Three phase Apparent power

		19. Active power R phase 20. Active power Y phase 21. Active power B phase 22. Reactive power R phase 23. Reactive power Y phase 24. Reactive power B phase 25. Apparent power R phase 26. Apparent power Y phase 27. Three phase average Power Factor 28. Power factor R phase 29. Power factor Y phase 30. Power factor B phase In addition to the above, during the test duration user shall be able to see the following incremental energies values- 1. Active Energy 2. Reactive Energy (lag / lead) 3. Apparent Energy In addition to the above, the Reference standard Meter shall have following Connection Check Parameter- 1. Phase Sequence (Forward or Reverse)
5.7	**CONNECTION CHECK**	The equipment shall have auto connection check facilities for following: 1. Over Current 2. Over Voltage 3. Low Voltage 4. Reverse Current 5. Missing Current
6.0	**OPERATOR DATA ENTRY**	The Reference standard Meter shall have facility to input/enter following information:

S.No.	Data Entry Parameter	Resolution/ No of characters/ digits	Type
1.	MUT Serial number	10	Alphanumeric
2.	Consumer ID	10	Alphanumeric
3.	Consumer Number	20	Alphanumeric
4.	Meter Type	10	Alphanumeric
5.	Meter Make	10	Alphanumeric
6.	Meter constant of Meter Under Test (MUT)	7	Numeric
7.	Test Revolutions / Pulses per kWh	5	Numeric
8.	PT Ratio	10	Alphanumeric
9.	CT Ratio	10	Alphanumeric
10.	Test Duration	10	Alphanumeric
11.	Percentage Error Active, Reactive (Lag/ Lead), Apparent Energy	10	Alphanumeric

12.	Energy Recorded comparison i.e. RSM Vs MUT for Active, Reactive (Lag/ Lead), Apparent Energy	10	Alphanumeric

7.	**EMBOSSING AND MARKING**	The instrument shall be provided with durable and legible marking embossed, effectively secured against removal as per the relevant standards. The Reference standard Meter shall be embossed with the following: a) Property of TPCODL, Delhi b) Purchase Order No with date c) Item Code Number d) Manufacturer's name e) Serial number f) Month and Year of manufacture
8	**Tests:**	All routine, acceptance & type tests shall be carried out in accordance with the relevant IS/IEC. All routine & acceptance tests shall be witnessed by the purchaser/his authorized representative. All the components shall also be type tested as per the relevant standards. Following tests shall be necessarily conducted on the Reference standard Meter in addition to others specified in IS/IEC standard.
8.1	**Calibration tests**	The bidder shall furnish the calibration Certificates for the following tests relevant for respective Reference standard Meters: 1 Active & Reactive energy measurement (for clamp on CT) in 3 Phase 4 Wire 2 Active energy measurement (for clamp on CT) in 1 Phase 2 Wire 3 Active & Reactive energy measurement (for 5A internal CT) in 3 Phase 4 Wire 4 Active & Reactive energy measurement (for 5A internal CT) in 3 Phase 4 Wire 5 Active & Reactive energy measurement (for 1A internal CT) in 3 Phase 4 Wire 6 Active & Reactive energy measurement (for 1A internal CT) in 3 Phase 4 Wire
8.2	**Routine tests**	1 Visual Examination and Dimensions Test 2 Accuracy Test
8.3	**Acceptance tests**	1. Marking 2. Visual Examination and Dimensions 3. Demonstration of all accuracy & errors tests on meter with clamps. Direct & current clamp. 4.
9	**CALIBRATION CERTIFICATES**	The bidder shall furnish the Calibration Certificates for the tests as mentioned above as per the corresponding standards. Calibration test

		should have been conducted in certified Test laboratories during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports, i.e. any test report not acceptable, same shall be carried out without any cost implication to the Purchaser.
10	**PRE-DESPATCH INSPECTION:**	Equipment shall be subject to inspection by a duly authorized representative of the Purchaser. Inspection may be made at any stage of manufacture at the option of the purchaser and the equipment if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to the Purchaser's representatives at all times when the work is in progress. Inspection by the Purchaser or its authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by the Purchaser. Following documents shall be sent along with material: a) Test reports b) MDCC issued by Purchaser c) Invoice in duplicate d) Packing list e) Drawings & catalogue f) Guarantee / Warrantee card g) Delivery Challan h) Other Documents (as applicable)
11	**INSPECTION AFTER RECEIPT AT STORE:**	The material received at the Purchaser store shall be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Contracts department.
12	**GUARANTEE**	Bidder shall stand guarantee towards design, materials, workmanship & quality of process/ manufacturing of items under the contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of 60 months from the date of commissioning or 66 months from the date of last supplies made under the contract, whichever is earlier. Bidder shall be liable to undertake to replace/rectify such defects at his own costs. within mutually agreed timeframe, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the " Security cum Performance Deposit" as the case may be. In case of insulated mats fails within the guarantee period the purchaser will immediately inform the bidder who shall take back the defective mats within 15 days from the date of intimation at his own cost and replace insulated mats within forty five days of date of intimation with a roll over guarantee. The outage period i.e. period from the date of failure till unit is repaired / replaced shall not be counted for arriving at the guarantee period.

		Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.
13	**PACKING:**	Bidder shall ensure that all the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit. The material used for packing shall be environmentally friendly.
14	**TENDER SAMPLE:**	Not required.
15	**QUALITY CONTROL:**	The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.
16	**MINIMUM TESTING FACILITIES**	Bidder shall have adequate in house testing facilities for carrying out all routine tests, acceptance tests as per Indian /International standards.
17	**MANUFACTURING ACTIVITIES:**	The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.
18	**SPARES,ACCESSORIES AND TOOLS :**	Not applicable
19	**DRAWING AND DOCUMENTS:**	Following drawings and documents shall be prepared based on Purchaser specifications and statutory requirements and shall be submitted with the bid: a) Completely filled in Technical Particulars b) General description of the equipment and all components including brochures. c) General arrangement for Reference standard Meter d) Experience List e) Type test certificates After the award of the contract, four (4) copies of following drawings, drawn to scale, describing the equipment in detail shall be forwarded for approval.

Sr. No.	Description	For Approval	For Review Information	Final Submission

1	Technical Parameters	√		√
2	GA Drawing of Reference standard Meter	√		√
3	Installation Instruction			√
4	Manual/Catalogues		√	
5	QA & QC Plan	√		√
6	Test Certificates	√	√	√

Bidder shall subsequently provide four (4) complete sets of final drawings,. Soft copy (Compact Disk CD) of all the drawing, GTP, Test certificates shall be submitted after the final approval of the same to purchaser.

All the documents & drawings shall be in English language.
Instruction Manuals: Bidder shall furnish two softcopies (CD) and four (4) hard copies of nicely bound manuals (In English language) covering erection and maintenance instructions and all relevant information and drawings pertaining to the main equipment as well as auxiliary devices.

20. GUARANTEED TECHNICAL PARTICULARS:

S.NO.	CHARACTERISTICS	STANDARD VALUES	STANDARD VALUES
1	Material Description		
1.1	Manufacturer Make		
1.2	Model No		
2	Suitable for		
3	Accuracy Class		
4	Automatic error computation		
5	Optical sensor for electro mechanical and electronic meters		
6	Test Results storage facility		
7	Voltage		
8	Current		
9	Frequency		
10	Power Factor		
11	Error Percentage		
12	Degree of Protection		

13	Battery		
14	Display		
15	Dimensions		
16	Weight		
17	Accessories included as per cl. 5.5		
18	Set of Clamps considered as per 5.2		

21.0 SCHEDULE OF DEVIATION:

The bidders shall set out all deviations from this specification, Clause by Clause in this schedule. Unless **specifically** mentioned in this schedule, the tender shall be deemed to confirm the purchaser's specifications.

(TO BE ENCLOSED WITH THE BID)

All deviations from this specification shall be set out by the bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:

S. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above.

Seal of the Company:

Signature:

Designation: