TPCODL
TP CENTRAL ODISHA
DISTRIBUTION LIMITED
(A Joint Venture of Tata Power and Government of Odisha)

RFx No.: NA **NIT No.: TPCODL/P&S/1000008961/2026-27**

OPEN TENDER NOTIFICATION

FOR

ONE YEAR RATE CONTRACT OF SUPPLY OF MOBILE S/S 500 KVA DT TROLLEY MOUNTED

Tender Enquiry No.: TPCODL/P&S/1000008961/26-27

Due Date for Bid Submission: 16.06.2025 [17:00 Hrs.]

TP Central Odisha Distribution Limited
1st Floor, Anuj Building, Plot No-29, Satya Nagar, Bhubaneswar-751007.

Corporate office: TP **CENTRAL** ODISHA DISTRIBUTION LIMITED
(A Joint Venture of Tata Power and Government of Odisha)
Registered Office/Corporate Office: Power House Square, Unit-8, Bhubaneswar, 751012, Tel: 0674-2541575 Web: www.tpcentralodisha.com, E-mail: tpcodl@tpcentralodisha.com, **CIN: U40109OR2020 PLC032901**

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1.0 Event Information

1.1 Scope of work

Open Tenders are invited through Ariba online portal e-tender process from interested Bidders for Two year Rate contract for supply of following Items as defined below:

S. No.	Description	EMD Amount (Rs.)	Tender Fee Inclusive of GST (Rs.)
1		2,00,000/-	5000/-

Note:-
1) EMD is exempted for MSME Firms registered in the State of Odisha.
2) MSMEs registered in the State of Odisha shall pay tender fee of Rs. 1,000/- including 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 26.05.2026 onwards
(b)	Date by which Interested and Eligible Bidder to pay Tender Fee and confirm participation as mentioned in "Procedure to Participate in Tender"	05.06.2026 , 15:00 Hrs
(c)	Date & Time of Pre-Bid Meeting (If any)	06.06.2026 , 12.00 Hrs.
(d)	Last Date and time of receipt of pre-bid queries, if any	06.06.2026 up to 17:00 Hours
(e)	Last Date of Posting Consolidated replies to all the pre-bid queries as received	09.06.2026
(f)	Last date and time of receipt of Bids	16.06.2026 up to 17:00 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. Refer Section 4.2 for details
(h)	Date & Time of opening of Price of qualified bids	Bidders will get mail intimation from TPCODL E-Tender system (Ariba) when their Price Bids are opened (Refer Section 4.5)

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 Bhubaneswar office, the last date of submission of bids and date of opening of bids will be the following working day at appointed times.

1.4 Mandatory documents required along with the Bid

Following documents are to be furnished along with the bid to the address as mentioned at clause 3.1.

1.4.1 EMD of requisite value and validity
1.4.2 Tender Fee in case the tender is downloaded from website
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')

Please note that in absence of any of the above documents, the bid submitted by a 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:-

1.6.1 EMD of requisite value and validity
1.6.2 Tender fee of requisite value
1.6.3 Price Bid as per the Price Schedule mentioned in Annexure-I
1.6.4 Necessary documents against compliance to Qualification Requirements mentioned at Clause 1.7 of this Tender Document.
1.6.5 Filled in Schedule of Deviations as per Annexure III
1.6.6 Filled in Schedule of Commercial Specifications as per Annexure IV
1.6.7 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 Criteria

a) The bidder should have an average annual turnover of Rs.100 crores in last three financial years. Copy of audited Balance Sheet and P&L Account to be submitted in this regard..

b) Bidder must be an OEM of Mobile Substation/compact substation of same or Higher Ratings with manufacturing facility / assembly in India. The bidder has to furnish the Self –undertaking in this regard.

c) The bidder should have successful Type Test Report (TTR) conducted from CPRI / ERDA/International Accredited Laboratory and shall furnish the same as a part of the Technical Bid. The type tests should have been conducted on the equipment / material of the same design and rating or with higher rating. The type tests should have been conducted within 5 years prior to the date of bid opening. Time period for type test can be extended by another 5 years as a special case, if there is no change in design / material of construction (MOC).

d) The bidder should have supplied Mobile Sub-station /Compact Substation of same or higher rating with specifications, of minimum 02 Nos. quantity, during last five financial years.

e) The bidder should have In-house routine and acceptance testing facilities for acceptance as per relevant IS/IEC. Self-undertaking to be submitted in this regard. TPCODL reserves the right to inspect the said manufacturing facility as a proof of compliance to this parameter.

f). The bid shall be accompanied by User's Performance Certificate issued from any Distribution Utility/ Reputed Private Organization engaged in Power Business/ State Govt. / Central Govt. or their undertaking(s) in support of satisfactory performance of their above materials supplied earlier. The

Performance certificate should have been issued within Two years from the date of issue of tender. In case the bidder has got previous association with Tata Power / TPCODL /TPNODL / TPWODL / TPSODL or any other group companies for supply of similar product, performance feedback will be solely considered irrespective of the performance certificate issued by bidder's other customers.

g). The bidder(s) who have earlier failed to execute the purchase order(s) of the TPCODL and/or black listed by any Distribution Utility/ Reputed Private Organization engaged in Power Business/ State Govt. / Central Govt. or their undertaking(s) shall not be eligible to participate in this tender. This supersedes the Performance Certificate Clause as mentioned above.

i). Bidder should have Statutory documents like GST, Pan etc.

Note :

TPCODL reserves the right to relax qualification criteria without assigning any reason thereof. Also, TPCODL reserve the right to scrutinize and reject any of such existing vendors without assigning reason what so ever may be. In case bidder has previous association with TPCODL for similar products and services, the performance feedback for that bidder by TPCODL's user group shall be considered.

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 behaviour 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 <u>Overall lowest cost complete BoQ. Basis</u> as calculated in Schedule of Items [Annexure I] .<u>TPCODL reserves the right to split the Quantity on L1 rates. on successful bidders</u>**, Hence all bidders are advised to quote their most competitive rates.
- In case of Reverse Auction, if any change arises in overall BOQ price, it shall be applicable proportionately in each line item in the complete tender BOQ.
- Bidder has to mandatorily quote as per schedule of item [Annexure-I]. Failing to do so TPCODL may reject the bid.

NOTE:
In case of a new bidder not registered, inspection of Testing house and evaluation shall be carried out to ascertain bidder's capability and quality procedures. However TPCODL reserves the right to carry out inspection and evaluation for any bidder prior to technical qualification. In case a bidder is found as Disqualified in the 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 through e-tendering process. Please note all future correspondence regarding the tender, bid submission, bid submission date extension, Pre-bid query etc will happen only through TPCODL E-Tender system (Ariba).

No verbal correspondence will be responded. All communication will be done strictly with the bidder who have done the above step to participate in the Tender.

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 Bank Guarantee / Bank Draft / Bankers Pay Order (issued from a Scheduled Bank) favoring 'TP Central Odisha Distribution Limited" payable at Bhubaneswar. The EMD (BG) has to be strictly in the format as mentioned in General Condition of Contract, failing which it shall not be accepted 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.

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TPCODL/ 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

EMD is strictly preferred in form of Bank Guarantee and to be delivered at the following address. However in view of present situation if Bidder is finding it difficult to make and submit BG for EMD amount, they can do online transfer of EMD amount in the above mentioned Account and submit proof of the same as part of Bid Submission.

Please note that in such case, Tender Fee and EMD should be strictly 2 separate transactions.

Please note as return of EMD from Bank Account is non standard practice the same may take more time than return of EMD BG.

EMD Original Hard Copy shall be delivered at the following address in Envelope clearly indicating Tender Reference/ Enquiry Number, Name of Tender and Bidder Name

Chief (Procurement & Stores)
TP CENTRAL ODISHA DISTRIBUTION LIMITED
1st floor, Anuj building, Plot No. 29, Satya Nagar, Bhubaneswar, Odisha – 751007

- **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)*

The technical bid shall be properly indexed and is to be submitted through TPCODL E-tender System (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 (separate Price Bid for Lot-A & Lot-B shall be submitted) 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 the 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 only through TPCODL E-Tender system (Ariba).
No verbal correspondence will be responded. All communication will be done strictly with the bidder who have done the above step to participate in the Tender. **Communication Details:**

Handling Executive :

Name: Mr. Malaya Ranjan Roul

Contact No.: 8763216613

E-Mail ID: Malaya.roul@tpcentralodisha.com

HOD (Purchase & Stores)

Name: Sri Asish Karmakar

Contact No.: 8768455566

E-Mail ID: Asish.karmakar@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 and receive the Ariba log-in. Above escalation details are for reference purpose only.

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 the TPCODL against the risk of bidder's conduct which would warrant forfeiture.
The EMD shall be denominate in any of the following form:

- Banker's Cheque/ Demand Draft/ Pay order drawn in favour of TPCODL, 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 of:

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

Or

b) The case of a successful bidder, if the Bidder does not
i) accept the purchase order, or
ii) furnish the required performance security BG

3.9 Type Tests (if applicable)

The type tests specified in TPCODL specifications should have been carried out within five years prior to the date of opening of technical bids and test reports are to be submitted along with the bids. If type tests carried out are not within the five years prior to the date of bidding, the bidder will arrange to carry out type tests specified, at his cost. The decision to accept/ reject such bids rests with TPCODL.

4.0 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 the rejection of the Bidder's Bid.

4.2 Technical Bid Opening

The bids shall be opened at TPCODL office in front of participated bidders either physically or in virtual mode . A link shall be provided to the participated bidders to view the tender opening process online. Also Participating Bidders shall get mail intimation from TPCODL E-Tender system (Ariba) when their Technical Bids are opened.
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.

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 for any deviations 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 bid of only Techno-commercially and / or safety qualified Bidders shall be opened internally. Bidders shall get mail intimation from TPCODL E-Tender system (Ariba) when their Price Bids are opened.
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.

4.7 Reverse Auctions

TPCODL shall conduct the reverse auction for the products/ services being asked for in this 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.

Reverse Auction shall be as per the below approach:

No of bidders to be allowed in RA process shall be : Total No of bidders on whom tender would be split PLUS 2 more bidders .

Illustrative example: Total no of qualified bidders is 10 & tender needs to split amongst 4 bidders.

PLUS 2 means (04 + 02 = 06) means lowest 6 bidders i.e., L1 to L6 bidders would be allowed in the RA process. Balance, H1 to H4 bidders would not be allowed in the RA process.

In case – Total no of qualified bidders is equal to or less than the PLUS 2 number, all qualified bidders shall be allowed in the RA process.

Illustrative example: Total no of qualified bidders is 4 & tender needs to split amongst 2 bidders. PLUS 2 means (02 + 02 = 04), so all 4 qualified bidders would be allowed in the RA process .

Illustrative example: Total no of qualified bidders is 3 & tender would be awarded to single party only. PLUS 2 means (01 + 02 = 03), so all 3 qualified bidders would be allowed in the RA process

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

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

6.0 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 (if any)
5. Technical Specifications (Annexure II)
6. Inspection Test Plan (if any)
7. Acceptance Form for Participation in Reverse Auction (Annexure VI)
8. General Conditions of Contract (Annexure VII)

7.0 Post Award Contract Administration

7.1 Special Conditions of Contract

- After finalization of tender, Rate Contract shall be issued on successful bidder with a validity period of **one Year**. Prices shall remain firm till validity of issued rate contract. Within the validity of rate contract and as per requirement of material, release order shall be issued time to time.

- Business Associate (BA) shall submit applicable **Performance Bank Guarantee** as per GCC within 30 days of issuance of rate contract. PBG applicable shall 5% of whole Rate Contract Value or 10% of Release Order value. BA can submit PBG against each Release Order. PBG submitted, shall be released after completion of applicable guarantee period plus one month.

- **Guarantee** applicable shall be as per technical specifications.

- BA shall submit GTP/ Drawing within 07 days from issuance of rate contract. If drawing is not approved by competent authority due to document shortfall or any changes are suggested, vendor has to re-submit new drawing/GTP/documents within 05 days of such intimation. BA shall offer for prototype inspection within 20 days of issuance of approved Drawings/GTP. In case BA does not get necessary approvals for issuance of manufacturing clearances /CAT-A within mentioned /mutually agreed timelines, then CCG-TPCODL/other TP Odisha Discoms reserve the right to cancel issued rate contract / release order and also reserve the right to forfeit EMD/PBG.

- **Delivery period** shall be **75 days** from date of receipt of release order / CAT-A issuance approval/manufacturing clearance/sample approved date whichever is later. Incase of New bidder, BA should approved a sample within 30 days from RC & delivery period shall be calculated from sample approved date.
- TPCODL shall short close the issued Release Order / Rate contract, in case of any quality issues.
- Any change in statutory taxes, duties and levies shall be borne by TPCODL.
- All other terms and conditions of TPCODL GCC shall be applicable.

7.2 Drawing Submission & Approval

The relevant Survey , drawings and GTPs need to be submitted within 07 days of receipt of rate contract by the successful bidder to TPCODL for approval. 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.

7.3 Delivery Terms

- **Delivery period** shall be **75 days** from date of receipt of release order / CAT-A issuance approval/manufacturing clearance/sample approved date whichever is later. Incase of New bidder, BA should approved a sample within 30 days from RC & delivery period shall be calculated from sample approved date.

7.4 Guarantee/Warranty Period

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 Company up to a period of **36 months from the date of commissioning or 48 months from the date of last supplies made under the contract, whichever is earlier**, supplier 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 Company, failing which the Company will be at liberty to get it replaced/rectified at supplier's risks and costs and recover all such expenses plus the Company's own charges (@ 20% of expenses incurred), from the supplier or from the "Security cum Performance Deposit" as the case may be.

7.5 Payment Terms

On successful delivery in Stote/site in good condition and certification of acceptance by certified official, Associate shall submit or upload the Bills/ Invoices in original in the name of TP Central Odisha Distribution Limited in sigitek site . **100% payment shall be released within 45 days from the date of submission of error free certified bills/ invoices.**

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.

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 GCC attached at Annexure VII for more information.

Any ethical concerns with respect to this tender can be reported to the following e-mail ID: ethics@tpcentralodisha.com

8.0 Specification and standards

Attached separately with the tender As per Annexure II.

9.0 General Condition of Contract

Any condition not mentioned above shall be applicable as per GCC for Supply attached along with this tender at Annexure VII.

10.0 Safety : Safety related requirements as mentioned in our safety Manual put in the Company's website which can be accessed by: http://www.tpcentralodisha.com. All Associates shall strictly abide by the guidelines provided in the safety manual at all relevant stages during the contract period.

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ANNEXURE I

Schedule for Items

Sl. No.	Item Description	HSN/ SAC code	Qty.	UoM.	Unit Price (Rs.)	GST (Rs.)	All incl. Unit landed Price (Rs.)	All incl. BOQ Price (Rs.)
1	2	3	4	5	6	7	8=6+7	9=8x4
1	TROLLEY MOUNTED MOBILE Sub Station 11/0.4KV 500KVA-11KV RMU-LT-ACB-LBS		10	EACH				
	TOTAL (RS.)							

NOTE:

- The quantity mentioned above is for evaluation purpose only and may vary during the execution. Release Orders against this Rate Contract shall be issued by TPCODL as per actual requirement.
- The bidders are advised to quote prices strictly in the above format and for all the line items as mentioned above. Failing to do so, bids are liable for rejection.
- Unit price (column 6) in the table above shall be inclusive of ex-works price, Transit Insurance, transport charges , loading, unloading and all other handling charges to the TPCODL Stores or site in & around Bhubaneswar Area. Delivery address of each store/site will be mentioned in respective Release Orders or in MDCC .
- The bidders are advised to quote prices strictly in the above format. Failing to do so, bids are liable for rejection.
- The bidder must fill each and every 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.
- All line item prices shall remain firm and fixed for ONE year from placement of RCs.

ANNEXURE II

Technical Specifications

Attached separately

RFx No.: NA **NIT No.: TPCODL/P&S/1000008961/2026-27**

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:

RFx No.: NA **NIT No.: TPCODL/P&S/1000008961/2026-27**

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 Excise Duty	Yes / No (If Yes, indicate % rate)
1d.	Sales tax applicable at concessional rate	Yes / No (If Yes, indicate % rate)
1e.	Octroi payable extra	Yes / No (If Yes, indicate % rate)
1f.	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 (90 days) (From the date of opening of technical 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.)

RFx No.: NA **NIT No.: TPCODL/P&S/1000008961/2026-27**

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 RFQ	
3	Company profile/organ gram	
4	Signed copy of this RFQ 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	
20	Design, Quality, Safety department wise employee details, their no. of years of experience	
21	IMS documents i.e. ISO certifications (Quality Management System, Environment Management System & OHSAS).	
22	Corrective action Preventive action (CAPA) sheet for Customer Complaints if any, Quality Assurance Plan (QAP):	
23	Routine Test Reports (sample copy of last inspection for the same material	
24	Factory License Registration Certificate:	

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 through SAP-SRM tool 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 the 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

General Conditions of Contract –
Attached separately with the tender

ANNEXURE-VII (A)

Preferential norms for procurement from Local MSMEs

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. In Limited Tender no EMD shall applicable.

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

Safety Policy and Safety Terms and Conditions – Attached separately with the tender.

ANNEXURE IX

Tata Code of Conduct (TCoC) –

Attached separately with the tender.

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 mail ID: Pradip.sil@tpcentralodisha.com .

ANNEXURE X
Environment & Sustainability

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!

ANNEXURE-XI

Quality, Safety, Occupational Health & Environment

ANNEXURE-XII

Ariba e – Auction Rules

Attached separately

TPCODL
TP CENTRAL ODISHA
DISTRIBUTION LIMITED
(A Joint Venture of Tata Power and Government of Odisha)

Procedure to Participate in Tender

Tender Enquiry No	Work Description	EMD (Rs.) (incl. GST)*	Tender Participation Fee (Rs.) (Incl. GST)**	Last Date and Time for payment of Tender Participation Fee
TPCODL/ P&S/ 1000008961/ 26-27	Open Tender for 01 Year Rate contract for supply of **Mobile S/s 500 KVA DT Trolley Mounted**	2,00,000/-	5,000/-	05.06.2026, 15.00 Hrs.

* EMD is exempted for MSMEs registered in the State of Odisha.
** MSMEs registered in the State of Odisha shall pay tender fee of Rs. 1,000/- including GST.
For details of MSME norms, pls refer "Annexure VII-a"

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 to be done before “Last date and time for Payment of Tender Participation Fee” as mentioned above

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 of authorized person
    d. e-mail id of authorized person / Ariba online portal ID if any.
    e. Name of Firm
    f. Address of Firm
    g. GST Registration Number
    h. Details of submission of Tender Participation Fee
    i. MSME Certificate, wherever applicable
    j. Details of Bank Account for refund of EMD
    k. Postal Address for refund of EMD

2. Non-Refundable Tender Participation 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 – **PO- 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 **Malaya.roul@tpcentralodisha.com** with copy to **Asish.Karmakar@tpcentralodisha.com** before last date and time for payment of Tender Participation Fee.

Interested bidders to submit Tender Participation 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 all future correspondence regarding the tender, bid submission, bid submission date extension, Pre-bid query etc. will happen only through TPCODL E-Tender system (Ariba). User manual to guide the bidders to submit the bid through E-Tender system (Ariba) is also enclosed.

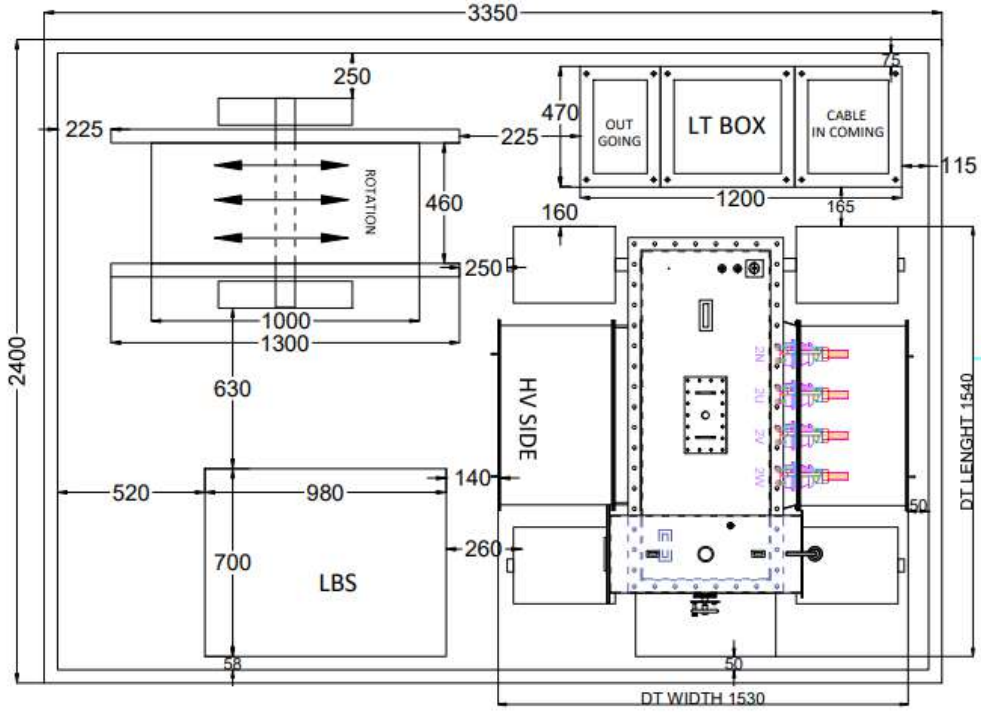
All communication will be done strictly with the bidders who have done the above step to participate in the Tender.

Also it may be strictly 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 vendor will not be able to participate in the tender. Any last moment request to participate in tender will not be entertained.

Also all future corrigendum’s to the said tender will be informed on Tender section on website https://www.tpcentralodisha.com.

Annexure-1

- Clause No. 1 – Reference:
  - TPU-D-ENG-HV-20070 - Technical Specification for 160KVA to 2500KVA Distribution Transformer (11/0.433 KV)
  - ENG-LV-3016 (R1) - Specification Name: Specification of 400,630,800 ACB with Enclosure (Outdoor Application)
- Clause No. 4:
  - 7, 8 & 9 – Structural Design Calculation to be submitted during GTP & Drawing Approval stage
  - 10.b – Cable Drum to be provided on Trolley for HT & LT Cable Arrangement
  - 10.b - Suitable arrangement on platform for HV & LV cable to be provided with cleating arrangement.
- Clause No. 5.1
  - x) – Tentative Layout of Equipment



- Alert Light, Illumination, Reflecting Tape, Danger Plate & Speed Limit Plate to be provided.
- Cable Tray to be provided for cable laying wherever is required
- Clause No. 5.4 – DISTRIBUTION TRANSFORMER
  - Distribution Transformer shall be as per TPU-D-ENG-HV-20070 Technical Specification for 11/0.4kV 250kVA to 2000kVA Distribution Transformer (Cu) and its latest amendment
- 5.5 LV COMPARTMENT
  - LT ACB shall be as per ENG-LV-3016 (R1) - Specification of 400,630,800 Amp ACB with Enclosure (Outdoor Application) and its latest amendment.

STANDARD TECHNICAL SPECIFICATION COVER SHEET

Specification No. : ENG-GEN-4001

Specification Name : Technical Specification for Trolley Mounted Distribution Transformer

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
YASHOBANTA ROUT	SHANTAPRIYA JENA	Vijender Goyal	JYOTIPRAKASH MOHANTY	KHAJAN BHARDWAJ	POURUSH GARG
TPCODL	TPNODL	TPSODL	TPWODL	TPCODL	TPCODL
18-03-2023	18-03-2023	18-03-2023	18-03-2023	20-03-2023	26-04-2023

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 Trolley mounted substation comprising of Distribution Transformer, HV and LV switchgear and one LT meter box. Design shall be such that the trolley shall fit following major equipment and accessories mentioned in this specification:-

- Load Break Switch & HRC Fuse on HV Side
- Two nos. MCCBs in LV Distribution Box on LV Side
- Four wheel trolley platform with fixing attachment to other vehicle for traction.
- LT and HT Power Cables on the trolley

Requirement of type of Trolley mounted substation as per following shall be clarified in Tender Document as Option-1/Option-2. Bidder has to comply all clauses of this specifications accordingly.

Cases	HV Side	Transformer	LV Side
Option-1	11kV LBS & HRC Fuse Panel	500kVA/250kVA Cu. Winding Oil Type DT	2 nos. MCCB in LV Distribution Box**
Option-2	Without Protection/ Isolation	500kVA/250kVA Cu. Winding Oil Type DT	2 nos. MCCB in LV Distribution Box**

****Note:-** Above 400A it is recommended for LT ACB of suitable rating.

It is not the intent to specify completely herein all the details of technical design and construction of material. However, the material shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation in manner acceptable to TPCODL/TPNODL/TPSODL/TPWODL, who will interpret the meanings of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered material shall be complete with all components necessary for their effective and trouble free operation. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in this specification and/or the commercial order or not.

Reference:

- ENG-HV-2002:- Technical Specification for 11/0.4kV 250kVA to 2000kVA Distribution Transformer (Cu)
- ENG-LV-3016:- Specification of 400,630,800 Amp ACB with Enclosure (Outdoor Application**)**

Above Technical specification shall be provided to bidder along with tender documents

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 authorities:

Ref. IS	Description
IEC 62271-1:2017	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear
IEC 62271-102:2022	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches
IEC 62271-103	High-voltage switchgear and controlgear - Part 103: Switches for rated voltages above 1 kV up to and including 52 kV
IEC 60529:1989	Degrees of protection provided by enclosures (IP Code)
IEC 62262:2002	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)
IEC 60060:2022	High-voltage test techniques
IEC 60947:2022/ IS/IEC 60947-1:2007	Low voltage switchgear and control gear
IEC 61439-1:2020	Low-voltage switchgear and controlgear assemblies - Part 1: General rules
IEC 60255-151:2009	Measuring relays and protection equipment - Part 151: Functional requirements for over/under current protection
IEC 61869-1:2007/IS 16227-1:2016	Instrument Transformers
IS 2629:1985	Recommended Practice for Hot-Dip Galvanizing of Iron and Steel
IS 2633:1986	Methods for testing uniformity of coating of zinc coated articles
IS 1180-1:2014	Outdoor type oil immersed distribution transformer upto and including 2500 kVA
IS 9385 (Part-1)	Specification for high voltage fuse Part 1 – Current Limiting Fuse
IS 9385 (Part-2)	Specification for high voltage fuse Part 1 – Expulsion and similar fuses
IS 9385 (Part-3)	Specification for high voltage fuse Part 1 – Application for high voltage fuses
IS 2633	Method for Testing Uniformity of Coating on Zinc coated Articles (Second Revision)
IS: 1364	Hexagon Head Bolts, Screws and Nuts of Product Grades A &B
IEC 60282 - 1	High Voltage Fuses- Part 1: Current Limiting Fuses
IEC 60282 - 2	High-voltage fuses - Part 2: Expulsion fuses

IS 2633 (Part 1)	Method for testing uniformity of coating on zinc coated
IS 2544	Porcelain post insulators for systems with nominal voltage greater than 1000 Volts [ETD 6: Electrical Insulators and Accessories]
IEC 60168:1994+AMD1: 1997+AMD2:2000 CSV	Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1000 V
IS 9530	Recommended practice for silver plating
IS 5925	Recommended practice for silver plating for general engineering purposes
BS 2816	Testing of silver plating thickness
IS: 5561	Electrical Power Connectors

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL. NO.	CONDTIONS	VALUES
1	Max. altitude above sea level	1200m
2	Max. Ambient Temperature	50 °C
3	Max. Daily average ambient temp	35 °C
4	Min Ambient Temp	0 °C
5	Maximum temperature attainable by an object exposed to sun	60 °C
6	Maximum Humidity	95%
7	Minimum Humidity	10%
8	Average No. of thunderstorm days per annum	70
9	Average Annual Rainfall	150 cm
10	Average No. of rainy days per annum	120
11	Thermal Resistivity of soil	150 Deg. Ccm/W
12	Wind Pressure	126 kg/sq. m up to anelevation of 10m
14	Earthquakes of intensity in horizontal direction	equivalent to seismic acceleration of 0.3g
15	Earthquakes of intensity in vertical direction	equivalent to seismic acceleration of 0.15g
16	Wind velocity	300 km/hr.

TPCODL/TPNODL/TPSODL/TPCODL/TPWODL/TPWODL/TPSODL service area has heavy saline conditions along the coast and High cyclonic Intensity winds with speed up to 300 Km ph. The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months.

4. GENERAL TECHNICAL REQUIREMENTS:

SL. No.	Description	Desired Value
A. TROLLEY WITH FOUR WHEELS		
1	Application	Outdoor
2	Rated voltage	12kV
3	Service voltage	11kV
4	Wheels	Four number
5	Platform	Flat platform with arrangement for fixing of Distribution Transformer, HV Switchgear Panel (HRC Fuse & LBS), LV Switchgear (2 nos. MCCB), HT & LT Power Cable
6	Platform side walls	The side walls shall have openable doors arrangements from all sides
7	Main chassis	To be designed as per Load
7.a	Shock Absorber	To be designed as per Load
8	Support channels	To be designed as per Load
9	Platform	To be designed as per Load
10	Side walls	Welded wire mesh. Square mesh of size 75x25mm with min. height 1.25m on four sides openable (down) arrangement with proper locking arrangement. Maximum speed marking shall be provided on four side wall (20 kmph)
10.a	Portable Stool	A double/triple step portable stool (chequered plate with angle support) shall be provided for movement from ground level to trolley platform
10.b	HT & LT Cable Arrangement	To be provided on the trolley
11	Tyres	4 number to bear the assembly (Transformer/HT& LT Panel/ HT & LT Cable, Self-weight of Trolley and load of workman with accessories)
11.a	Accessories	Following shall be provided: 1 no. Stepney Wheel replacing kit Air pressure gauge with pump
11.b	Jacking	4 nos. Jacks shall be provided on four corners. Heights shall be Controllable.
11.c	Vibration Pad	Required vibration pads shall be provided to avoid any vibration during transportation/operation

12	Axel	Two number to bear the assembly (Transformer/HT& LT Panel/ HT & LT Cable, Self-weight of Trolley and load of workman with accessories)
13	Toe hook	Forged steel
14	Suspension	Leaf spring
15	Paint	PENTON E2727C/ RAL7032 (Min 80 Microns)
16	Dimensions of platform (+10% tolerances allowed)	Width- 2m
		Length – 3 m
17	Platform Water drain	The platform shall be designed in such way that any rain water or oil on platform shall drained out properly from platform via opening & pipe arrangement such that it should not spread on other parts.
18	Danger plate & TPCODL/TPNODL/TPSODL/ TPWODL name plate	11kV Danger plates & TPCODL/TPNODL/TPSODL/ TPWODL plate to be put on all four side wall
19	Reflective tape	Red colour reflective tape to be fixed on all sides of platform from outside and toe arm
20	Lighting	Lighting arrangement shall be provided on the top of the panel/DT. LT supply shall be taken LT distribution box on the trolley with suitable protection.
B. LOAD BREAK SWITCH FUSE UNIT		
1	Type of break	Air
2	Rated Voltage	12 KV
3	Nominal System voltage	11 KV
4	Rated Current	630 A
5	Power Freq. withstand Voltage	28 KV rms
6	Impulse Withstand Voltage	70KVp
7	Rated Frequency	50 Hz
8	Number of Phases	3
9	Fuse Rating	31.5A, 40kA for 500kVA DT 16A, 40kA for 250kVA DT
10	Fuse Make	ABB, Siemens, Schnieder, Bussman, Eaton
11	Rated Short time withstand Current	25KA/1 Sec
12	Rated making Capacity	62.5 KAp
13	Panel height	As per Type Tested Design
14	Panel Depth	As per Type Tested Design
15	Panel Width	As per Type Tested Design
16	Structure	2mm GI sheet with Powder painting RAL:7032
17	Installation	Indoor & Outdoor
18	Cable termination	Bottom In / Back Side Out
19	Degree of Protection	IP 55
20	Operating Mechanism	Air Break
21	No. of Poles	Three

C. DISTRIBUTION TRANSFORMER (DT)			
		500kVA DT	**250kVA DT**
1	Application	Outdoor	Outdoor
2	Continuous rated capacity	500 KVA	250 KVA
3	System voltage (max.)	12 KV	12 KV
4	Rated voltage HV	11 KV	11 KV
5	Rated voltage LV	433 V	433 V
6	Line current HV	26.25 A	13.12 A
7	Line current LV	666.68A	333.34 A
8	Frequency	50 Hz+/- 5%	50 Hz+/- 5%
9	No. of Phases	Three	Three
10	Connection HV	Delta	Delta
11	Connection LV	Star (Neutral Brought out)	Star (Neutral Brought out)
12	Vector group	Dyn-11	Dyn-11
13	Type of cooling	ONAN	ONAN
14	Tap changing arrangement (off load)	+5.0% to –10% in steps of 2.5%	+5.0% to –10% in steps of 2.5%
15.	Noise level at rated voltage and frequency	56 dB	56 dB
16	Permissible temperature rise over ambient		
	i) Of top oil measured by thermometer	40 Deg.C	40 Deg.C
	ii)Of winding measured by resistance	45 Deg.C	45 Deg.C
17	Max. Total Losses at 50% loading (Watts) at 75 deg C	1430	920
18	Max. Total Losses at 100% loading (Watts) at 75 deg C	4100	2700
19	Short circuit impedance voltage at 75°C	4.50%	4.50%
20	Insulation Class	A	A
21	Normal Flux Density (at rated voltage and frequency)	1.6 T	1.6 T
22	Max. flux density (Increase of +12.5 % combined voltage & frequency variation from rated voltage & frequency)	1.8 Tesla (max.)	1.8 Tesla (max.)
23	Impulse withstand voltage	75 kVp	75 kVp
24	Power frequency withstand voltage	28 kV	28 kV
25	Maximum Current Density	2.5 Amps/ sq mm	2.5 Amps/ sq mm
26	Voltage fluctuations permissible	+12.5% to -12.5%	+12.5% to -12.5%
27	Neutral terminal	Neutral Bushing shall be in LV Box of Transformer (Two separate brought out neutral from main neutral bus bar, One for taking out the neutral for 4 wire system with openable links near both MCCB and other additional	

		neutral for solid earthing to be taken out of platform on both sides with min. 500mm extension below the platform for connection)	
28	Bushing HT	17.5 KV Bushing Top Mounted (Bushing will be connected to LBS-Fuse Panel as Bus Duct Type arrangement)	
29	Bushing LV	1.1KV Bushing Side Mounted (It shall be integral part of LV Compartment)	
30	Minimum clearances in Cable Box HV a) HV phase to phase/ phase to earth (mm)	130/90	130/90
	b) LV phase to phase/ phase to earth (mm)	25/20	25/20
F. LV COMPARTMENT			
1	Degree of Protection	IP 55	
2	Multi Function Meter	Secure/Cozerv/L&T	
2.a	CT Ratio	400/5, 0.5, 10VA for 500kVA DTR	
2.b	CT Ratio	250/5, 0.5, 10VA for 250kVA DTR	
3	Number of MCCB	2	
4	Rated Insulation Voltage	690 V	
5	Rated Impulse withstand voltage	8 kVp	
6	Material of Bus bar	Aluminium	
7	Max. current Density of bus bar	1.00 A/mm^2.	
8	Max. Permissible temp. rise	80°C at terminals with an ambient temperature not exceeding 40°C	
9	Min. Clearance b/w phases	40 mm (After crimping lug)	
10	Min. Clearance b/w phase to earth	40 mm (After crimping lug)	
11	Gland Plate	3mm	
MCCB		**For 500kVA DT**	**For 250kVA DT**
1	Type of MCCB	Fixed type, Manually operated	Fixed type, Manually operated
2	Type of Releases	Thermal magnetic or Fully magnetic	Thermal magnetic or Fully magnetic
3	Rating	400 Amp	250 Amp
4	Over Load Release setting	0.8-1 In	0.8-1 In
5	No. of Poles	Three	Three
6	Rated Voltage	415V	415V
7	Rated ultimate short circuit breaking capacity (Icu)	35kA rms	35kA rms
8	Rated service short circuit breaking capacity (Ics)	100% of Icu	100% of Icu
9	Utilization Category	A	A
10	Rated Insulation Voltage	690 V	690 V
11	Rated Impulse withstand voltage	8 kVP	8 kVP

12	Make	ABB, Siemens ,L&T, EATON, Schneider, Legrand, Havells	ABB, Siemens ,L&T, EATON, Schneider, Legrand, Havells
13	Protection	MCCB Should have integrated OL,SC & E/F Protection	MCCB Should have integrated OL,SC & E/F Protection
14	LT Cable	2 Run, 1.1 KV 4Cx300 sqmm Cable	1.1kV 4Cx150 sqmm Cable
LT ACB (Shall be recommended above 400A)			
Bidder to comply all technical parameters as of Technical Specification of 400,630,800 Amp ACB with Enclosure (Outdoor Application)			

5. GENERAL CONSTRUCTIONS:

The trolley mounted substation is designed to comprise the following main components:

a) Four wheel trolley
b) 11kV LBS & HRC Fuse Panel
c) Distribution transformer
d) MCCB (2 Nos.) , Busbar, Metering CT, Connection TB shall be housed LV distribution box
e) Canopy on the Trolley Platform
f) Cable Relaying Drum (Manual Type) for :
LV Cable : 2R, 1.1kV, 1.1 KV 4Cx300 sqmm Cable (for 500kVA DTR) / 1.1kV 4Cx150 sqmm Cable (for 250kVA DTR). – 20m each
HV Cable : 1R, 11kV, 3Cx95 sqmm – 20m

Other equipment's/Accessories shall be as per specification.

5.1 TROLLEY & EQUIPMENT ARRANGEMENT

a) Four wheel trolley with platform having arrangement for fixing of DT, HV Switchgear (HRC Fuse & LBS) and LV switchgears.
b) The base of equipment shall ensure rigidity for easy transport and installation.
c) The LBS having cable connection at one end and other end is connected with HRC Fuse through bus bar.
d) The transformer shall be of 11/0.433 kV, Cu. Winding Distribution transformer as per TPCODL/TPNODL/TPSODL/TPWODL latest specification.
e) Cable arrangement shall be provided for HT & LT power cables.
f) A double/triple step portable stool (chequered plate with angle support) shall be provided for movement from ground level to trolley platform
g) The LT box shall have 2 nos. MCCB and provision of cable termination (1R of 1.1 KV 4Cx300 sqmm Cable (for 500kVA DTR) / 1.1kV 4Cx150 sqmm Cable (for 250kVA DTR) for each MCCB).

In case of any jerk and vibration during movement of vehicle cable connections should not be loosed or displaced.

h) Other auxiliary components of trolley and interconnections required for the complete operation of the sub-station to be provided

i) Welded wire mesh. Square mesh of size 75x25mm with min. height 1250 mm on four sides openable (down) arrangement with proper locking arrangement.

j) All side walls and doors to be provided with pad lock arrangement. All side walls shall have Heavy duty hinges such that they are not removable.

k) Canopy shall be provide above the equipment with vertical round pipe support arrangement on the trolley, so that rain water shall not be directly fall on the equipments. Height of the canopy should be 750mm above the highest point of the equipment installed on the trolley.

l) Pulling arrangement shall be provided on the trolley.

m) Stopper arrangement on four corners of the trolley shall be provided.

n) Four wheels shall be designed to carry the load of all equipemnts installed on the trolley, weight of trolley, weight of cable, structures and additional 300 kg shall be considered during design of load bearing capacity of each wheel. Load bearing calculation shall be submitted during drawing approval stage.

o) Provide 4 nos. manual jacks on the four corners of the trolley. Trolley will stand on the jacks during operation stage. Design of trolley should be done so as to carry the total static load during operation and there should not be any vibration of trolley during operation.

p) All ferrous parts shall be hot dip galvanized with heavy coating after proper surface treatment as per standards. Coating thickness shall not be less than 86 micron at any point.

q) All nut bolt used must be Hot dip Galvanized and of size not less than M10.

r) Alert light shall be provided while Distribution Transformer is in service.

s) Proper lighting arrangement shall be provided on the trolley for night operation.

t) Vibration pads shall be provided to avoid any vibration during operation/transport.

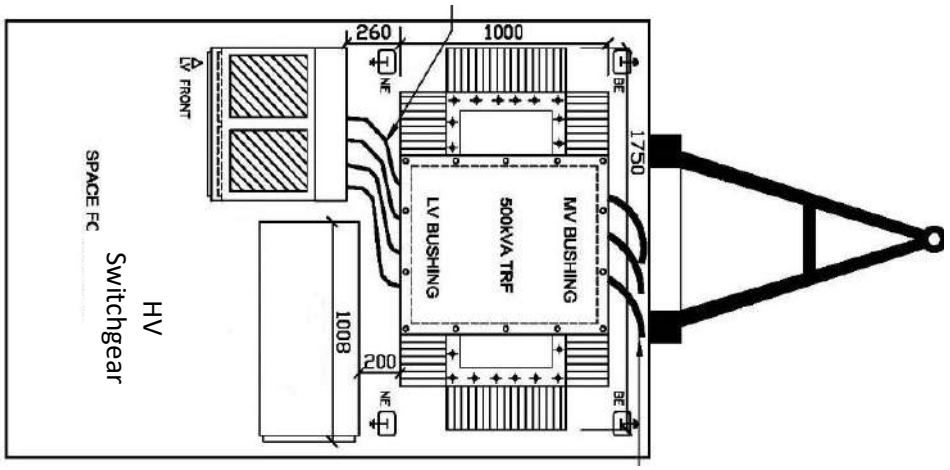
u) No holes shall be left after final completion of the system.

v) Cable cleating arrangement shall be provided.

w) **EARTHING:**

- All non-current carrying parts of the sub-station equipment shall be earthed to a common earth conductor at two points with 50X6 sq mm GI strip. 4 nos. earthing terminals/studs shall be provided outside trolley two for neutral two for common earthing of all equipment on trolley.
- The diameter of the stud/hole shall be at least 12mm and shall be able to connect and terminate the external earth conductor. The connecting point shall be marked with the “Protective earth” symbol. Separate earthing conductor/strip shall be provided for transformer Neutral.

x) Tentative layout of the equipment



y) **PAINT:**

- All paint shall be applied on clean, dry surfaces under suitable atmospheric conditions by seven tank process and powder coating. The paint shall not scale off or crinkle or be removed by abrasion during normal handling. The enclosure for the sub-station shall be painted with shade TPCODL/TPNODL/TPSODL/TPWODL Blue, i.e. PENTON E2727C. Sufficient quantity of touch-up paint shall be furnished for application at site. Min. paint thickness shall be 80 micron.

z) **Galvanizing:**

- The galvanizing shall be carried out by the hot dip process in accordance with latest IS. However, high tensile steel nuts, bolts & spring washers shall be electro-galvanized to service condition four. The zinc coating shall be smooth, continuous and uniform. It shall be free from acid spots and shall not scale, blister or removable by handling or packing. There shall be no impurity in the zinc or additives to galvanic bath, which could have a detrimental effect on the durability of the zinc coating.
- After galvanizing no drilling or welding shall be performed on the galvanized parts of the equipment except that nuts may be threaded after galvanizing.
- To avoid the formation of white rust, galvanized material shall be stacked during transport and stored in such a manner as to permit adequate ventilation. Sodium dichromate treatment shall be provided to avoid formation of white rust after hot dip galvanization.
- All hardware and nut bolts shall be of GI with minimum 80 micron thickness

5.2 HRC FUSE

HRC Fuse of suitable capacity shall be provided on outgoing terminal of MCCB to facilitate electrical breaking of the circuit. Each Distribution Box shall have HRC Fuse Base with HRC Fuse (Blade type Contacts) on Outgoing Circuit. The bidder shall indicate in GTP, the make, type, Fault Rating and capacity of HRC Fuse Base and Fuse offered.

5.2.1 HRC FUSE BASE

The base of the HRC Fuse shall be of non-tracking, heat resistant insulating material of Dough Moulding Compound (DMC) of D3 Grade as per IS: 13411/1992. The Fuse Base shall be sturdy in construction. The extension terminal connector strips of the Fuse Base shall be projecting out on both sides, made with two pieces (half portion of the terminal contact and extension strip should be continuous in one piece).

5.3 LOAD BREAK SWITCH (LBS)

a) The LBS shall be in an outdoor type panel, spring assisted & gang operated.

b) Operating mechanism shall be designed in such way that all the three phases shall open and close simultaneously in smooth way.

c) Equipment grounding shall be provided by bidder at two points with terminals. .

d) It should have:-

   i. Viewing window to analyze contact position.

   ii. Space heater with thermostat.

   iii. Indicating Lamps & illumination Lamp.

   iv. Ingress Protection of IP55.

e) Interlocks:-

   i. Access to the HT HRC Fuse chamber is possible only after switching OFF the main switch.

   ii. The inner door will not be able to open when Main switch is in ON condition.

   iii. The main switch and the earth switch are mechanically interlocked such that the earth

   iv. Switch can be switched ON only after main switch has been switched OFF & vice versa.

5.4 DISTRIBUTION TRANSFORMER

Distribution Transformer shall be as per ENG-HV-2002 - Technical Specification for 11/0.4kV 250kVA to 2000kVA Distribution Transformer (Cu) and its latest amendment.

5.5 LV COMPARTMENT

The complete arrangement of MCCBs shall be provided on a framework of channels with adequate strength to support the weight of MCCB and cables. The Framework shall be covered from the front with GI sheet of thickness not less than 2 mm. such that no live part is accessible at any time during the operation or testing period. All mechanism shall be made of such material as to prevent corrosion due to sticking of dust. All connections and contacts shall be of ample section and surfaces for carrying continuously the specified current without undue heating and shall be secured rigidly & locked in position.

All apparatus shall be so designed and constructed as to obviate the risks or short circuits of the

live parts by lizards / rodents. Corresponding parts of similar apparatus shall be mutually interchangeable. All apparatus, connections and cabling shall be designed / arranged to minimize risks of fire and any damage which might cause in the event of fire.

MCCBs:

The 1.1 KV 4Cx300 sqmm Cable (for 500kVA DTR) / 1.1kV 4Cx150 sqmm Cable (for 250kVA DTR) LT Cable from the transformer secondary shall be at height so as to accommodate mounting of MCCB's (3 pole, 400Amp each) directly below with sufficient space for cable terminations. Phase barriers shall be provided suitably at the terminals of MCCB.

The minimum clearance between phase to phase shall be 25.4 mm and between phase to earth 19.4 mm. Provisioning outgoing of MCCB to connect 1.1 KV 4Cx300 sqmm Cable (for 500kVA DTR) / 1.1kV 4Cx150 sqmm Cable (for 250kVA DTR) Sq.mm armored XLPE cable.

LT ACB:

LT ACB shall be as per ENG-LV-3016 - Specification of 400,630,800 Amp ACB with Enclosure (Outdoor Application) and its latest amendment.

6. MARKING:

All the Components shall be provided with durable and legible nameplates containing all technical parameters. A Danger plate of appropriate size shall also be provided on the enclosure. The nameplate should be 1mm thick SS sheet with black background shall contain the following information:-

6.1 Trolley:

a) Manufacturer's Name
b) Rated Voltage and rating
c) Property of` TPCODL/TPNODL/TPSODL/TPWODL
d) Maximum speed marking shall be provided on four side wall (20 kmph)

6.2 HRC Fuse :

a) Manufacturer's name
b) Type designation
c) Rated Voltage
d) Rated maximum current
e) Rated Breaking current

6.3 LBS

a) Rated Voltage
b) Manufacturer's Name
c) Month/Year of Manufacture
d) Serial Number
e) PO no.
f) Rated normal current
g) Rated one second short-time current

6.4 TRANSFORMER

A stainless steel rating plate shall be fitted to the transformer in a visible position and shall carry all the information as specified in the standards. The letters on the rating plate shall be engraved black on the white/silver background. Danger notice shall have red lettering on a white background or they may be pictorial as approved by TPCODL/TPNODL/TPSODL/TPWODL. The name plate shall contain following:-

a) Manufacturer's Name
b) Type and Serial No.
c) Year of Manufacture
d) No. of phases
e) Rated kVA
f) Rated frequency
g) Rated Voltage
h) Rated current
i) Percentage impedance volts
j) Type of cooling
k) Total weight of transformer
l) Weight and volume of insulating oil
m) No. of Relevant standards applicable
n) BIL

In addition to the above information the rating plate shall also contain the following:

a) Guaranteed values of no load losses and full load losses at 50% & 100 % load
b) Temperature rise
c) Table giving the tapping voltage, tapping current and tapping power of tap
d) Indication of winding which is fitted with tappings
e) Value of short circuit impedance on extreme tapping and on principal tapping and

indication of winding to which impedance is related.

f) Actual losses of transformer

g) Overall dimensions

6.5 LV MCCBs or LT ACB

a) Manufacturer's Name

b) Type designation or serial no.

c) No. of the relevant standard

d) Utilization category

e) Rated Voltage

f) Rated current

g) Rated frequency

h) Rated service short circuit breaking capacity (Ics)

i) Rated ultimate short circuit breaking capacity (lw)

j) Line and load terminals

k) Neutral pole terminals

l) Protective earth terminal

m) Indication of Open and Closed positions

n) Terminal Marking

7. TESTS:

All routine & acceptance 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 on the trolley should have been tested for Routine/acceptance and Type tests as per the relevant standards. Following tests shall be necessarily conducted on the equipment and its components in addition to others specified in the IS/IEC:

7.1 ACCEPTANCE TESTS

a) Dimensional and visual check

b) Mechanical operation test and checking of interlocks

c) Dielectric test on main and control circuits

d) Temperature Rise test

e) Functional tests to prove satisfactory operation of the assembly

NOTE:-1 Testing of Distribution transformer shall be done in accordance with TPCODL/TPNODL/TPSODL/TPWODL specification ENG-HV-2002, Specification For 11/0.4

KV Distribution transformer 250 KVA - 2000 KVA (Copper). Stage & Final inspection of offered transformers to be carried out by TPCODL/TPNODL/TPSODL/TPWODL at sourcing premise before the final assembly/testing of the complete assembly on the trolley.

NOTE:-2 All the Functional and physical testing of other components i.e. LBS & HRC Fuse and MCCB etc. shall be carried out by TPCODL/TPNODL/TPSODL/TPWODL inspector at the time of inspection of package sub-station. However, TPCODL/TPNODL/TPSODL/TPWODL reserves rights to carry out the tests of these components at the sourcing premises also.

7.2 ROUTINE TESTS

a) Dielectric test on the HV interconnection
b) Test on auxiliary and control circuits
c) Functional tests
d) Verification of correct wiring
e) Tests after assembly on site

7.3 TYPE TESTS

a) Distribution Transformer as per TPCODL/TPNODL/TPSODL/TPWODL latest specification
b) LT ACB as per TPCODL/TPNODL/TPSODL/TPWODL latest specification
c) Dielectric tests (Lightning Impulse & Power Frequency withstand) for LBS, HRC Fuse, MCCB
d) Temperature rise tests & Measurement of Resistance of LBS & HRC fuse Panel, MCCB
e) Short-time and peak withstand currents of LBS
f) Breaking Capability of HRC Fuse and MCCB
g) Degree of protection for HRC & Fuse Panel and MCCB
h) Mechanical Operation LBS and MCCB

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates of the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI/ERDA/Other NABL Accredited Govt. Labs** as per the relevant IS/IEC. Type tests 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 TPCODL/TPNODL/TPSODL/TPWODL.

9. PRE DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPSODL/TPWODL. Inspection may be made at any stage of manufacture at the discretion 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 TPCODL/ TPNODL/TPSODL/TPWODL's representatives at all times when the work is in progress. Inspection by the TPCODL/ TPNODL/TPSODL/TPWODL or its authorized representatives shall not relieve the bidder 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 TPCODL/ TPNODL/TPSODL/TPWODL.

Following documents shall be sent along with material.

a) Test reports
b) MDCC issued by TPCODL/ TPNODL/TPSODL/TPWODL
c) Invoice in duplicate
d) Packing list
e) Drawings & catalogue
f) Guarantee / Warrantee card
g) Delivery Challan
h) Other Documents (as applicable).

10. INSPECTION AFTER RECEIPT AT STORES:

The material received at TPCODL/ TPNODL/TPSODL/TPWODL, Odisha store will 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 Engineering department.

11. 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 Company up to a period of 36 months from the date of commissioning or 48 months from the date of last supplies made under the contract, whichever is earlier, supplier 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 Company, failing which the Company will be at liberty to get it replaced/rectified at supplier's risks and costs and recover all such expenses plus the Company's own charges (@ 20% of expenses incurred), from the supplier or from the "Security cum Performance Deposit" as the case may be..

12. PACKING:

Supplier shall ensure that all the equipment covered under this specification shall be prepared for rail/road transport and be packed in such a manner so as to protect the equipment from damage in transit. The material used for packing shall be environmentally friendly. The bidder shall provide instructions regarding handling and storage precautions to be taken at site. No single use plastic shall be used.

13. TENDER SAMPLE:

NA.

14. 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. The bidder shall ensure that the material supplied is as per the Guaranteed Technical Particulars as specified in the specifications.

15. TESTING FACILITIES:

Bidder shall have adequate in-house testing facilities for carrying out all routine tests & acceptance tests as per relevant International / Indian standards.

16. MANUFACTURING ACTIVITIES:

CAT-B/CAT-A approval is mandatory to start manufacturing works.

17. SPARES, ACCESSORIES AND TOOLS

Bidder shall provide a list of recommended spares with quantity and unit prices for 5 years of operation after Commissioning. The Purchaser may order all or any of the spare parts listed at the time of contract award and the spare parts so ordered shall be supplied as part of the definite works. The Purchaser may order additional spares at any time during the contract period at the rates stated in the Contract Document. The bidder shall also provide the required quantity of 11kV cable whenever the same is asked for by the Purchaser. A list of complete set of special tools and gauges required for erection & maintenance and installation procedure should be

submitted.

Bidder shall give an assurance that spare parts and consumable items will continue to be available through the life of the equipment which shall be 25 years minimum. However, the Purchaser shall give a minimum of 12 months' notice in the event that the Bidder or any sub-vendor plans to discontinue manufacture of any component used in this equipment.

Any spare apparatus, parts or tools shall be subject to the same specification, tests and conditions as similar material supplied under the Contract. They shall be strictly interchangeable and suitable for use in place of the corresponding parts supplied with the plant and must be suitably marked and numbered for identification.

18. DRAWINGS AND DOCUMENTS

Following drawings and documents shall be submitted in line with the requirement of Tender specifications:

Following documents to be submitted along with the bid for evaluation:

a) Completely filled–in clause wise compliance of this specification along with bid.
b) Signed and stamped copy of General Arrangement drawing of all equipment on the trolley with Bill of Material
c) Signed and stamped copy of General Arrangement drawing of HV Switchgear (HRC & LBS), Distribution Transformer, LV Switchgear
d) Work Experience details
e) Type test certificates.

Following drawings and documents shall be submitted in line with the requirement of Tender specifications:

a) Completely filled–in clause wise compliance of this specification along with bid.
b) Signed and stamped copy of General Arrangement drawing of all equipment on the trolley with Bill of Material
c) Signed and stamped copy of General Arrangement drawing of HV Switchgear (HRC & LBS), Distribution Transformer, LV Switchgear
d) Signed and stamped copy of Single Line Diagram and Wiring Diagram with Complete Bill of Quantity
e) Design of Trolley and Chasis
f) Compliance of all undertaking submitted during technical evaluation

All the Documents and Drawings shall be in English Language.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS

Completely filled–in clause wise compliance of this specification along with bid.

20. SCHEDULE "B" DEVIATIONS:

(TO BE ENCLOSED WITH TECHNICAL 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:

SL. 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

TECHNICAL SPECIFICATION
COVER SHEET

Document No. : TPU-D-ENG-HV-20070, Rev. R1

Document Title : Technical Specification for 160KVA to 2500KVA Distribution Transformer (11/0.433 KV)

Release date : 10-09-2025

Prepared by	Reviewed by	Reviewed by	Reviewed by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
Nirojanalini Garnaik	Ajay Potdar	SANJEEV ATRI	Shailendra Kumar Jaiswal	TAPAN KUMAR BEHERA	JYOTIPRAKASH MOHANTY	KHAJAN BHARDWAJ	KHAJAN BHARDWAJ	POURUSH GARG

TECHNICAL SPECIFICATION

11KV/0.433KV Distribution Transformer rated 160KVA to 2500KVA (Copper Winding)

Central Engineering Services

TPC-M/TPDDL/TPCODL/TPNODL/TPWODL/TPSODL/TPADL

Specification Title: Technical Specification for 11KV/0.433KV Distribution Transformer rated 160KVA to 2500KVA (Copper winding)

REVISION HISTORY

Rev. #	*Date of revision*	*Purpose of revision*	*Summary of revisions / comments (Attach separate sheet if required)*	*Initiated by*	*Revised / Reviewed by*	*Approved by*
R0						
R1	10.09.2025	Unavailability of Type Test Reports with OEMs	Impulse withstand voltage changed from 95kVp to 75kVp	Yashobanta Rout	Niranjan Khuntia	Pourush Garg
R2						

Central Engineering Services

TPC-M/TPDDL/TPCODL/TPNODL/TPWODL/TPSODL/TPADL

CONTENTS

1. SCOPE:

I. This Specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing forwarding, supply and unloading at site/store and performance of Oil immersed, non-sealed/sealed, naturally cooled, three Phase 11/0.433 kV, 50Hz, outdoor conventional type, copper winding, Distribution Transformer of 160kVA to 2.5 MVA ratings.

II. The transformer shall be complete with all components and accessories, which are necessary or usual for their efficient performance and trouble free operation under the various operating and atmospheric conditions specified in clause no. 3.

III. Such of the parts that may have not been specifically included, but otherwise form part of the transformer as per standard trade and/or professional practice and/or are necessary for proper operation of transformer, will be deemed to be also included in this specification. The successful bidder shall not be eligible for any extra charges for such accessories etc. notwithstanding the fact that at the time of an initial offer bidder had segregated such items and quoted for them separately.

2. APPLICABLE STANDARDS:

The equipment (and the materials used) covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian standards & other relevant standards for components, BEE & CEA guidelines with latest amendment from time to time, thereof, some of which are listed below:

Indian Standards	Title
IS 1180	Outdoor Type Oil Immersed Distribution Transformers Up to and Including 2500 KVA, 33 kV-Specification
IS 2026 (all parts)	Specification for Power Transformers
IS 104	Specification for ready mixed paint, brushing, zinc chrome, priming
IS 335	Specification for new insulating oil.
IS 649	Testing for steel sheets and strips and magnetic circuits.
IS 5	Specification for Colors for ready mixed paints and enamels
IS 1576	Solid Pressboard for Electrical Purposes -Specification
IS 2099	Specification for bushings for alternating voltages above 1000 volts
IS 2362	Determination of water content in oil by Karl in oil Fischer Method – Test Method.

IS 3024	Grain oriented electrical steel sheets and strips
IS3347 (Part I & Part-3)	Dimensions for Porcelain Transformer Bushings for Use in Normal and Lightly Polluted Atmospheres - Part 1 : Up to and including 1 kV
IS 4253: Part II:	Specification for cork composition sheets- Part II : Cork and Rubber
IS 4257(Part I):	Dimensions for Clamping Arrangements for Porcelain transformer Bushings - Part I: For 12 kV to 36 kV Bushings
IS 5082	Wrought Aluminum and Aluminum Alloy bars, Rods , Tubes, Sections, Plates and Sheets for Electrical Applications
IS 5561	Specification for Electric Power Connectors
IS 6103	Specification for Testing of specific resistance of electrical insulating liquids
IS 2026 part 7	Guide for loading of Oil-immersed transformer
IS 6792	Method for Determination of Electric Strength of Insulating Oil
IS 7404 (Part-1):	Paper Covered conductors: Round Conductors
IS 7421	Specification for porcelain bushings for alternating voltages up to and including 1000kv
IS 8603(Part-1) :	Dimensions for Porcelain Transformer Bushings for Use in Heavily Polluted Atmospheres - Part I:12 kV and 17.5 kV Bushings
IS 9335	Specification for Cellulosic Papers for Electrical Purposes
IS 10028	Code of Practice for Selection, Installation and Maintenance of Transformers
IS 11149	Specification for rubber gaskets
IS 12444	Specification for Continuously Cast and Rolled Electrolytic Copper Wire Rods for Electrical Conductors.
IS/IEC 60947 (Part-1 & Part-2)	Specification for LV Switchgear & Control gear
IS 6160	Rectangular electrical conductors for electrical machines
IS 13964	Methods of measurement of transformer and reactor sound levels
IS 3401	Specification of silica Gel
IS 1897	Copper strip for electrical purposes
IS 60529	Degree of protection provided by enclosure

IS 816	Welding of Mild Steel
CEA	Guidelines for specifications of energy efficient outdoor type single and three phase distribution transformers
IS 6262	Method of test for power factor and dielectric constant of electrical insulating liquids
IS 16659	Fluids For Electro technical Applications - Unused Natural Esters For Transformers And Similar Electrical Equipment
IS 16081	Insulating liquids — Specifications for. Unused synthetic organic esters for Electrical purposes
IEC 60156	Method of determination of electric strength of insulating oils.
IEC 60296	Specification for unused mineral insulating oils for transformers and switchgear.
IEC 60529	Degrees of protection provided by enclosures (IP Code)
IS 1852	Rolling and cutting tolerances for hot rolled steel products

3. CLIMATIC CONDITIONS:

1	Maximum ambient temperature	50 deg C
2	Max. Daily average ambient temp	35 deg C
3	Min Ambient Temperature	0 deg C
4	Maximum Humidity	95%
5	Average Annual Rainfall	1500 mm
6	Average No. of rainy days per annum	120
7	Altitude above MSL not exceeding	1000m
8	Wind Pressure	300 Km/hr
9	Earthquakes of an intensity in horizontal direction	equivalent to seismic acceleration of 0.3g
10	Earthquakes of an intensity in vertical direction	equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)

Some of the service area has heavy saline conditions along the coast and High cyclonic Intensity winds with speed up to 300 Kmph. The atmosphere is generally laden with mild acid and dust in

suspension during the dry months and is subjected to fog in cold months.

4. GENERAL TECHNICAL REQUIREMENTS:

Sl. No.	Description	Requirements												
					*	*		*	*		*	*		
1.	Continuous Rated Capacity (kVA)	**160 KVA**	**200 kVA**	**250 kVA**	**315 kVA**	**400 kVA**	**500 kVA**	**630 kVA**	**800 kVA**	**1 MVA**	**1.25 MVA**	**1.6 MVA**	**2 MVA**	**2.5 MVA**
2.	Application	Outdoor												
3.	System voltage (max.)	12KV												
4.	Rated voltage HV	11KV												
5.	Rated voltage LV (V)	433-250												
6.	Line current HV(A)	8.4A	10.49 A	13.12 A	16.53 A	20.96 A	26.25 A	33.06 A	42A	52.48 A	65.6 A	83.98 A	104.97A	131.21A
7.	Line current LV (A)	222.6 A	266.6 A	333.34 A	420.02 A	533.36 A	666.68 A	840.02 A	1066.7A	1333.4 A	1666.7 A	2133.5 A	2666.7 A	3333.52 A
8.	Frequency (Hz)	50 Hz												
9.	No. of Phases	Three												
10.	Connection HV	Delta												
11.	Connection LV	Star (Neutral Brought out) Star formation shall be done by Blazing.												
12.	Vector group	Dyn-11												
13.	Type of cooling	ONAN												
14.	Tapping range and principal tapping position	Refer clause no. 5.8												
15.	No. of tap positions	Refer clause no. 5.8												
16.	Noise level at rated voltage and frequency	55 dB	55 dB	55 dB	56 dB	56 dB	56 dB	57 dB	58 dB	58 dB	60 dB	60 dB	61 dB	61 dB
17	**Permissible temperature rise over ambient:**													
17.1	Of top oil	40 ºC												
17.2	Of winding	45 ºC												
18.	Max. Total Losses at 50% loading at 75°C (watts) # IS:1180 Amendment 4 (L-2)	570	670	920	955	1150	1430	1745	2147	2620	3220	3970	4790	5900
19.	Max. Total Losses at 100% loading) at 75°C (Watts). IS:1180 Amendment 4 (L-2)	1700	2100	2700	2750	3330	4100	4850	5838	7000	8400	11300	14100	17500

20.	Short circuit impedance voltage at 75°C (±10% tolerance)	4.5%	4.5%	4.5%	4.5%	4.5 %	4.5 %	4.5%	5%	5%	5%	6.25 %	6.25 %	6.25 %
21	Insulation Class	A												
22.	Normal Flux Density (at rated voltage and frequency)	1.6 T												
23.	Maximum current density (A/mm²)	2.5												
24.	Impulse withstand voltage (KVp)	75												
25.	Power frequency withstand voltage (KV)	28												
26.	Max. flux density (Increase of +12.5 % combined voltage & frequency variation from rated voltage & frequency)	1.9 T (Max.)												
27.	Voltage fluctuations permissible	+12.5% to -12.5%												
28	**Metering CT for LV side**													
28.1	**Option -01 # For TP ODISHA _ Up to 500KVA metering CT is not required (to be confirmed during detailed engineering)** **Option-02 # For TPC Mumbai –Not Required for all the ratings** **Option-03 # For CTR refer following**													
28.2	**Metering CT for LV side**	300/ 5	300/ 5	400 /5	500 /5	600 /5	800 /5	1000 /5	1200 /5	1500 /5	2000 /5 A	2500 /5 A	3000 /5A	3500 /5A
28.3	Accuracy Class for metering CT	0.5s												
28.2	Burden	20 VA												
28.3	ISF (Instrument security factor)	5												
29.	Neutral terminal	Two separate brought out neutral from main neutral bus bar, One for taking out the neutral for 4 wire system and other additional neutral for solid earthing.												
30.	**Minimum clearances in air (mm) :**													
30.1	HV phase to phase/ phase to	255 / 140												

	earth	
30.2	LV phase to phase/ phase to earth	75 / 40
31	**Minimum clearances in Cable Box (mm) :**	
31.1	HV phase to phase/ phase to earth	130 / 80
31.2	LV phase to phase / phase to earth	25 / 20
32	**Wheels**	The transformer shall be provided with four unidirectional rollers with locking arrangement suitable for rail gauges in both the axis for movement of transformer in either direction. Distance between wheels shall be center to center 820mm.
'* : Ratings are for optional/ future use		

5. GENERAL CONSTRUCTION:

I. The transformer shall be stacked core, copper coil, oil immersed, naturally cooled (ONAN), sealed/non-sealed type with plain rectangular tank.

II. The transformer shall be suitable for service with fluctuations in supply voltage up to +12.5% to -12.5%.

III. The transformer shall be designed suitable for service life of 25years.

IV. The transformer and accessories shall be designed to facilitate trouble free operation, inspection, maintenance and repairs under the various operating and atmospheric conditions specified in clause no. 3.

V. The design shall incorporate every precaution and provision for the safety of the equipment as well as staff engaged in operation and maintenance of the equipment.

VI. All outdoor apparatus of the transformer, including bushing insulators with their mountings, shall be designed so as to avoid any accumulation of water.

VII. Star formation shall be done by Blazing.

5.1 CORE:

I. Transformer core shall be stack type, 2D, constructed from high grade cold rolled, non-ageing, grain oriented, silicon steel lamination which shall be properly annealed (under inert atmosphere, if required) to relieve stresses.

II. The core shall have low loss and good grain properties.

III. Core should be coated with hot oil proof, with insulation coating, an inorganic coating equivalent to C-5 type or , C5 over C2 as ASTM A976 or IS 3024, like Carlite -3 .

IV. All core should be clamped together with frames to prevent vibration and noise. The core

clamping shall be preferably without through bolts and if any bolt used same shall be effectively insulated.

V. The core thickness should be 0.23mm or less. 23HP85 as per IS 3024 or better with Minimum Polarization in Tesla at a Field Strength of 800 A/m

VI. Only single grade and same thickness of core stampings shall be accepted and mixing of different grades shall not be allowed.

VII. The complete design of the core must ensure maximum permanency of the core losses without continuous working of the transformers.

VIII. The value of the maximum flux density allowed in the design and grade of lamination used shall be clearly stated. The vendor shall submit the calculations in support of the same.

IX. The handling of core lamination and stacking should be smooth and uniform.

X. The transformer shall be suitable for continuous service without damage under 'over fluxing' where the ratio of voltage over frequency exceeds the corresponding ratio at rated voltage and rated frequency up to 12.5% and the core shall not get saturated. The BH graph to be submitted by bidder for core material.

XI. The No Load current shall not exceed 2% of the Full Load current for >=250kVA (3% for 160KVA & 200KVA) and will be measured by energizing the transformer at rated voltage and frequency. Increase of 12.5% of rated voltage shall not increase the no-load current by 5% maximum of full load current for >=250kVA rating (6% for 160 KVA & 200KVA).

XII. The bidder shall be required to submit the following documents in regard to procurement of core material during stage inspection:

a. Invoice of supplier
b. Mill's test certificate
c. Packing list
d. Bill of landing
e. Bill of entry certificate by custom (if required)
f. Description of material, electrical analysis, physical inspection certificate for surface defects, thickness and width of material.

XIII. The bidder shall offer the core for inspection and approval of Respective TP DISCOM during manufacturing stage. Heavy penalty or black listing shall be imposed on the bidders using defective CRGO sheets i.e in case of nonconformance w.r.t TP DISCOM Specifications.

XIV. Transformer core assembly shall have enclosed type lifting lugs for lifting arrangement.

XV. **Bidder shall provide the below details in below table**:

Sl.	Description	Unit	To be furnished by bidder

No.			
1	Magnetizing (No Load) Current		
	90% Voltage	%	
	100% Voltage	%	
	112.5% Voltage	%	
2.	Core grade		
3.	Thickness of core Lamination	Mm	
4.	Core Dimension: Length X height X diameter	mm x mm	
5.	Gross core area	Sq.cm	
6.	Net core area	Sq.cm	
7.	Flux density (calculated)	Tesla	
8.	Over fluxing without saturation (BH curve to be submitted)	Tesla	
9.	Mass of core	Kg	
10.	Loss per Kg of core at the above specified flux	Watt	
11.	Core window height	Mm	
12.	Center to center distance of the core	Mm	
13	Mass of Core Lamination (min.)	Kg	
14	Make of Core offered		

5.2 WINDING CONNECTIONS

I. Primary and secondary windings shall be constructed from high- conductivity (copper conductors), Double Paper Covered (DPC) copper conductor with min. 30% overlap per layer of paper.
II. The conductor should be drawn uniformly without any deformation and any burr.
III. No metallic or non-metallic dust should be present in-between DPC conductor.
IV. The current density for HV and LV winding should not be more than 2.5 Ampere per sq.mm.
V. The insulation between core and bolts, core and clamps shall withstand **2.5 kV for one minute.**
VI. Proper bonding of inter layer insulation with the conductor shall be ensured.

VII. All turns of windings shall be adequately supported (by which material) to prevent movement. The core/coil assembly shall be securely held in position to avoid any movement under short circuit conditions.

VIII. The joints in the winding shall be avoided but if it is necessary then, they shall be properly brazed and the resistance of the joints shall be less than that of parent conductor. Crimping is not allowed at any joints.

IX. LV winding shall be such that neutral formation is at the top.

X. Bidder shall provide the below details in below table:

Sl. No.	**Description**	**Unit**	**To be furnished by bidder**
1.	No. of LV coils		
2.	No. of HV coils		
3.	HV conductor grade		
4.	Dia of HV conductor (Bare)	Mm	
5.	Dia of HV conductor with (DPC)	Mm	
6.	Conductivity of HV conductor	%	
7.	Purity of HV conductor	%	
8.	No. of HV Turns	Nos.	
9.	Current density of HV winding(calculated)		
10.	Wt. of the HV winding copper without insulation	Kg	
11.	LV conductor grade		
12.	Dimension of LV conductor (Bare)	mm x mm	
13.	Dimension of LV conductor with (DPC)	mm x mm	
14.	Conductivity of LV conductor	%	
15.	Purity of LV conductor	%	
16.	No. of LV Turns	Nos.	
17.	Current density of LV winding(calculated)	A	
18.	No. of parallels of LV conductor	Nos.	

19.	Wt. of the LV winding copper without insulation	Kg	
20.	Resistance of windings at 20^0C		
	HV winding	Ohm	
	LV winding	Ohm	
21.	Height of LV winding	Mm	
22.	Height of HV winding	Mm	
23.	ID of HV winding	Mm	
24.	OD of HV winding	Mm	
25.	ID of LV winding	Mm	
26.	OD of LV winding	Mm	
27.	Thickness of the duct in LV winding	Mm	
28.	Thickness of the duct in HV winding	Mm	
29.	Thickness of the duct between HV & LV	Mm	
30.	Make of the copper winding conductors		

5.3 INSULATING PAPER AND INSULATING PRESSBOARD

I. Inter layer insulation both for HV and LV windings shall be Epoxy diamond dotted Kraft paper and compressed pressboard of make (refer Clause no.5.32) subject to approval of Respective TP DISCOM.

II. Primary and secondary windings shall be constructed from high- conductivity (copper conductors), Double Paper Covered (DPC) copper conductor with min. 30% overlap per layer of paper.

III. Kraft paper and Pressboard should be made of pure Cellulose from soft wood pulp manufactured from sulphate process. No additive, adhesive or coloring matter shall be present.

IV. Kraft paper and Pressboard should be of class A (105°C) insulation material.

V. All spacers, axial wedges / runners used in windings shall be made of pre-compressed solid pressboard.

VI. All axial wedges/runners shall be properly milled to dovetail shape so that they pass through the designed spacers freely.

VII. Insulation shearing, milling and punching operations shall be carried out in such a way, that there should not be any burr, sharp edges and dimensional variations.

VIII. Kraft paper self-adhesive tape to be used for bonding of insulating paper layer, spanner and paperboards that are immersed in the oil filled transformer.

IX. Below required values could be verified if required at any stage of the inspection and it should fulfill the requirement as per below table:

Characteristics	Kraft Paper	Pressboard (all Sizes)
1. Dimension	As specified by bidder with +5% tolerance.	As specified by bidder with tolerance as per IS1576.
2. Apparent Density	>0.80 g/cm^3	as per IS 1576 w.r.t Thickness
3. pH of Aqueous extract	6-8%	6-8%
4. Electrical strength i) in air ii) In Oil	7KV/mm ----------	12KV/mm 35KV/mm
5. Ash content	Maximum 1%	Maximum 0.7
6. Moisture content	Maximum 8%	Maximum 8%
7. Oil absorption	----------	Minimum 9%
8. Heat stability	As per IS 9335-part 3	As per IS 1576
9. Tear index	As per IS 9335-part 3	As per IS 1576

Bidder has to submit the test certificates as per IS-9335, IS-1576 for all type of insulating materials covering above stated parameters along with **below parameters during stage inspection:**

a. Substance (Grammage) (g/m3)
b. Compressibility
c. Tensile strength
d. Conductivity of water extract
e. Shrinkage in air
f. Flexibility
g. Cohesion between plies.
h. Elongation
i. Air permeability
j. Bidder shall provide the below details in below table

Sl. No.	Description	Unit	As furnished by bidder
1.	DPC Paper for HV and LV conductors :		
	Type of DPC Paper		
	Make of DPC Paper		
	Thickness DPC Paper	mm	
	Percentage Overlapping (30% overlap per layer of paper)	%	

2.	Type of Paper for Interlayer Insulation		
	Make of Paper for Interlayer Insulation		
	Thickness of Paper for Interlayer Insulation	mm	
3.	Type of Paper for Insulation Between HV and LV winding		
	Make of Paper for Insulation Between HV and LV winding		
	Thickness of Paper for Insulation Between HV and LV winding (for all sizes)	mm	
4.	Type of Pressboards used for Insulation Between HV and LV winding		
	Make of Pressboards used for Insulation Between HV and LV winding		
	Thickness of Pressboards for Insulation Between HV and LV winding (all size)	mm	
5.	Type of Paper used for insulation between core and LV		
	Make of Paper used for insulation between core and LV		
	Thickness of Paper used for insulation between core and LV (All sizes)		
6.	Type of Pressboard used for insulation between core and LV		
	Make of Pressboard used for insulation between core and LV		
	Thickness of Pressboard used for insulation between core and LV (All		

	sizes)		
7.	Material used for top and bottom yoke insulation		
	Make of material used for top and bottom yoke insulation		
	Thickness of material used for top and bottom yoke insulation	mm	
8.	Type of material used for Spanner, wedge and Axial for insulation		
	Make of material used for Spanner, wedge and Axial for insulation		
	Thickness of material used for Spanner, wedge and Axial for insulation (all sizes)	mm	

5.4 LOSSES

I. The bidder shall individually guarantee No load loss (Iron loss at rated voltage and frequency) and full load Copper Loss (at 75ºC) without any positive tolerance.

II. **The bidder shall also guarantee the total loss at 50% and 100% load condition (at rated voltage and frequency and these should be within the limits of maximum total losses declared by Respective TP DISCOM for both 50% and 100% loading values (as per table below)** Refer IS : 1180 amendment 4 (L-2)

Description	Rating (kVA)						
	160	**200**	**250**	**315 ***	**400 ***	**500**	**630***
Maximum Losses at 50% loading at 75ºC (Watts)	570	670	920	955	1150	1430	1745
Maximum Losses at 100% loading at 75ºC (Watts)	1700	2100	2700	2750	3330	4100	4850

Description	Rating (kVA)					
	800*	**1000**	**1200***	**1600***	**2000**	**2500**
Maximum Losses at 50% loading at 75ºC (Watts)	2147	2620	3220	3970	4790	5900
Maximum Losses at 100% loading at 75ºC	5838	7000	8400	11300	14100	17500

(Watts)						

No positive tolerance shall be allowed on the losses as mentioned above. However, bidder can offer losses less than specified but no consideration in cost will be given for the same.

'***: Ratings are for optional/ future use**

III. **The successful bidder shall guarantee the quoted losses for at least five years**. If at any point of time during operation if it is found that the total losses at 50% and 100% load are more than the values given in specifications, then bidder shall be liable to pay a fine of Rs. 250 per watt to the amount by which losses at 50% loading and 100% loading increase with respect to the values given in specifications.

IV. During testing at Bidder's works if it is found that the actual measured losses are more than the values quoted by the Bidder, **respective TP DISCOM shall have the right to reject the complete lot**.

V. During testing at Bidder's works, if the temperature rise exceeds the specified values, **the entire lot shall be rejected by respective TP DISCOM.**

VI. During testing at Bidder's works, if the impedance values differ from the guaranteed values including tolerance, the **entire lot shall be rejected by respective TP DISCOM.**

VII. Transformer losses shall be checked on any one of DT from supplied lot at Respective TP DISCOM workshop. If it is found that the actual measured losses are more than the values quoted by the Bidder, **respective TP DISCOM shall have the right to reject the complete lot.**

VIII. **Bidder shall provide the below details in below table:**

Sl. No.	Description	Unit	To be furnished by bidder
1	No Load losses	Watt	
2	Load losses at 50%loading at 75° C	Watt	
3	Load losses at 100% loading at 75° C	Watt	
4	Total losses at 50%load at 75° C	Watt	
5	Total losses at 100% load at 75° C	Watt	
6	**Efficiency at 75 deg. C**		
7	**Efficiency at Unity P.F.**		
7.1	100% load	%	
7.2	80% load	%	
7.3	60% load	%	
7.4	40% load	%	

7.5	20% load	%	
8	**Efficiency at 0.8 P.F.**		
8.1	100% load	%	
8.2	80% load	%	
8.3	60% load	%	
8.4	40% load	%	
8.5	20% load	%	
9	**Regulation at :**		
9.1	Unity P.F. at 75 deg. C	%	
9.2	0.8 P.F. at 75 deg. C	%	
9.3	% Impedance at 75 deg. C	%	

5.5 TRANSFORMER TANK :

I. The transformer tank shall be of robust construction, **rectangular in shape** and shall be built up of electrically tested welded mild steel plates.

II. The tank shall be fabricated by welding at corners. No horizontal or vertical joints in tank side walls and its bottom or top cover shall be allowed.

III. All welding operations should be carried by **qualified welders** (performance qualification certificates to the customer) as per the relevant ASME standards and a copy of the **welding procedure** has to be submitted to Respective TP DISCOM at the time of drawing approval.

IV. The **thickness of tank** should be as below:
For top and bottom: 6 mm (min.)
For Sides: 5 mm (min.)
Tolerance shall be applicable as per IS 1852 as per above thickness band.

V. In addition the cover of the main tank shall be provided with an **air release plug.**

VI. **Base channel shall be minimum size 100x50mm for rating up to 250kVA and shall be minimum 150x75mm for higher ratings.**

VII. The tank plates shall be of such strength that the complete transformer when filled with oil may be lifted bodily by means of the lifting lugs provided. The top cover shall have no cut at point of lifting lug.

VIII. The transformer tank cover shall be bolted with tank rim so as to make a leak proof joint.

IX. The tank plate and lifting lugs shall be of such strength that the complete transformer filled with oil may be lifted by means of lifting shackle.

X. The tank cover shall have slight slope (10 mm $\pm$ 2mm) towards HV side to drain rain water.

XI. There must be sufficient space from the core to the top cover to take care of oil expansion. The oil volume inside the tank shall be such that even under the extreme operating conditions, the **pressure generated inside the tank does not exceed 0.4**

kg/sq. cm positive or negative and the tank shall be of adequate mechanical strength to withstand it.

XII. The transformer upto 200 kVA plain tank shall be capable of withstanding a pressure of 80 kPa and a vacuum of 250 mm of Hg. For above 200 kVA plain tank shall be capable of withstanding a pressure of 80 kPa and vacuum of 500 mm of Hg. For limiting value refer Cl. No. 21.5.2 of IS 1180(latest amendment). The permanent deflection of the flat plate, after pressure/ vacuum has been released, shall not exceed the values given below:

Length of Plate	Deflection
Up to 750 mm	5.0 mm
751 mm to 1250 mm	6.5 mm
1251 mm to 1750 mm	8.0 mm
Above 1750 mm	9.0 mm

XIII. **The tank design shall be such that the core and the windings can be lifted freely without dismantling the bushings.**

XIV. All joints of tank and fittings shall be oil tight and no bulging shall occur during service.

XV. Anti-theft stainless steel fasteners (high-quality stainless steel to ensure durability and resistance to corrosion**)** with breakaway nut shall be provided for securing accessories on Drain valve, explosion vent, Filter valve, Inspection top plate, conservator plate, etc. For installations where the number of bolts used per joint is six or more, four (4) anti-theft stainless steel fasteners shall be provided per joint diagonally. For installations where the number of bolts used per joint is less than six, two (2) anti-theft stainless steel fasteners shall be provided per joint diagonally.

XVI. The tightening torque chart to be provided for all bolts used. Wherever bolts are used, the Bolt shall be of grade 5.6 or higher TS. Tightening Torque chart shall be submitted along with each rating drawings.

XVII. The transformer shall be provided with four pulling lugs of MS plate of 8mm thick to pull the transformer horizontally.

XVIII. DT top cover shall be connected at two places (diagonally opposite with each other) with the tank by tinned copper strip. (30 mm wide 0.7 mm thick). The strip should touch bare surface of boss in order to ensure proper electrical connection of tank body with top cover with the strip.

XIX. Earthing terminals with symbol at diagonally opposite side of tank with M12 bolt size.

XX. The maximum overall size of DTs(including tolerance) shall be as mentioned below:

Rating	Size (LXB) in mm
Up to 500KVA	1800 X 1800
630KVA, 800KVA, 1MVA	2200 X 2000
1.25MVA	2200 X 2000
1.6MVA	2400 X 2200
2 MVA	2500 X 2300

Lifting lugs:

XXI. The transformer shall be provided with a minimum of four welded heavy duty enclosed lifting lugs of Structural steel E250 or better grade quality A (Minimum quality A) as per IS 2062 plate of minimum 16mm thickness for lower rating and gradually increased for higher rating as per weight suitably reinforced by vertical supporting flat stiffener smooth welded properly on the side walls up to reinforcing angle. They shall be so extended that cutting bend plate is not required.

XXII. The lifting lug shall have D shackle bolt hole of 30mm diameter in ratings up to 630kVA and 40mm diameter for higher ratings.

XXIII. The transformer lifting lug shall be painted with yellow colour.

XXIV. The location of lifting lugs shall be such that the clearance between lifting chain and nearest part of bushing shall be at least 100 mm.

XXV. There shall be facilities for lifting the core coil assembly separately.

XXVI. The lifting lugs shall be designed in such a way that any two diagonal lugs are capable of lifting two times of the total weight of the transformer. The design of should be such that it should be suitable for 120degree lifting rope angle as per ASME B30.9 and at any point of time the maximum stress allowed on the Lug martial shall be lesser than 82MPa as per ANSI C.57.12.10

XXVII. Calculation sheet for Lifting lug design to be submitted by Bidder. The calculation shall include the Stress on lifting lug material and stress on welding both. The Stress on the welding should be less than 840kg/cm2 as per ANSI C.57.12.10. All calculation to be done for considering lifting on any diagonal opposite two lugs conditions.

XXVIII. The lifting lugs shall be located on the side walls (not on bushing or cable box side) only and conservator on LT box side. Separate drawing to be submitted stating welding thickness, welding length and location on tank along with stiffener support for all rating and all lugs.

XXIX. **Bidder shall provide the transformer size and clearances in below table:**

Sl. No.	**Description**	**Unit**	**To be furnished by bidder**
1	**Transformer overall Length x Height x width**	mm x mm x mm	
2	Only Tank **overall Length x Height x width**	mm x mm x mm	
3	HV Cable box overall LxWxH	mm x mm x mm	
4	LV Cable box overall LxWxH	mm x mm x mm	
5	**Clearances**		
5.1	Core and LV (minimum 5mm)	Mm	
5.2	LV and HV (minimum 8mm)	Mm	
5.3	HV Phase to phase (minimum	Mm	

	10mm)		
5.4	Between HV winding and Yoke (minimum 20mm)	Mm	
5.5	Between LV winding and Yoke (minimum 5mm)	Mm	
5.6	Between yoke and inside of tank to cover (minimum 100mm)	Mm	
5.7	Between yoke and bottom (minimum 10mm)	Mm	
5.8	Any point of winding to tank (minimum 20mm)	Mm	
6	**Calculated Impedance**	%	
7.1	HV to Earth Creepage distance in oil (minimum 15mm)	Mm	
7.2	LV to Earth Creepage distance in oil (minimum 5mm)	Mm	
8.	Conservator dimension (dia x Length)	mmxmm	
9.	Size of Pipe used for conservator to Tank	Mm	
10.	Size of Pipe used for Valves	mm	
11.	Base Channel size	mmxmm xmm	
12.	No. of Radiators	Nos	
13.	No. of fins per Radiator	Nos	
14	Dimension of radiator fins (L x W)	Mmxmm	
15	Make of Tank material		

5.6 RADIATORS

I. Radiators of pressed steel type conforming to the design requirement suitable for mineral oil and Ester oil (all type) type transformer.

II. The Pressed Steel type should be used in vertical formation without any bending and should be individually tested for leakage and pressure test etc. before welding with the main tank.
III. **Thickness** of sheet for radiators shall be **1.20 mm (min)**.
IV. The **mounting** of the radiators shall be **non-detachable for all the ratings. (For TP Odisha DISCOMs non-detachable up-to 500 KVA and detachable type for above 500 KVA up-to 2.5 MVA.)**
V. The number / cross section / length / fixing arrangement of radiators shall be indicated in the general assembly drawing.
VI. Radiator thickness must be uniform without any dent or damage and also no bulging or concave should occur even after performing pressure/ vacuum test and temperature rise test.
VII. Corrugated designs are not accepted (for Non- detachable type radiator).
VIII. Radiator with box type design not accepted (For non-detachable Type radiator).

5.7 GASKET

I. **Cork rubber gaskets** conforming to Type C , grade RC70 as per IS 4253 (Part-2) shall be provided for all oil bearing & water ingress resistant requirements for components like HV & LV bushings bottom gasket, HV & LV terminal box, Top Cover, Conservator, Valves, door covers etc.
II. Nitrile/Neoprene rubber gaskets conforming to Type IV – 4C (heat and oil resistant) as per IS 11149 shall be provided for bushing O ring (oil gaskets).
III. Only Joint free Gasket to be used. Only in case of top cover gasket and terminal box gasket up to two dove-tail joints with adhesive shall be allowed. The terminal box gasket joint shall come at bottom part**.**
IV. Cork sheet, Nitrile/Neoprene rubber gaskets shall be free from cracks, pinholes and shall be capable of being cut or punched without crack or tearing.

5.8 TAPS

I. Rotary/Ring type tap changing mechanism (OCTC) to be mounted on side of the transformer in such way that could be easily operated in smooth way.
II. Tap changing shall be carried out by means of an externally operated self-position switch and when the transformer is in de-energised condition.
III. The taps shall be provided in HV winding and each tap change shall result in voltage variation of 2.5%.
IV. Provision shall be made for locking the tapping switch handle in position. Suitable plate shall be fixed for tap changing switch to know the position number of tap.
V. Tapping range and principal tapping position will be finalized during detailed engineering by concerned TP DISCOMs.
   a. **Option -01 (for TPM & TPDDL**): Switch position no.1 shall correspond to the maximum plus tapping (+10%) and position no. 7 or 9 shall correspond to minimum tapping (-10%). Tap no. 5 to be considered as principal tap position
   b. **Option-02 (for TP Odisha)**: Switch position no.1 shall correspond to the maximum plus tapping (+5%) and position no.7 shall correspond to minimum tapping (-15%). Tap no. 3 to be considered as principal tap position.

5.9 BUSHINGS AND TERMINAL CONNECTORS

A. HT Bushings (17.5 kV/250 A):

I. The bushings shall be outdoor type, external part shall be made of porcelain material. Rods, nuts and flat washer (Tightening Nut along with Check Nut) shall be made of tinned brass material.

II. IS to be followed: IS 8603(Part- I) for porcelain, IS 3347 part3 section 2 for metal part and Complete bushing shall comply IS 2099.

III. Bushing shall have creepage distance of 25mm/KV for cable box and 31mm/kV for bare bushing.

Option 1: Outdoor Bushing on Top with Bird Guard

IV. The HV bushings shall have Hot Dipped Galvanized or Alum-zinc coated or SS material arcing horns with 8mm diameter. The thickness of coating shall be **86 microns** (minimum at any point).

V. The HV bushing shall be fitted with connector and UV resistant polymeric bird guard on the bushing connector.

VI. Complete Tinned Brass joint less connectors shall be provided on HV bushing rods suitable for bare dog conductor connections. The connector should have large contact area with minimum vertical contact lengths - 40mm contact length for up to 160kVA, 65mm contact length for up to 500kVA. Connector hardware shall be Hot Dipped Galvanized or Alu-zinc coated or SS material.

Option 2: Side bushing with Cable box (For Cable Box refer cl. 5.10 # HV Cable Box)

VII. Transformer shall be with HT cable box on sidewall of tank having porcelain bushing as specified above.

VIII. **Tinned Copper bus-bar of 100mm long with 50mmx6mmSize:** The tinned copper bus-bar to be provided on HV cable box one size shall fixed in bushing stud with tinned brass bolts and washers. Other side should have hole with M16 bolts for fixing of Lug.

B. LT Bushings (1.1kV/suitable current rating):

I. The bushings shall be of outdoor type made of porcelain material**, the rod shall be Tinned copper for all rating along with neutral**. The nuts and **washers shall be of (Tightening Nut along with Check Nut) tinned brass material.**

II. IS to be followed: IS 3347(Part-I) (Section-1 for porcelain and Section 2 for metal part) and IS 7421(latest amendment of IS).

III. The metal portion of the internal HV & LV bushing inside the tank shall remain dipped in oil in all operating condition.

IV. The LV bushings shall be provided on the side wall of tank along with cable box.

V. The bushing tinned copper stem sizes to be followed are,

Rating	Size of stem
160kVA	M12
250kVA	M20
315KVA	M20
400kVA	M20
500kVA	M30
630kVA	M30
800kVA	M42
1000kVA	M42
1.25 MVA	M42
1.6 MVA	M42

2 MVA	M42
2.5 MVA	M48

5.10 CABLE BOXES

I. Cable boxes made up of Mild Steel 2.2mm thickness with suitable handle and front cover to be provided for both HV and LV side.

II. Water should not accumulate on cable boxes and proper slope shall be provided in order to ensure drainage of water.

III. Cable box protection shall be IP 55. Test reports to be submitted from CPRI /ERDA.

IV. Cable box should be painted in same way as that of tank painting with treatment.

V. HV and LV cable boxes shall be fixed on opposite sides on the tank with nuts and bolts (gasket placed in between them) in such a way that they can be completely removed whenever required.

VI. Canopy shall be provided on all gasket joints, the bend edges of cover overlapping gasket to protect from rain and sunlight shall also accepted.

VII. Cable cleating arrangements shall be provided just below terminal box (outside) to keep Cable straight and to support cables to avoid tension on bushings due to cable weight.

VIII. For Cable clamping, **Fire retardant nylon grade material to be used for oval shaped clamping arrangement** with GI nut bolt on both HV & LV Side.

IX. For HV Cable box, Non-magnetic Gland plate shall have thickness of 3mm and shall be in two parts in such a way that HV cable can be easily removed.

X. For LV cable box, Non-magnetic Gland plate shall have thickness of 4mm and shall be in two or more parts in such a way that LV cables can be easily removed by removing the gland plates.

XI. Gland plates shall be mounted separately with nut & bolt arrangement and gasket in between them.

XII. Support for GI earth strip (65x10mm) shall be provided to avoid tension on secondary neutral bushing.

XIII. The size of the cable box cover should be moderate so that only one or two people is enough to lift it.

XIV. Space Heater (100 W) with thermostat arrangement shall be provided in the HV cablebox

XV. The bidder shall submit **drawings for the box with internal details** along with the transformer for approval.

HV CABLE BOX (option 2, ref: 5.9.A):

XVI. The HV box shall be designed and fixed on transformer such way that only opening of cover shall facilitate for working on cable termination with ease of accessibility of terminal.

XVII. HV box gland plate shall have Single compression gland designed for 11kV, 3C X 150 or 3Cx300 sq.mm or 3CX400 sq.mm XLPE Cable as per drawing approved from respective TP DISCOM.(To be decided during detailed Engineering)

XVIII. Distance between HV gland plate and HV bushings should be minimum 650 mm.

XIX. Earthing provision (Body earth- outside and for cable earthing - inside of box) shall be provided in the HV box with M12 SS bolt & SS washers.

XX. The equalizer strip with M12 boss arrangement required on terminal box cover.

XXI. Gland shall be SCG 18 single compression brass gland suitable for diameter of 91mm cable.

XXII. Bolted type terminal cover with M14/M16 SS bolts and washer (M12 bolts for 160 and 250KVA DT) to be provided. Fix Stud arrangement is not accepted for fixing cover.

XXIII. The gasket of same size as that of overlapping should be fixed on inner side of cover.

XXIV. Standard Danger marking plate as per IS to be fixed on front of cover.

LV CABLE BOX:

XXV. Neutral terminal of LV winding shall be brought out on LV phase terminals to form four wire system.

XXVI. Epoxy Insulators shall be provided from top side in LV box to support LV busbar.

XXVII. LV busbar shall be of AL material & shall have clearances as mentioned in GTP.

XXVIII. Lugs shall be of AL material with tin coating & shall comply the IS requirements.

XXIX. Arrangement in the LV box shall be BYRN from left to right when viewed from LV front.

XXX. All Nut bolts shall be as per Clause 5.24 and size selection shall with as per the hole size of the AL lugs to be used.

XXXI. The Neutral to be brought out from box through bushing and shall have same dimension as that of phase bushing.

XXXII. GI earth strip (Size - 50 x 6 mm) shall be provided from neutral bushing to both side of the box and shall be extended up to bottom of the terminal box both sides.

XXXIII. Insulator support to be provided on terminal box both sides for GI earth strip so as to avoid tension on secondary neutral bushing.

XXXIV. There shall be gland provision in side wall bottom or base plate of the LV box with gland of size suitable for 10core cable for taking out voltage terminal to box. 10 core cable up to box shall also be provided wired up from bus bar to TB.

XXXV. For Transformer up to 1 MVA ratings, In LV box, there must be provision for flexible mounting arrangement to fix multiple sized CT.

XXXVI. There must be proper provision of connecting voltage wires with closed thimble/lug on LV bus bars (Phases and neutral) with nut bolt size of 6mm &wires to be taken out and connected in the Metering terminal box.

Transformer Rating	Size & Runs of cable for Phase & Neutral			Size & Runs of cable for Phase & Neutral	
	1C x 630 sq. mm(1.1 kV Class)			4C x 300 sq. mm(1.1 kV Class)	
	No. of runs per phase	No. of runs for neutral	Gland size for LV Box	No. of runs per phase	Gland size for LV Box
315 kVA	1	1	Suitable for the above size XLPE armored Cable	2	Suitable for the above size XLPE armored Cable
400 kVA	2	2		3	
500 KVA	2	2		3	
630 kVA	2	2		4	
800kVA	3	3		5	
1 MVA	3	3		5	
1.25 MVA	4	4		7	
1.6 MVA	5	5		8	
2 MVA	6	6		10	
2.5 MVA	7	7		12	

XXXVII. For 160 KVA 200 KVA and 250 KVA cable size of 1Rx4Cx300 sqmm or 1Rx1Cx300 sqmm per phase.

XXXVIII. Earthing provision (Body earth) shall be provided in the LV box with M12 boss and SS bolt arrangement.

XXXIX. The equalizer strip connection on terminal box cover with M12 boss arrangement.

XL. The clearance above bushing shall be 120mm and below busbar cable mounting bolt shall be 450mm up to gland plate.

XLI. The no. and size of cables for installation on LV side shall be as follows:

XLII. The LV busbar shall be one continuous conductor strip with current density of 1A/mm^2 and length should be min. 160mm long for 160kVA and 225mm for 250kVA and length shall gradually increase for higher rating as per suitability. The support insulator shall be provided at the end of busbar such that cable load shall be on top end support. Neutral busbar shall be of same size of phase. The lug shall be have single hole. Busbar shall be connected on four bolts on brass palm connector.

XLIII. Bolted type terminal cover with M14/M16 HDG bolts (M12 bolts for 250KVA DT) with danger marking as per IS on front.

XLIV. The CT & voltage cables in LV box shall be taken out through gland plate with suitable Single compression Brass glands and cables to be dressed properly enclosure with suitable firm fixing arrangement up to gland.

XLV. The gasket of same size as that of overlapping of box and cover should be fixed on inner side of cover not on edge of box.

5.11 TERMINAL CONNECTORS

HT TERMINAL CONNECTOR:

I. Tinned Brass connectors shall be provided, connected with HV bushing rods for bare top plate bushings.

II. UV resistant polymeric insulating shrouds shall be provided on the HV bare bushing terminals.

III. For all ratings Aluminium lugs (with minimum of 2 holes) suitable for 3CX400 sq.mm or 3Cx300 sq.mm or 3Cx150 sq.mm XLPE shall be provided at HT side for cable connection.

LT TERMINAL CONNECTOR:

IV. Tinned Brass palm connector (with current rating w.r.t Load current), and Aluminium busbar (current density: not more than1 A/mm²) shall be provided.

V. Busbar shall be supported with insulator at the top portion of terminal box.

VI. Aluminum lugs (with minimum of two holes) shall be provided with suitable size (no. of lugs as per clause 5.10 and size of lugs as per IS 8309) for the LV cables.

5.12 CURRENT TRANSFORMERS (Optional) (This shall be decided during tender by user group.)

A. METERING CT (Optional):

I. Cast Resin Type CTs shall be provided for transformers on the LT side for metering purpose.

II. The CTs shall be Resin Casted ring type and a thickness of min 2mm of resin above the coil of the CT to be ensured.

III. The core of the CT shall be of high grade non-ageing electrical silicon CRGO Steel or better grade of first quality having low hysteresis loss and high permeability to ensure accuracy at both terminal and over current/ voltage.

IV. The grade of the Core shall be M4 or better

V. The Resin Casted CTs shall be embossed as ‘P1’ and other side as ‘P2’. Lock side pole of coupler shall have S1 terminal and other pole shall have S2 terminal.

VI. The placement of CT in cable box shall be such that P1 shall be facing to the tank and P2 on the cable side.

VII. The Coil shall be insulated with electrical grade Polyester Tape and the insulation shall be of high insulation grade, excellent mechanical strength (tensile, tear, and stretch), high purity, chemical stability, and heat resistance.

VIII. The Copper wire used shall be super enameled as per the IS 4800 Part IX/ IEC 317.

IX. The wiring shall be enclosed in such a way that it can't be disturbed during maintenance activities.

X. The CT shall be mounted outside the tank in LV cable box with suitable clamping arrangement (fiber glass material).

XI. The position of secondary terminals shall be such that, it will face towards outside after installation on bushing or bus bar of transformer.

XII. Mounting arrangement should be such that the CT shall be replaceable at site.

XIII. The terminals shall have shorting facility and it should not get saturated up to 200% of rated current.

XIV. The weight of the Ring type CTs shall not exceed approx. 2.5 Kg +/- 10%.

XV. The CTs shall have following parameters.

Accuracy class	0.5s
Burden	20 VA
Application	Metering
ISF	5
CT ratio for	As mentioned in clause 4.28

B. NEUTRAL CT Only Protection Class (optional):

I. All transformer shall be supplied with LT side neutral CT before bifurcation of neutral for earthing.

II. The Neutral CTs shall be window type, resin cast, protection class having ratio & knee voltage as per following table.

III. Current transformer shall be mounted outside the tank with suitable clamping arrangement and should be C-shaped of sliding, soft material, non-screw type.

IV. The current transformer shall comply with IS 2705. The terminals shall not have shorting facility.

V. The CTs shall have following parameters. CT terminal box for secondary of CT shall be provided of suitable size on the side of transformer. Box shall have droppable terminal blocks with shorting link.

5.13 AUXILIARY TERMINAL BOX

Note: Aux. Terminal Box shall be required for 160kVA to <500kVA and ratings including 500kVA and above marshalling box shall be required.

I. Aux. terminal box of suitable size made up of **Mild Steel** and with **theft proof locking arrangement** for box.

II. This box shall be placed separately on tank. This box should not be placed on LV power cable box enclosure.

III. Box shall be provided with Stud Type terminal blocks with 2 spare terminals. Shorting links required for CT connections.

IV. 10 core multi stranded PVC armored cable (2.5 sq.mm Cu FRLS PVC stranded panel wires) shall be used to terminate connections from CT and voltage terminals (6 CT

wires and 4 voltage wires) at LV side to the CT terminal box. These cables shall pass through metallic conduit or cable tray.

V. The voltage wires shall be protected with 6A, 250V fuses in phase and Link in neutral.
VI. PVC ferrules engraved with black letters shall be used to mark the wires in the terminal box coming from LV box for CT and voltage.
VII. Holes with PVC glands to be provided for secondary wiring on bottom side of this box as incoming (01nos.) and outgoing (02Nos.) for 10CX2.5 sq.mm cable and for Auxiliary cables of magnetic float switch, PRV contacts, OTI aux cable WTI alarm trip cable, Buchholz alarm trip cables etc.
VIII. All terminal block wires shall have identification ferrules and terminal block shall have identification stickers as per connected device.
IX. The box shall have provision with PG25 gland for taking outgoing cables of CT, PT for energy meter and other auxiliaries in relay unit. Two additional 24mm diameter Knockout arrangement to be provided for control cables.
X. One transparent PVC sticker with black colour wiring diagram of terminal block numbers and device connections to be fixed on the inside of the door of Box.
XI. This box may contain OTI and WTI dial meters in higher rating DT as per IS1180 latest amendments.
XII. Terminal and cable entry for secondary wiring of Magnetic Float switch in conservator, OTI aux cable, PRV cable (for plinth mount DT) to be provided as required.
XIII. Terminal box shall have IP 55 protection with rubber gasket and bend cover canopy over joints.
XIV. Terminal box must have provision for connecting I-type or U-type pin arrangement without spring arrangement.
XV. The box shall have earth boss with M12 SS bolts for earthing.
XVI. Energy meter and relay unit shall be separate and not in the bidders scope.
XVII. For control wiring from LV Box to CT box and for marshalling box used metallic conduit only.

5.14 EQUILISING/ EQUIPOTENTIAL STRIP

I. The Transformer top cover shall be connected with main tank using **tinned copper strip (30mm wide, 0.7mm thick)** at two places (diagonally opposite with each other).
II. The strip should touch bare surface of tank in order to ensure proper electrical connection of tank body with top cover with the strip.
III. All the covers like inspection cover, LV box cover, HV box cover, Conservator cover must be electrically connected using **tinned copper strip (30mm wide, 0.7mm thick).** The equalizer strip with M12 boss arrangement required all point.
IV. Separate arrangement to be made and cover tightening bolt not to be used for equipotential strips.

5.15 EARTHING CONNECTIONS

NEUTRAL EARTHING:

I. Separate LV neutral bushing to be provided on top of LV box for neutral earthing.
II. For connecting LV neutral bushing shall be provided with 2 Nos of 50x6 mm GI strip, one on each side of terminal box (The thickness of GI coating of neutral earthing strip shall be **86 microns** (minimum at any point).
III. At the bottom of the GI strips two concentric holes of 12 mm diameter shall be made and M12 size SS nuts, bolts and SS washer shall be provided for them.

BODY EARTHING:

I. Two body earthing terminals pads with 50mm width having two M12 SS bolts on each pad with 70 sq. mm lug. with SS plain washer and spring washer for 630kVA and above rating.
II. Two circular boss arrangements for rating up to 500kVA shall be provided on Transformer tank with M12 SS Bolt on each side with 70 sq.mm AL Lugs and washers
III. It shall be located on the lower side of the transformer, diagonally opposite to each other.

5.16 OIL

Note: Default Oil shall be Mineral oil only if not specified / asked for other oil.

Mineral Oil: In case of Mineral Oil below are the requirements to be fulfilled:

1. All transformers shall be filled with new, unused, clean, standard mineral oil in compliance with IS 335-2018 / IEC 296 type-II and shall be free from all traces of polychlorinated biphenyl (PCB) compounds.
2. The use of recycled oil is not acceptable.
3. Oil shall be filled under vacuum before filling it shall be filtered and tested (as per IS 6103).
4. The test parameters should be as per the table below:

Test parameters	Values
Break Down Voltage (min)	70 kV
Water content ppm, (max.)	20 ppm
Specific resistance (min.) (at 27˚C)	2.5×10^{12} ohm-cm

Bidder has to provide the oil data in below table:

Sl. No.	Description	Unit	To be furnished by bidder
1	Type of oil		
2	Oil Qty. for first filling	Ltr.	
3	Grade of Oil		
4	Maker's name		
5	BDV at the time of first filling	kV	

5.17 CONSERVATOR

I. The conservator shall be supported / fixed on the main body of the transformer tank.
II. The capacity of the conservator tank shall be designed keeping in view the total quantity of oil and its contraction and expansion due to temperature variations. The total volume of conservator shall be such as to contain **10% quantity of the oil used in transformer**.

Normally, at least **30% volume of conservator** shall be filled with Oil in DT up **to 200KVA. 250KVA and above shall be filled with 50% Volume of conservator.**

III. The connecting pipe of the conservator shall be so fitted to transformer tank that the pipe can be detached from the tank.

IV. Joint -less pipe shall be used which shall be connected with round flanges.

V. The inside diameter of the pipe connecting the conservator to the main tank shall be within 25 to 50 mm and it should be projected into the conservator so that its end is approximately 20mm above the bottom of the conservator so as to create a sump for collection of impurities. The minimum oil level corresponding to -5°C should be above the sump level.

VI. The conservator oil filling cap/hole shall be of 32mm diameter & female type cap to be provided.

VII. For DT up to 1600kVA, the conservator to be fitted with **float switches** such that it shall operate/open contact when the oil level in conservator goes below -5 degree C /Minimum mark. The float switch shall be with normally closed type. This contact shall be wired up in auxiliary terminal box.

VIII. Buchholz relay: The pipe should not contain any right angle elbows. Its diameter should correspond to the diameter of the hole for the passage of oil of the relay. The pipe must be arranged to slope upwards towards the conservator at an angle of about 2 to 4 degrees to the horizontal (max 5 degrees). The part of the pipe preceding the relay should be straight for a length equal to at least five pipe diameters; the part of the pipe leading to the conservator immediately adjacent to the relay should be straight for a length equal to at least three pipe diameters.

IX. The Oil conservator shall be provided with:

a. **Oil level indicator** (as per clause no. 5.18).
b. **Dehydrating breather** (as per clause no. 5.22).
c. **Drain plug**
d. **Oil filling hole** (1.25 inch/32mm with thread size of BSP 1.25inch, 11TPI) with cover.
e. **Detachable end plate** on one side (the side on which the gauge glass is fitted), to enable the maintenance staff to periodically clean the inside of the conservator tank

Center of Gravity

The transformer should be designed in such a way that the centre of gravity of complete transformer with oil and with all accessories shall fall at the vertical centre at lower height such that the transformer should be stable on flat surface ground and while lifting at lifting hooks.

5.18 OIL LEVEL INDICATOR

I. Oil level indicator with **prismatic glass and red colour background** shall be provided.

II. The oil gauge glass shall be removable and so embodied in the end plate so as to prevent oil leakage.

III. The Oil level indicator should indicate oil level at minimum, normal and maximum as -5˚C, 30˚C and 90˚C respectively.

5.19 PRESSURE RELEASE DEVICE

I. For DTs of 160 KVA & 200 KVA rating explosion vent shall be provided.

II. Double diaphragm with oil observation gauge (prismatic Type) between two diaphragms shall be provided on explosion vent pipe.

III. All DTs 250 kVA and above shall be provided with PRV with auxiliary contacts. The contact to be wired up in the auxiliary terminal box.

IV. PRD shall be provided to operate before reaching the test pressure as specified in the above class.
V. PRD shall not have air release arrangement.
VI. The PRD shall seal-off after the excess pressure has been released and it shall have mechanical flag arrangement.
VII. The PRD shall have NO, NC contacts wired up in auxiliary terminal box.

5.20 AIR RELEASE PLUG

The cover of the main tank shall be provided with an **air release plug on all ratings.**

5.21 DRAIN VALVE AND FILTER VALVE

I. For DT up to 500kVA shall have valve with gate valve without flange or T type drain valve. Filter valve not required up to 500kVA DT.
II. The drain valve and filter valve shall be of Brass with gate valve for 630kVA and above ratings.
III. For 630kVA and above ratings, the drain valve and filter valve shall be of wheel type with double round flanges. One side shall be fixed with tank and other side should be left open for oil filling/filtration purpose.
IV. The drain valve and filter valve shall be provided with embossed name plate stating drain valve and filter valve.
V. The drain valve shall be located on the bottom and filter valve shall be provided at side top of tank.
VI. Locking arrangement shall be provided to stop movement of hand wheel.
VII. The valves shall be covered with a MS box of 2mm thickness by welding on tank. The paint thickness shall be min. 80 micron on the box.

5.22 DEHYDRATING BREATHER

I. The breather pipe shall enter the conservator from the upper side of the conservator.
II. The breather shall contain 0.5 kg of silica gel for 160/200kVA, 1 kg for 250/315/400/500/630/800kVA & 1MVA DTs and 2kg for above 1 MVA rating.
III. The silica gel shall be eco-friendly orange colored as per IS: 3401 – 1992. It should be 3-4 Mesh size.
IV. The body of the breather shall be unbreakable, transparent, UV stabilized seamless polycarbonate tube of minimum thickness 3mm
V. The top cover shall be of pressure die cast aluminum and powder coated.
VI. The oil cup shall be of UV protected polycarbonate.
VII. Oil cup shall have marking of oil filling level.
VIII. The breather shall be supplied as per approved make and as per specifications.
IX. The gasket should be of Class 3B, Type III as per IS 11149 Nitrile rubber (Oil resistant gaskets)
X. All tie rods and all hardware should be of stainless steel material (SS 304)
XI. Breather mounting arrangement,
    a. Up to 2 kg capacity of Silica gel breather shall have top threaded mounting arrangement with 1/2''pipe having BSP threading.
    b. 2kg and above capacity shall have flange mounting with 4 holes of 12mm diameter on 83 PCD.
XII. While fixing of breather on transformer Teflon tape should be used to make it air tight & water tight. This shall be checked during inspection and after receipt at our stores on each transformer.
XIII. The breather should have passed air pressured test as per our specification i.e. Breather shall be tested at an air pressure of 0.35kg/cm2 (5 PSI) for period of 30 minutes. NABL lab

test report to be submitted from OEM. For further details please refer our specifications of breathers.

5.23 OIL TEMPERATURE INDICATOR

I. Dial Type Oil temperature indicator shall be provided on the top cover of the transformer. It should be suitable for outdoor mounting with maximum indicator pointer. Fixing union shall be of female thread.
II. Range: 0- 120 ˚C, Accuracy: ± 4 ˚C.
III. For 500 kVA & above rating, The OTI to be placed in marshalling box.
IV. The OTI shall have auxiliary contacts for alarm and trip contacts at preset temperatures, both the contacts should be wired up in the auxiliary terminal box.
V. The IP65 gland should be used for dial for taking out auxiliary wires.
VI. The OTI shall be IP55 tested.

5.24 FASTENERS

I. All the bolts or studs shall be at least 6 mm in diameter except when used for small wiring terminals. All bolts shall be of grade 5.6. All bolts shall have pain washer of SS or HDG (80 microns galvanization thickness) and spring washers. The palm connector and busbar shall have Belleville washer & plain washers.
II. All nuts/bolts/washers exposed to atmosphere shall be as follows:

Size 12mm (or below)	Stainless Steel
Above 12mm	Steel with antirust coating (alu-zinc coated), Hot dip galvanized

III. All ferrous bolts, nuts and washers placed in outdoor positions shall be hot dip galvanized to prevent corrosion (except high tensile steel bolts and spring washers which shall have electrolytic action between dissimilar metals).
IV. In case the galvanization is removed due to welding or manufacturing, the parts should be properly cleaned and painted to avoid exposure to atmosphere.
V. The cup type washers to be used as spring washers, cut spring washers are not accepted.
VI. Taper washers shall be provided where necessary. Protective washers of suitable material shall be provided on front and back of the securing screws.
VII. Each bolt shall project at least one thread but more than three threads through the nut. If bolts and nuts are placed so that they are inaccessible by means of ordinary spanners, special spanners shall be provided. The length of the screwed portion of the bolts shall be such that no screw thread may form part of a shear plane between members.
VIII. Core bolts shall be black colored high tensile grade-8.8.

5.25 SURFACE PREPARATION AND PAINTING

I. The paint shall be applied by airless spray.
II. Steel surfaces shall be prepared by **shot blast cleaning** (IS-9954) to grade Sq.2.5 of ISO 8501-1 or **chemical cleaning** including phosphating of the appropriate quality (IS 3618).
III. **Heat resistant (Hot oil proof) paint** shall be used for the **inside surface** and whereas for **external surface one coat of thermosetting powder paint or one coat of epoxy primer (zinc chromate/Zinc Phosphate) followed by two coats of polyurethane (P.U.) base pain**t. as per table given below

Sl. No.	Paint type (should be UV restraint, non-fading)	Area to be painted	No of coats	Total dry film thickness (min); micron
1.	Thermosetting **powder paint**	Inside Outside	01 01	30 60
2.	**Liquid Paint**			
a.	Epoxy (primer)	Outside	01	30
b.	P.U. Paint (finish paint)	Outside	02	25 (each)
c.	Hot oil resistant paint	Inside	01	35

The two coats shall be of oil and weather-resistant nature with final coat as flossy and non-fading paint of shade 631 as per IS 5. Paint thickness shall be at least 120 micron.

IV. The dry film thickness shall not exceed the specified minimum dry film thickens by more than 25%.

V. Any damaged part shall be cleaned to bare metal with an area extending 25 mm around its boundary. A priming coat shall be immediately applied followed by full paint finish equal to that originally applied and extending 50 mm around the perimeter of the original damage. The repainted surface shall present a smooth surface which shall be obtained by carefully chamfering the paint edges before and after priming.

VI. Painting shall not affect by weather changes & performance against pilling out or fading etc. to be guaranteed for 5 Years.

5.26 RADIO INTEREFENCE

When operated at voltages up to **12.5%** in excess of the normal system rating, transformers shall be substantially free from partial discharges (i.e. corona discharges in either internal or external insulation) which are likely to cause interference with radio or telephone communication.

5.27 OVERLOAD CAPACITY

The transformer shall be suitable for loading as per IS 2026 part-07

5.28 WINDING TEMPERATURE INDICATOR (WTI)

I. WTI shall be provided only on one phase of the LV.

II. WTI shall be **indicating type**, responsive to the combination of top oil temperature and winding current, calibrated to follow the hottest spot temperature of the transformer winding.

III. WTI shall operate a remote alarm and trip in the event of attaining the predefined temperature.

IV. In addition, pocket with heater coil along with Resistance Temperature Indicator (RTD) shall be provided for WTI and OTI. CT for RTD for winding hot spots shall be provided.

5.29 BUCHHOLZ RELAY

I. Only for >1MVA DT.
II. Magnetic Reed type Buchholz relay shall be provided with alarm and tripping contacts to detect accumulation of gas.
III. The installation shall be fixed and weather proof to avoid any water seepage inside the relay.
IV. Round flange of nominal pipe bore of **50mm diameter** shall be used.

5.30 MARSHALLING BOX AND PROTECTION

I. Marshalling Box of suitable size, made up of **Mild Steel** and with **theft proof locking arrangement** shall be provided.
II. Marshalling box shall have IP 55 protection.
III. For DTs of 500KVA and above - Marshalling Box shall have provision for wiring the **WTI, OTI, MOG, PRV, Buchholz relay and LT CT terminals.** The terminals shall be provided as per table below:

Element	Alarm	Trip
Oil Temperature Indicator	NO,NC,COM	NO,NC,COM
Winding Temperature Indicator HT Side	NO,NC,COM	NO,NC,COM
Winding Temperature Indicator LT Side	NO,NC,COM	NO,NC,COM
Buchholz	NO,NC,COM	NO,NC,COM
Magnetic Oil Level Gauge	NO,NC,COM	
PRV	NO,NC,COM	
LT Neutral CT Secondary Terminal	N	
LT Phase CT Secondary Terminal	RYB	
LT Voltage terminals	RYBN	
Spare TB	4 No.	

IV. WTI meter shall be wired/ installed in the marshalling box.
V. 10 core PVC wire (4 sq.mm Cu FRLS PVC stranded panel wires) shall be used to terminate connections from CTs at LV side to the Marshalling box.
VI. Plastic ferrules engraved with black letters shall be used to mark the wires in the marshalling box.
VII. Wiring in Marshalling box shall be done by 2.5 sq.mm Cu FRLS PVC stranded panel wires.
VIII. For TP DISCOM, The equipments connected into marshalling box shall be compatible with power pack relay as per attached specification for 1MVA & above ratings.
IX. All the cables and conduits between the transformer and control cabinet shall be included in the scope of supply by the bidder.

5.31 FITTINGS

The following standard fittings shall be provided:

I. Two earthing terminal pads/ boss with earthing symbol for body earthing on opposite sides with 70sq.mm AL lug and M12 SS bolt and washers.
II. Air Release Device.
III. Thermometer Pocket with cap.
IV. 1MVA and above with Inspection Cover.
V. Drain cum Sampling Valve & filter valve (Double Flanged for 630kVA and above & Up to 500kVA with T type drain valve without filter valve) and (0.75 inch nominal size thread, IS 554) with locking arrangement and a valve cover made of M.S. steel painted with minimum 70 micron layer.
VI. Pressure relief Valve with auxiliary contacts for DT including 250 kVA and above.
VII. Radiators.
VIII. Cable Box or bare bushing **User group shall decide this during tender.**
IX. For HV bare bushing DT- bird guard on bushings terminals connectors.
X. Terminal Connectors for HV (Tinned brass for pole mounted DT) /LV side (tinned brass palm connector, Aluminium busbar with support insulator on top and Al lugs) up to 500kVA DT.
XI. 1000kVA and above DT, epoxy bushing in HV and LV with tinned copper busbar shall be accepted for compact designs with top cover terminal & cable box.
XII. HV and LV two part Gland plates (Non-Magnetic and with Single compression Brass glands).
XIII. Conservator with Dehydrating Breather on LV side.
XIV. Prismatic Oil level Gauge and magnetic float switch in conservator.
XV. Lifting lugs (enclosed type) for the top cover, complete transformer and core and winding assembly.
XVI. Pulling Lugs.
XVII. Jacking Pads
XVIII. Stiffener Angle.
XIX. 2 Base channels all DT
XX. Marking Plates as asked in clause 6.1
XXI. Oil Temperature indicator with alarm & trip contact (>= 200KVA rating) and dial type OTI up to 200 KVA rating.
XXII. Magnetic float switch for 250kVA to 1.6 MVA and MOG for above 1.6MVA conservator tank.
XXIII. Two GI earth strip of Size 50x6 mm for neutral earthing from both side of LV box with minimum GI coating thickness of 86 microns. With SS nut bolts and washer.
XXIV. Winding Temperature Indicator (>1600kVA).
XXV. Magnetic Reed type Buchholz relay (for ratings above 1MVA) in line with IS 1180.
XXVI. Marshalling Box with stud type terminals (for ratings above 500 KVA).

5.32 MAKE OF MAJOR COMPONENTS & RAW MATERIALS

The BA shall procure the following constituent items from the designated vendors as follows:

S.no	RAW MATERIAL/EQUIPMENT	MAKE
a)	Copper	M/S Sterlite, M/S Hindustan Copper, M/S Hindalco,M/s NALCO
b)	Core	M/S AK Steels, POSCO, Kawasaki/ JFE, Nippon Steel, Thyssenkrup
c)	Insulation paper and Pressboards	ITC paper, ABB, Raman Boards- Mysore, Senapathy Whiteley – Bangalore
d)	Transformer Oil (Mineral oil)	Savita, Apar, Gandhar, IOCL,COLUMBIA
e)	Gaskets & Corks	Nu Cork, Anchor Corks
f)	Steel For Tank	M/s, TATA Steel, M/s SAIL, M/s. JSW Steel, M/s. IISCO, M/s. RINL/Vizag Steel, M/s. Jindal Steel,
g)	Dehydrating Breather	Yogya, Anushree, Electrical engineers
h)	Bushings HV & LV	GENESIS, CJI, JP, Rashtriya Electricals, Hindustan Chemicals
i)	Epoxy Bushing	Varoda Bushings, Ganpati Fibertech India PVT LTD.
j)	Bucholz, PRD, SPR, OTI , WTI, and other devices	Reputed make to be approved by Respective TP DISCOM during detailed engineering.

Also, Bidder has to provide all test certificates from original manufacturers & relevant sourcing documents. BA shall also have shot blasting facility.

6. MARKING:

6.1 MARKING PLATES

I. Name Plate (Rating) Plate : SS material

A rating plate shall be fitted to each transformer in a visible position and shall carry all the information as **specified in clause no. 6.2**

II. Terminal Marking Plate : on same name plate also accepted

- The terminal marking plate shall be provided which shall be strictly in accordance with **figure 4 of IS 1180-Part 1: 2014**. This plate may be combined with the rating plate or can be provided separately.
- Value of short circuit impedance on extreme tapping and on principal tapping and indication of winding to which impedance is related has to be displayed additionally.

III. Guarantee Plate :

A separate warranty plate made of **Stainless Steel** with following clause written on it.

"THE EQUIPMENT GUARANTEED UPTO A PERIOD OF 48 MONTHS FROM THE DATE OF COMMISSIONING OR 60 MONTHS FROM THE DATE OF LAST SUPPLY"

All the plates described above (clause 1 to 4) should be as followings:

Material	Stainless Steel
Thickness	1 mm
Engraving	The letters on the rating plate shall be engraved black on the white/silver back ground.
Fixing	Fixing screws shall be of stainless steel.

IV. Danger Plate: On all cable box

Danger notice shall have red lettering on a white background in English, Hindi and Local language on a plate as specified in **IS: 2551 – 1982.**

V. BIS Certification Mark: On main name plate

The Bidder is required to get approval from BIS and display BIS mark on the name plate.

VI. BEE LABEL:

A label shall be affixed on the front of the distribution transformer near the name plate, so as to be prominently visible. The label shall be non-detachable weather proof type with the following particulars shall be displayed on its label, namely:

a. the logo of the Bureau of Energy Efficiency
b. that the equipment is a distribution transformer
c. that it is an oil filled, naturally cooled type
d. name of the manufacturer and brand
e. Capacity in KVA as tested
f. Voltage is up to 11 KV
g. Total losses at 50% loading in watts
h. Total losses at 100% loading in watts
i. Star level
j. Model and year of manufacturing.
k. Bureau's authorisation number

VII. Control Circuit drawing Plates:

- Engraved drawing for control circuit unit shall be available on Marshalling box.

6.2 NAME PLATE DETAILS

The name plate shall be strictly as per **IS 1180: 2014.** Additionally, following points shall be displayed:

I. **Actual no load losses of transformer.**

II. **Actual total losses of transformer at 50% load and 100% load.**
III. Standard mark (BIS certification).
IV. "**PROPERTY OF Respective TP DISCOM**" shall be written in bold letters.
V. PO number with date has to be mentioned.
VI. Overall dimensions of the transformer

6.3 MARKING

I. All transformers shall have HV phase windings marked in both, the terminal boards inside the tank and outside with capital letter 1U, 1V, 1W.
II. The LV winding for the same phase shall be marked by corresponding small letter 2u, 2v, 2w. The neutral point terminal shall be indicated by the letter 2n.
III. The markings shall be done by steel strips in which marks had been engraved in black colour.
IV. Colour marking of the bushings shall be done.
V. On the top cover of tank and the core channel, Manufacturer's name and Manufacturer's serial no. shall be engraved.
VI. On the body of tank, Manufacturer's name, rating, serial no. and year of manufacturing shall be written with black paint on yellow base. It should be written in suitable place in approved format that it is readable from ground after installation on pole.

7. TESTS:

I. All routine, acceptance & type tests shall be carried out in accordance with the IS 2026 and IS 1180: Part-1 (Latest edition).
II. All routine & acceptance tests shall be witnessed by respective TP DISCOM/his authorized representative.
III. All the components shall also be type tested as per the relevant standards.

Following tests shall be necessarily conducted on the Distribution Transformers in addition to others specified in IS/IEC standards.

7.1 TYPE TESTS

I. Lightning Impulse Test [As per IS 2026 (Part 3) Clause no. 12].
II. Temperature Rise Test [As per IS 2026 (Part 2) Clause no.4].
NOTE: Maximum measured total loss (No load at Rated excitation load loss at maximum current tap converted to 75°C reference temperature) at 100 percent loading shall be supplied during temperature rise test.
III. Short Circuit Withstand test [As per IS 2026 (Part 5)].
NOTE: Routine tests before and after short circuit test shall be conducted as per IS 2026(Part 1).
IV. Pressure Test [As per IS 1180: Part 1 (2014)].
V. Determination of sound levels [IS 2026 (part 10)].
VI. No load current at 112.5% voltage
VII. Magnetic balance test.
VIII. Measurement of Zero-phase sequence impedance.
IX. Measurement of Harmonics of no-load current.
X. Test to verify IP 55 for CT terminal Box and cable boxes.

Note: - Out of the above mention type test, the tests under sl. No. 1, 2, 3 and 4 shall be

conducted at CPRI/ERDA labs and the balance tests to be conducted at respective TP DISCOM recommended NABL lab. **In-house test labs are accepted if in-house lab is NABL accredited for these tests.**

7.2 ROUTINE TESTS

Sl. No.	Test to be done	Reference BIS	Clause no.
1	Measurement of Winding Resistance on each tap.	IS 2026 (Part 1)	16.2.1 & 16.2.3
2	Measurement of voltage ratio, check of voltage displacement, polarity, phase sequence and vector group	IS 2026 (Part 1)	16.3
3	Measurement of short circuit impedance (principal tapping, when applicable) and load loss at 50% and 100% load	IS 2026 (Part 1)	16.4
4	Measurement of no load losses and magnetizing current at rated frequency and 90%, 100% and 112.5% of rated voltage	IS 2026 (Part 1)	16.5
5	Measurement of insulation resistance	IS 2026 (Part 1)	16.6
6	Induced over voltage withstand test	IS 2026 (Part 3)	11
7	Separate Source voltage withstand test	IS 2026 (Part 3)	10
8	Oil leakage test	IS 1180 (Part 1)	21.5.1.3
9	Neutral current measurement	IS 1180	7.9.2
10	BDV and moisture content of oil in transformer (Type-2 oil)	For mineral oil : IS 335 (2018) For Ester oil : IEC 60247 & IEC61099	For mineral oil : IS 335 Table 2
11	Paint thickness test	DFT and Adhesion	

7.3 ACCEPTANCE TESTS

I. Temperature Rise test on one unit of first lot against every release order / PO for each rating. For further lots, Respective TP DISCOM reserves the right to perform Temperature rise if required. [As per IS 2026 (Part 2) Clause no.4]
II. Oil leakage test for acceptance shall be conducted at pressure of 0.35kg/sq.cm for one hour. (IS 1180 (Part 1) clause 21.5.1.3)
III. The painted surface shall pass the Cross Adhesion Test (IS1180 part 1 clause no. 21.4.d).
IV. Calibration of WTI and OTI.
V. Magnetic Balance Test.
VI. OEM test reports for CT if used.
VII. OEM test reports for breather for air pressure test.
VIII. At stage inspection -Checking of weight, dimensions, fitting and accessories, tank sheet thickness, oil quantity, material finish and workmanship, physical verification of core coil assembly and measurement of flux density on one unit of each rating of the offered lot with reference to the GTP and contract drawings. Oil BDV of all offered lot.
IX. All transformer of the offered shall be subjected to all the tests mentioned under the section 'ROUTINE Test" in presence of Respective TP DISCOM's representative at

the place of manufacture before dispatch without any extra charges. The testing shall be carried out in accordance with IS: 1180 and IS: 2026.

X. Device trails & test for 1MVA & above (Buchholz trip, Buchholz alarm, PRV trip, WTI alarm, WTI trip and OTI alarm.

XI. At Stage and Final inspection, the incoming raw material and its movement/consumption record in the related jobs of Respective TP DISCOM will be verified by inspecting officer. In case of any deviation or non-availability of such records, the offered lot may get rejected.

8. TYPE TEST CERTIFICATES:

I. The Bidder shall furnish the type test certificates of the offered rating and design of transformer for the tests as mentioned above as per the corresponding standards.

II. All the tests shall be conducted at CPRI / ERDA or as defined in 7.1 as per the relevant standards.

III. In the event of any discrepancy in the test reports, i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to Respective TP DISCOM.

IV. Type tests should have been conducted in CPRI/ERDA during the period not exceeding 5 years from the date of opening the bid.

9. PRE-DISPATCH INSPECTION:

I. Bidder to raise the inspection calls for stage inspection and only after getting clearance from Respective TP DISCOM shall proceed for further manufacturing. The bidder shall raise the inspection call for Final Inspection or prototype Inspection in Respective TP DISCOM format.

II. If the prototype inspections asked for during drawing approval then bidder to make one unit of transformer and raise for inspection call for stage and final for prototype inspection.

III. Equipment shall be subject to inspection by a duly authorized representative of the Respective TP DISCOM.

IV. 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.

V. Bidder shall grant free access to the places of manufacture to respective TP DISCOM's representatives at all times when the work is in progress.

VI. Inspection by the respective TP DISCOM or its authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications.

VII. The BA shall ensure that 100% of the lot must be ready for inspection and at least 10% must be ready with all mounting and accessories during inspection.

VIII. Material shall be dispatched only after getting MDCC (Material Dispatch Clearance Certificate) from respective TP DISCOM.

IX. Following documents shall be sent along with material:

a) Test reports
b) MDCC issued by respective TP DISCOM
c) Invoice in duplicate
d) Packing list
e) Drawings & catalogue
f) Guarantee / Warrantee card

g) Delivery Challan.
h) Other Documents (as applicable)

X. To ascertain the quality of the transformer oil, the original manufacturer's tests report shall be submitted at the time of inspection.

XI. Arrangements shall also be made for testing of transformer oil, after taking out the sample from the manufactured transformers and tested in the presence of TP DISCOM's representative.

XII. In respect of raw material such as core stampings, winding conductors, insulating paper and oil, bidder shall use materials manufactured/supplied by standard manufacturers and furnish the manufacturers' test certificate as well as the proof of purchase from these manufacturers (excise gate pass) for information of the TP DISCOM.

XIII. The bidder shall furnish following documents along with their offer in respect of the raw materials:

a) Invoice of supplier.
b) Mill's certificate
c) Packing List.
d) Bill of Landing
e) Bill of entry certificate by custom.

XIV. To ensure about the quality of transformers, the inspection shall be carried out by the respective TP DISCOM's representative at following two stages:

a) Online anytime during receipt of raw material and during manufacturing/assembly Stage.
b) At finished stage i.e. transformers are fully assembled and ready for dispatch.

XV. Advance intimation of 10 Days is required for both Stage and final inspections.

XVI. All tests and inspection shall be carried out at the place of manufacture unless otherwise specifically agreed upon by the manufacturer and Respective TP DISCOM at the time of purchase.

XVII. The manufacturer shall offer the inspector representing the Respective TP DISCOM all reasonable facilities, without charges, to satisfy him that the material is being supplied in accordance with this specification. This will include Stage Inspection during manufacturing stage as well as Active Inspection during Acceptance Tests.

XVIII. During the stage inspection a few assembled core coil and assembled Tanked transformer shall be dismantled (only in case of CRGO material) to ensure that the CRGO laminations, Windings and workmanship are of good quality. Respective TP DISCOM also reserves the right to review any document or certificates related to material, manufacturing process, quality checks at any point of stage inspection.

XIX. TP DISCOM also reserves the right to inspect the tank of transformer before surface preparation and painting. The same shall be informed to Respective TP DISCOM accordingly.

XX. Final inspection Call for carrying out acceptance tests as per relevant IS/IECs shall be sent by the Bidder along with routine test certificates.

XXI. The bidder shall provide all services to establish and maintain quality of workmanship in his works and that of his sub-contractors to ensure the mechanical / electrical performance of components, compliance with drawings, identification and acceptability of all materials, parts and equipment as per latest quality standards of ISO 9000.

XXII. The Respective TP DISCOM has the right to have the test carried out at his own by an independent agency wherever there is a dispute regarding the quality supplied. **Also respective TP DISCOM has right to test 1% of the supply selected either from the stores or field** to check the quality of the product. In case of any deviation respective TP DISCOM have every right to reject the entire lot or penalize the bidder, which may lead to blacklisting, among other things.

XXIII. At the time of inspection the material should be ready as specified, In case of material non-readiness or material failure in acceptance, Cost of re-inspection shall be borne by bidder.

10. INSPECTION AFTER RECEIPT AT STORE:

I. The material received at the respective TP DISCOM store shall be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection.

II. In case the transformers proposed for supply against the order are not exactly as per the tested design, the Bidder shall be required to carry out the short circuit test and impulse voltage withstand test at its own cost in the presence of the representative of TP DISCOM.

III. The supply shall be accepted only after such test is done successfully, as it confirms on successful withstand of short circuit and healthiness of the active parts thereafter on un-tanking after a short circuit test.

IV. Apart from dynamic ability test, the transformers shall also be required to withstand thermal ability test or thermal withstand ability will have to be established by way of calculations

V. TP DISCOM reserves the right to conduct all tests on Transformer after arrival at site / stores and the manufacturer shall guarantee test certificate figures under actual service conditions.

VI. TP DISCOM reserves the right to conduct short circuit test and impulse voltage withstand test in accordance to IS, afresh on each ordered rating at purchaser cost, even if the transformer of the same rating and similar design are already tested. This test shall be carried out on a transformer to be selected by respective TP DISCOM either at the manufacturer's works when they are offered in a lot for supply or randomly from the supplies already made to respective TP DISCOM stores. The findings and conclusions of these tests shall be binding on the bidder.

11. GUARANTEE:

I. 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 48 months from the date of commissioning or 60 months from the date of last supplies made under the contract, whichever is earlier.

II. 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 respective TP DISCOM, failing which the respective TP DICOM will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the respective TP DISCOM's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be.

III. In case of Distribution transformer fails within the guarantee period respective TP DISCOM will immediately inform the Bidder who shall take back the failed Distribution Transformer within 15 days from the date of intimation at his own cost and replace / repair the transformer 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.

IV. 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.

12. PACKING AND TRANSPORT:

I. Bidder shall ensure that all the equipment shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.
II. Transformers shall be delivered filled with oil and supplied with all accessories mounted. Screws and bolts shall be thoroughly tightened to ensure no leakage of oil.

Note: Single use plastic not to be used for packing of the material**.**

13. TENDER SAMPLE:
(N/A)

14. 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. Respective TP DISCOM's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.
The following information shall necessarily be submitted with the bid:

I. List of important raw materials, names of sub-suppliers for raw materials, standards to which raw material is tested and the copies of test reports of the tests carried out on raw materials in presence of Bidder's representatives.
II. List of manufacturing facilities available, level of automation achieved and the areas where manual process exists.
III. List of areas in manufacturing process where stage inspections are normally carried out for quality control and details of these tests and inspections
IV. List of testing equipment for final testing with valid calibration reports. Manufacturer shall possess 0.1 class instruments for measurement of losses.
V. QAP withhold points for inspection of respective TP DISCOM.

15. TESTING FACILITIES:

Bidder shall have adequate in house testing facilities for carrying out all routine tests, acceptance tests and pre-dispatch inspection as per relevant International / Indian standards.

16. MANUFACTURING FACILITIES:

The successful bidder will have to submit (within 7 days of receiving of RC) technical compliance document and drawing of each part along with CCA, breather, bushings, terminal box etc. as per RC line items to be submitted for getting approval before mass manufacturing.

The first time supplier will have to make one prototype sample of each line tem of RC as per CAT-B approved drawing within 30 days of drawing approval. Inspection call to be raised by

bidder before 7 days of date of proposed inspection. Respective TP DISCOM shall arrange inspectors and intimate or confirm the date. Any observation during inspection shall have to be addressed within 7 days and revised improved drawing & technical details to be shared to respective TP DISCOM for final approval.

Manufacturing mass quantity to start only after getting CAT-A approved drawings or as per intimation from respective TP DISCOM.

17. SPARES, ACCESSORIES AND TOOLS:

Bidder shall give an assurance that the reparability of transformer is ensured by using standard spare parts and accessories available in market in India.

18. DRAWINGS AND DOCUMENTS:

Following drawings and documents shall be prepared based on respective TP DISCOM specifications and statutory requirements and shall be submitted with the bid:

a. Completely filled in compliance to each clause of Technical Specification and any Additional Details and Fittings.
b. Description of the transformer and all components drawings.
c. General arrangement for Transformer.
d. LV terminal box drawing along with CT if applicable and cleat arrangement and gland plate drawing.
e. Bill of material.
f. Design calculation details of transformer losses, cooling, efficiency and current density, weight of coils and components
g. Experience Certificate and list
h. Type test certificates.
i. List of makes of major components as listed above.

Drawings / documents to be submitted for approval within 7 days of receiving of RC.

List of Drawings/Parameters to be submitted:

a. Technical Parameters as asked in Specification (General Technical Particulars, General Technical Requirements, Additional Details, Fittings, Type test Reports and Routine test certificates of bought out accessories).
b. General Arrangement Drawing of the Transformer (Front view, Top view and both sides view. Complete list of fittings to be displayed and quantities to be mentioned with the drawing).
c. Internal Core arrangement drawing.
d. Internal Core-coil assembly drawing.
e. Foundation Plan drawing.
f. Marking plates and Markings (as mentioned in clause 6)
g. HV and LV bushings drawing (with internal view and metal parts)
h. HT connector, LT connector (palm connector), Aluminum Busbar
i. HV and LV Box drawing.
j. Gland Plate for HV/LV box.
k. Conservator drawing.
l. Prismatic oil level gauge drawing.

m. Silica Gel Breather drawing.
n. Auxiliary Terminal Box drawing with internal wiring arrangement.
o. Gland plate of drawing
p. BH curve & Loss/Kg graph of core material offered.
q. The tightening torque chart to be provided for all bolts used in specific rating.
r. Type Test Certificates.
s. Installation/ Mounting Instructions/Drawing.
t. Efficiency vs Load curve of the offered design.
u. Quality Assurance plan.

List of Calculations to be submitted:

a. All the calculations shall be step by step showing the use of formulas and other practical considerations. **Concise calculations in table or excel sheet shall not be accepted.** Also, the reference (only standard sources as IS, IEC or any such standard is acceptable) of the formulas shall be mentioned.
b. Resistance Calculation (75 deg. C)
c. Load Losses Calculation (at 75 deg. C)
d. No load Losses.
e. Stray Losses.
f. Weight of Copper (Bare and with Insulation also).
g. Weight of Core.
h. Flux Density calculations.
i. Current Density Calculations.
j. Short Circuit withstand.
k. Temperature Rise Calculations.
l. Conservator Volume calculations
m. Cooling Calculations showing cooling with tank and radiators separately with no. of radiators and fins mentioned specifically (For both Mineral oil and Ester oil)
n. Calculation sheet for Lifting lug design and mounting lug design to be submitted by Bidder.

Additional Documents to be submitted:

a. List of raw materials as well as bought out accessories and name of sub-suppliers selected from those furnished along with offer.
b. Type test certificates of the raw materials and bought out accessories.
c. The successful Bidder shall submit the **routine test certificates of bought out accessories** and central excise passes for raw material at the time of routine testing.

All the documents & drawings shall be in English language. After the receipt of the order, the successful bidder will be required to furnish all relevant drawings/parameters/calculation to respective TP DISCOM for approval.

Instruction Manuals:

Bidder shall furnish softcopies 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.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:

Completely filled–in clause wise compliance of this specification along with bid. Accordingly GTP to be submitted for approval.

20. SCHEDULE "B" DEVIATIONS:

(TO BE ENCLOSED WITH TECHNICAL 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:

SL. 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

STANDARD TECHNICAL SPECIFICATION COVER SHEET

Specification No.: ENG-LV-3016 (R1)

Specification Name: Specification of 400,630,800 ACB with Enclosure (Outdoor Application)

CONTENTS

1. SCOPE

This Specification covers the design, engineering, manufacture, testing at manufacture's works packaging, forwarding, supply and unloading at site/store and performance of supply of LT Air Circuit Breaker with Enclosure (Outdoor Application) having Microprocessor based electronic Release along with all accessories required for Incoming and Outgoing Cable Connection for trouble free and efficient operation.

2. APPLICABLE STANDARDS

The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions/amendment of the following Indian, International standards and shall confirm to the regulations of the local authorities.

S. No.	Standards	Title
1.	IS/IEC 60947-1	Low-voltage switchgear and control gear
2.	IS/IEC 60947-2	Low-voltage Switchgear and Control gear, Part-2: Circuit Breakers
3.	IS/IEC 60947-5-1	Low-voltage Switchgear and Control gear, Part 5-Control Circuit Devices and Switching Elements, Section 1-Electromechanical Control Circuit Devices
4.	IEC 61439 : 2011	Low-Voltage Switchgear and Control gear Assemblies :
5.	IS/IEC 60529	Degree of Protection provided by enclosures
6.	IS 8623-2	Low-voltage Switchgear and Control gear Assemblies : Particular Requirements for Busbar Trunking Systems
7.	IEC 61439-6	Low-voltage switchgear and control gear assemblies: Busbar trunking systems (bus ways)
8.	IEC 60664-1	Insulation coordination for equipment within low-voltage supply systems : Principles, requirements and tests
9.	IS 2551	Danger notice plates
10.	IEC 61869-1:2007/IS 16227-1:2016 :	Instrument Transformers

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

1	Maximum ambient temperature	50 deg C
2	Max. Daily average ambient temp	35 deg C
3	Min Ambient Temperature	0 deg C
4	Maximum Humidity	95%
5	Average Annual Rainfall	150 cm
6	Average No. of rainy days per annum	120

7	Altitude above MSL not exceeding	1000m
8	Wind Speed	300 Km/hr
9	Earthquakes of an intensity in horizontal direction	equivalent to seismic acceleration of 0.3g
10	Earthquakes of an intensity in vertical direction	equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)

TPCODL/TPNODL/TPSODL/TPWODL service area has heavy saline conditions along the coast and High cyclonic Intensity winds with speed upto 300 Kmph. The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months.

4. GENERAL TECHNICAL REQUIREMENTS

Sr. No.	Parameter	Unit	Requirement		
1	Rated current In at 50 °C	A	400	630	800
2	Type of ACB		Fixed type with inbuilt Protective release		
	Enclosure		Outdoor Type IP55		
	Type of operation		Manual & Electrically Operated		
	Spring Charging Motor		Yes		
	Shunt Trip coil		Yes		
	Close Coil		Yes		
3	Type of Release		Microprocessor based Release with settable Pickup and Time for Overload Protection, Short Time delayed short circuit protection, Instantaneous short circuit protection, Ground Fault Protection		
4	Overload Release range		40 % to 100 %		
5	Utilization Category		B		
6	No. of Poles		Three pole with neutral link		
7	Rated operating voltage Ue	V	Upto 440 V AC		
8	Rated Impulse withstand voltage (U imp)	kVp	8KV Main Circuit (upto 800A) 12kV Main Circuit(>1000A) 4KV Aux Circuit		
9	Rated ultimate short circuit breaking capacity (Icu)	kA	50 kA at 415V		

10	Rated service short circuit breaking capacity (Ics)		100% of Icu
11	Rated Insulation voltage (Ui)		1000V ac
12	Rated Short time withstand Capacity (Icw)	kA	50 kA for 1 sec.
13	Rated Making Capacity (Icm)	kAp	105 kAp
14	Breaker opening time	ms	40
15	Breaker closing time	ms	60
16	Material of Busbar		Electrolytic Grade Aluminum (Aluminum shall be sourced from M/S Hindalco, M/S Nalco, M/s Sterlite, M/s. Balco)
17	Current Density of Busbar (max.)	A/mm²	1
18	Max. permissible temperature		85C on current carrying parts at an ambient temperature of 50 degrees
19	Min. Clearance between phases	mm	Min 25.4mm There should be adequate Clearance/Spacing for carrying out Maintenance and Inspection Work with Cables Connected (Number of Run as per GTP) after cable termination including lugs
20	Min. Clearance between phase & earth	mm	Min 19.4mm There should be adequate Clearance/Spacing for carrying out Maintenance and Inspection Work with Cables Connected (Number of Run as per GTP) after cable termination including lugs
21	Degree of Protection		IP 55 for Enclosure (Or Higher)
			IP 55 or above for Relay cabinet
22	Mechanical Operations		20000
24	Close and Open Button on Door,		A ‘push to trip’ button ,‘close’ button and shall be provided on the front door of Enclosure with rain-shed covering the buttons of the ACB
25	Electronic Release		Self-Powered
26	Surge protection in relay		As per IEC 61000-4-5
27	Indicating Lamp		Indications for Open, Close, Trip, Spring Charge, I/C Voltage R,Y,B
29	Auxiliary Contact (Breaker)		4 NO + 4 NC (Min)
31	Separation between incomers and outgoing		The incomer and outgoing terminals should be separated by CRCA sheet of 2 mm (min.) thickness & should be properly fixed at both ends for separation between incomer & outgoing.

32	Outgoing bus-bar		Outgoing bus-bar shall be suitable sized facilitating easy maintenance and cable termination of Size 2Run 4C 300SQMM. Clearance as per IEC 61439	Outgoing bus-bar shall be suitable sized facilitating easy maintenance and cable termination of Size 3Run 4C 300SQMM. Clearance as per IEC 61439	Outgoing bus-bar shall be suitable sized facilitating easy maintenance and cable termination of Size 4Run 4C 300SQMM. Clearance as per IEC 61439
33	Incoming bus-bar		Incoming bus-bar shall be suitable sized facilitating easy maintenance and cable termination of 2Run, 4C 300SQMM. Clearance as per IEC 61439	Incoming bus-bar shall be suitable sized facilitating easy maintenance and cable termination of 3Run, 4C 300SQMM. Clearance as per IEC 61439	Incoming bus-bar shall be suitable sized facilitating easy maintenance and cable termination of 4Run, 4C 300SQMM. Clearance as per IEC 61439
34	Bus-bar Insulation		Both incoming and outgoing bus-bars outside enclosure should be insulated with heat shrink tube. Insulation level suitable for 1.1 kV		
35	Phase separator		Phase to phase and phase to neutral separators of FRP material having thickness minimum 3 mm should be provided		
			(a) For incoming bus-bar the separator should be fixed with bolt at top and at bottom U-clip should be provided such that the separator can be lifted upwards during connections		
			(b) For outgoing bus-bar the separator should be fixed with bolt at top and at bottom U-clip should be provided such that the separator can be lifted upwards during connections or alternate arrangement		
36	Orientation should be B-Y-R-N		Poles orientation should be B-Y-R-N as viewed left to right from back side		
37	CT		400/5 10VA CL:0.5S (For Metering)	630/5 10VA CL:0.5S (For Metering)	800/5 10VA CL:0.5S (For Metering)
38	Locking		With Panel Key and Provision for Pad-Locking Arrangement.		
39	Voltage Indication		Voltage presence should be indicated by LED		
40	Mechanism Interlocking		Breaker interlock with Door to be provided		
41	ACB door		ACB door hinges should be anti-theft		
42	Rated Control Circuit Voltage		240VAC (From Incomer Busbar via Control Transformer and MCB of suitable rating)		

43	Limits of voltage for the satisfactory operation of the following devices as % of nominal voltage		
	(a) Trip Coil		70 to 110%
	(b) Close Coil		
	(c) Spring Charge Motor		
44	SCADA Compatibility		The ACB shall be specified as EF type and SCADA compatible. Provision for future SCADA compatibility to be considered including required DI/DO contacts.

5. GENERAL CONSTRUCTIONS

Enclosure

The ACB shall be housed in an enclosure made of 3mm thick CRCA which shall be weather proof and vermin proof. Base Channel Shall be 75X40mm.
The enclosure shall be provided with taper type construction & an overall canopy extension of not less than 100 mm in front side & 250 mm in back side to prevent accumulation of water. The enclosure shall be suitable for outdoor application with Degree of protection shall be IP55.

The enclosure shall have Two doors arrangement with hinges so that it is not possible to remove the door.
A “Open” & “Close” button shall be provided on the front door of the ACB while maintaining the overall IP rating of the enclosure.
All parts shall be manufactured in accordance with relevant IS/IEC. In case of equipment with conductive enclosures, means shall be provided if necessary to ensure electrical continuity between exposed conductive parts of the equipment and the metal sheathing of connecting conductors. The removable parts of the enclosure shall be firmly secured to the fixed parts by a device such that they cannot be accidently loosened or detached owing to the effects of operation of the equipment or vibrations. When an enclosure is so designed as to allow the covers to be opened without the use of tools, means shall be provided to prevent loss of the fastening devices.

For equipment operated by means of three push buttons, only the push button designated for the opening operation shall be RED or marked with symbol “O”. Red color shall not be used for any other push-button. The colors of other push-buttons shall be in accordance with IEC-73. The bidder shall provide Provision of shunt trip coil 240V AC for remote operation of breaker via Control Transformer & Control Fuse.

The Air Circuit Breaker shall have the provision to lock the operating mechanism in OFF position. One padlock at the front side shall be provided with common master key for all the circuit breakers. There shall be provision for Lock-out Tag-out (LOTO) on the front door. All the hardware used shall be hot dipped Galvanized as per IS 2629 (latest edition) with zinc coating. The enclosure should have mounting clamp at base on all four corners.

AIR CIRCUIT BREAKERS

The ACB shall be of fixed type, stored energy design. Switching ON & OFF of the ACBs shall be independent of speed of the operator. For safety of operator, the ACB shall be totally front shielded with an escutcheon cover, while maintaining the required IP55.
IP protection of ACB shall be IP 2X.

Adequate provision to be made with 2mm CRCA Sheet to restrict contact with live parts and against ARC Flash even when the Front enclosure door is opened. There shall be no path or opening which allows incandescent particles to be discharged from the area of the manual operating means.

The Air Circuit Breaker shall be capable of rapid and smooth interruption of currents under all conditions, completely suppressing all undesirable phenomena even under the most severe and persistent short circuit conditions.

Main contacts shall have ample area and contacts pressure for carrying the rated current and the short time rated tripping current of the breakers without excessive temperature rise which may cause pitting or welding. Contacts shall be adjustable to allow for wear and shall be easily replaceable and shall have a minimum of moveable parts. It shall be designed such that no maintenance shall be required under normal condition of use.

The temperature rise and maximum temperature on any part of the circuit breaker, while in service under continuous full load conditions shall not exceed the permissible limits of temperature rise as specified in GTP for alternating current circuit breakers with bolted type tin plated bus bars, jumpers & riser ends. Gaskets shall be of a material which will not deteriorate under service conditions. Metallic compression steps shall be provided for compressible gasket.

The circuit breaker shall be suitable for rapid closing and tripping. The breaker opening and closing operations shall be obtained from compressed spring charging mechanism. The operating mechanism must be stored energy type with operation by means of chargeable springs fitted with anti-pumping facility. The springs charging shall be by means of geared motor and also manually by actuating the front lever. The operating mechanism shall be of the Open/Close/Open stored energy type. The mechanism for spring charging shall be motor operated with facility for manual charging when required. It shall be suitable for re-closing once. Spring operated mechanism shall be complete with opening spring, closing spring and all necessary accessories to make the mechanism a complete unit. Each mechanism shall be designed to have a continuous sequence of circuit breaker opening and closing operations, to be obtained by control switch. Operating mechanism shall be operated by local / remote electrical control.

The mechanical indicators on the front panel of the circuit breaker shall indicate ‘ON’,’OFF’ ‘Spring Charged’ and ‘Spring Discharged’ status conditions. It shall be possible to connect all auxiliary wiring of Breaker (Remote Open/Close, Status Signals etc.) via control TB in the Enclosure Panel. The Air Circuit Breaker shall be with position and door interlocks, required no. of Auxiliary contacts, isolating contacts, closing and shunt releases, spring charge motor, safety interlocks, barriers, mechanical indicators, push buttons etc. required for safe and reliable operation. Mechanical indicators to show the ‘close’ or ‘open’ position of the contacts shall be provided. Operating handle shall be provided for charging the operating mechanism. All MS parts of breakers and ferrous parts shall be hot dip galvanized as per IS: 2629 (latest edition) with zinc platting. The material for spring shall be rust proof. The Air Circuit Breakers and their drawings shall have phase indications as Red, Yellow, Blue and Black.

The actuator of the equipment shall be insulated from the live parts of the ACB. If it is made of metal,

it shall be capable of being satisfactorily connected to a protective conductor unless it is provided with additional reliable insulation. If it is made of or covered by insulating material, any internal metal part, which might become accessible in the event of insulation failure, shall also be insulated from live parts for the rated insulation voltage. The direction of movement of the actuator shall comply with the requirements of IEC-447. The open and closed positions shall be ambiguously indicated by means of position indicating devices.

The circuit breaker shall be provided with arc chutes which shall be design to permit rapid dispersion, cooling and extinction of arc. The arc chutes shall be of arc resistant material and ensure that the arc is positively extinguished within the arc chutes while clearing the rated breaking current.

MICRO-PROCESSOR BASED RELEASE

The ACB shall have a Microprocessor based Release with settable Pickup and Time for Overload Protection, Short Time delayed short circuit protection, Instantaneous short circuit protection, Ground Fault Protection

TERMINALS AND CONNECTIONS

Current carrying parts shall have the necessary mechanical strength and current carrying capacity for their intended use. All parts of terminals which maintain contact and carry current shall be of metal having adequate mechanical strength. Standard sizes of bolts, screws, pipe and other fittings shall be used and number of sizes to be kept minimum. Terminals shall be so constructed that the conductors can be
clamped between suitable surfaces without any significant damage either to conductors or terminals. Terminals shall not allow the conductors to be displaced

The Incoming and Outgoing Terminations shall have sufficient space for connection of XLPE Aluminum Cables (Number of Runs as per GTP) while maintaining necessary clearances space for Easy maintenance and Troubleshooting.

Incoming and Outgoing Terminations must be in 2 separate Compartments separated by 2mm CRCA Sheet (As shown in Reference Drawing)

Any Transition from Copper to Aluminum or Vice versa shall be through Bimetallic Strip/Connector

BUS-BAR , SUPPORT & INSULATION

Busbar sizing calculation has to be supplied.
Busbars shall be Electrolytic Grade 91E Aluminum Alloy Busbars for Phase and Neutral.
Bus Bars will be insulated with heat shrunk PVC Sleeving and will be mounted on epoxy insulators. Short circuit withstand capacity shall be 50KA for 1 Sec and Busbar Ampere rating should be sufficiently higher that the ACB ampacity.

PROTECTIVE MEASURES

The design shall incorporate every reasonable precaution and provision for the safety of all those concerned in the operation and maintenance so that there is no possibility of the operator experiencing a shock during normal operation. All apparatus, connections and cabling shall be designed / arranged to minimize risks of fire and any damage which might cause in the event of fire. Bakelite impregnated / non-impregnated should not be used internally or externally. All apparatus shall be so designed and constructed as to obviate the risks or short circuits of the live parts by lizards / rodents.

When the operating person is opening the door, at any circumstances he should not be able to access the live bus directly, Insulated barriers shall be provided wherever necessary so as to ensure that no accidental contact with any live parts inside is possible.

INTERNAL WIRING

All wiring shall be carried out with 1100V grade single core multi strand flexible copper conductor wires with HRPVC insulation and shall be flame retardant, vermin and rodent proof. The current Carrying capacity of wire shall be adequate for the duty assigned to it considering short circuit condition and shall have sufficient flexibility to facilitate proper termination at any location.

Panel wiring shall be securely supported, neatly installed by lacing and tying, readily accessible and connected to equipment terminals and terminal blocks. Flame retardant, plastic wiring channels/troughs with strap on plastic covers shall be used for this purpose. Sufficient space in channel for modification of wiring shall be kept. Wire termination shall be made with solder less crimping type of tinned copper lugs which firmly grip the conductor. Insulation sleeves shall be provided at all the wire terminations. Engraved core identification plastic ferrules, marked to correspond with panel wiring diagram shall be fitted at both ends of each wire. Ferrules shall fit tightly on the wire and shall not fall off when the wire is disconnected from terminal blocks.

Provision for Energy-meter in scope of Bidder including CT/PT/Aux Wiring.

EARTHING

The fixed parts of a metal enclosure shall be electrically connected to the other exposed conductive parts of the equipment and connected to a terminal which enables them to be earthed or connected to a protective conductor. The exposed conductive parts (e.g. chassis, framework and fixed parts of metal enclosures) other than those which cannot constitute a danger shall be electrically interconnected and connected to a protective earth terminal for connection to an earth electrode or to an external protective conductor. Under no circumstances shall a removable metal part of the enclosure be insulated from the part carrying the earth terminal when the removable part is in place.

The ACB shall be provided with a Copper Earth Bus suitable for the rated short circuit current of the breaker. Two nos. studs shall be provided on side of boxes for body earthing of size M10 .One more stud shall be provided for neutral earthing of same size. The earth terminal /stud shall be of suitable size to accommodate the earth conductor and shall be corrosion protected. The earth terminal shall be identified by means of earthing sign marked in legible and indelible manner on or adjacent terminals. The earthing stud shall be welded from inside so as to prevent access to theft. The protective earth terminal shall be readily accessible and so placed that the connection of the equipment to the earth electrode or to the protective conductor is maintained when the cover or any other removable part is removed.

All Hinged doors shall be connected to the earth terminal with 2.5 Sq.mm braided copper wires. Earthing shall be adequately sized for a fault Current equal to ACB rated Fault withstand current for 1 Sec.

TERMINAL BLOCKS

Control Terminal of suitable rating to be provided for interfacing ACB with Remote System (Remote Close/Open, Potential free Contacts for ACB Status)

Terminal blocks shall be 1100 V grade, 5 A rated, one piece molded, complete with insulated barriers, stud type, melamine housing brass terminals, washers, brass nuts, brass lock nuts and identification strips. Markings on the terminals strips shall correspond to wire number on the wiring diagrams. Not more than 2 wires shall be connected to any terminals.

All spare contacts and terminals of the circuit breaker shall be wired up to terminal blocks in the panel with distinguished ferrule numbers. Molding materials shall be self-extinguishing or resistant to flame propagation, substantially non hygroscopic and shall not carbonize when tested for tracking. The insulation between any terminal and frame work between adjacent terminals shall with stand test of 2kV RMS for one minute. The molding shall be mechanically robust to withstand handling while making terminations. Easily removable Protective transparent plastic covers for placing over the live parts of the terminal blocks shall be provided invariably.

Preferred Make : Elmex ,Phonix,Wago,Connectwell

PAINTING

The paint shall be applied on clean, dry surface under suitable atmospheric conditions by seven tank process followed by powder coating. The paint shall be RAL 7032 (Grey) with thickness of powder coating not less than 80 microns. Oil, grease, dirt and swart shall be thoroughly removed by emulsion cleaning.

6. MARKING

All the components and operating devices like connectors, switches, motors, relays, coils, springs, etc., of the ACB shall be provided with durable and legible tag/label corresponding to the drawing. These tags/labels shall be mounted directly by the side of the respective equipment and/or accessories and shall not be hidden by the equipment wiring. The name plate containing all the technical parameters on enclosure of the ACB shall be embossed with "PROPERTY OF TPCODL/TPNODL/TPSODL/TPWODL" along with the following parameters:

a) PO number with date
b) Code Number.
c) Manufacturer's Name
d) Sr. No
e) Month & Year of Manufacture (MM/YYYY).
f) Country Of manufacture.
g) Danger Plate on Enclosure Body
h) Utilization category.
i) Rated Operation Voltage (Ue)
j) Amp rating
k) Rated Frequency.
l) ICS/ICU/ICW Rating
m) Relevant Standards.
n) IP class.
0) Rated insulation Voltage (Ui)
p) Guarantee Period

The following markings to be provided by the bidder:

a) Protective earth terminals
b) Terminal markings

Name plate/tags/labels shall be made of Aluminum anodized plate PV castings or permanent type and shall have white letters on black background. All equipment/ accessories shall be given standard abbreviation numbers with name of the device, corresponding to the ones shown in the panel internal wiring and breaker manual.

Each ACB shall be provided with sign writing with Front: Arial; Size: 20; Polyurethane paint shall be used.

Equipment Description - ……...
Rating - ……...
Make - ……
S.no - ……...
YOM - ……...
Equipment ID - ……...

7. TESTS

All routine, acceptance & type tests shall be carried out in accordance with the relevant IS/IEC. All 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 components in additions to others specified in the IS/IEC Standards.All these Type Test should be conducted at CPRI/ERDA.

Type Test

Test	Reference Standard
Temperature rise test	IEC 60947-1
Tripping Limits & Characteristics	IEC 60947-2
Dielectric Properties	IEC 60947-2
Operational Performance Capability	IEC 60947-2
Overload Performance	IEC 60947-2
Short Circuit breaking capacities	IEC 60947-2
Short Time withstand current	IEC 60947-2
Degree of Protection of enclosed equipment	IEC 60947-1
EMC Tests	
Electrostatic Discharge	IEC 60255-22-2, Class-III
	IEC 61000-4-2, Class-III
Fast Transient Disturbance	IEC 60255-22-4, Class-A
	IEC 61000-4-4
Surge Immunity Test	IEC 60255-22-5
	IEC 61000-4-5
Power Frequency Immunity Test	IEC 60255-22-7, Class-A
Power Frequency Magnetic Field Test	IEC 61000-4-8
Radiated & Conducted Electromagnetic Field Disturbance	IEC 60255-22-3
	IEC 6100-4-3
Insulation Test	
Dielectric Test	
Impulse Voltage Test	IEC 60255-5
Insulation Resistance	
Environmental Test	

Cold Test (Optional)	IEC 60068-2-1
Dry Heat Test	IEC 60068-2-2
Damp Heat Test	IEC 60068-2-3

Acceptance test

Test	Reference Standard
Dimensional and visual checks	As per TPCODL/TPNODL/TPSODL/TPWODL specification
Clearance & Creepage distances	IEC 60947-1
Dielectric Test on main and control circuit	IEC 60947-1
Mechanical Operation Tests	IEC 60947-2
Tests of auxiliary electrical devices	IEC 60947-1
Verification of correct wiring	IEC 60947-1
Calibration of Releases	IEC 60947-2
Temperature rise (once in RO)	IEC 60947-1
Insulation Resistance	IEC 60947-2
High voltage power frequency withstand for power and control circuit	IEC 60947-1

Routine test

Test	Reference Standard
Dimensional and visual checks	As per TPCODL/TPNODL/TPSODL/TPWODL specification
Verification of clearances	IEC 60947-1
Dielectric Test on main and control circuit	IEC 60947-1
Mechanical Operation Tests	IEC 60947-2
Calibration of Releases	IEC 60947-2
High voltage power frequency withstand for power and control circuit	IEC 60947-1

8. TYPE TEST CERTIFICATES

The Bidder shall furnish the type test certificates of the quoted item for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at Internationally Accredited testing Laboratory, CPRI/ERDA/Government Labs as per the relevant standards. Type tests should have been conducted in certified Test laboratories during the period not exceeding time span as per CEIG Guideline 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 TPCODL/TPNODL/TPSODL/TPWODL.

9. PRE DISPATCH INSPECTION

The Material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPSODL/TPWODL. Inspection may be made at any stage of manufacture at the discretion 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 TPCODL/TPNODL/TPSODL/TPWODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPSODL/TPWODL or its authorized representatives shall not relieve the bidder 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 TPCODL/TPNODL/TPSODL/TPWODL.

Following documents shall be sent along with material

a) Test reports
b) MDCC issued by TPCODL/TPNODL/TPSODL/TPWODL
c) Invoice in duplicate
d) Packing list
e) Drawings & catalogue
f) Guarantee / Warrantee card
g) Delivery Challan
h) Other Documents (as applicable).

10. INSPECTION AFTER RECEIPT AT STORES

The material received at TPCODL/TPNODL/TPSODL/TPWODL store will 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 Project Engineering department.

11. GUARANTEE

Bidder shall stand guarantee towards design, materials, workmanship & quality of process/ manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of at least 12 months from the date of commissioning or 24 months from the date of last supplies made under the contract whichever is earlier, (the time scale of 12/24 months could be enhanced subject to mutual agreements). Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the 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.

12. PACKING

Bidder shall ensure that all equipment covered under this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit.

13. TENDER SAMPLE

NA, However, Bidder has to offer a prototype before mass production in case of first supply to TPCODL/TPNODL/TPSODL/TPWODL.

14. 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. The bidder shall ensure that the material supplied is as per the Guaranteed Technical Particulars as specified in the specifications.

TRAINING:

If required by any DISCOM, OEM shall provide training to concern DISCOM at free of Cost.

15. MINIMUM TESTING FACILITIES

Bidder shall have adequate in-house testing facilities for carrying out all routine tests & acceptance tests as per relevant International / Indian standards.

16. MANUFACTURING ACTIVITIES

The successful bidder will have to submit the required documents & drawing to get the CAT-A/CAT-B approval before mass manufacturing as a mandatory requirement.

17. SPARES, ACCESSORIES AND TOOLS

The bidder shall have to provide the list of spares, which may be required for ensuring the availability during the guaranteed availability period. The list of spares shall be part of scope of supply and accordingly the price thereof shall be quoted by the bidder (as per confirmation given by Plant Engineering) and shall be considered in the evaluation of the bids.

S. No.	SPARES	Units
(i)	Relay	20 % of supply
(ii)	Trip/Close Coil	20 % of supply
(iii)	ARC Chute	20 % of supply

Note: - The spares shall be included in PR only after furnishing requirement from user group.

18. DRAWINGS AND DOCUMENTS

Following documents shall be prepared based on TPCODL/TPNODL/TPSODL/TPWODL specifications and statutory requirements with Drawing including complete BOM and shall be submitted with the bid:

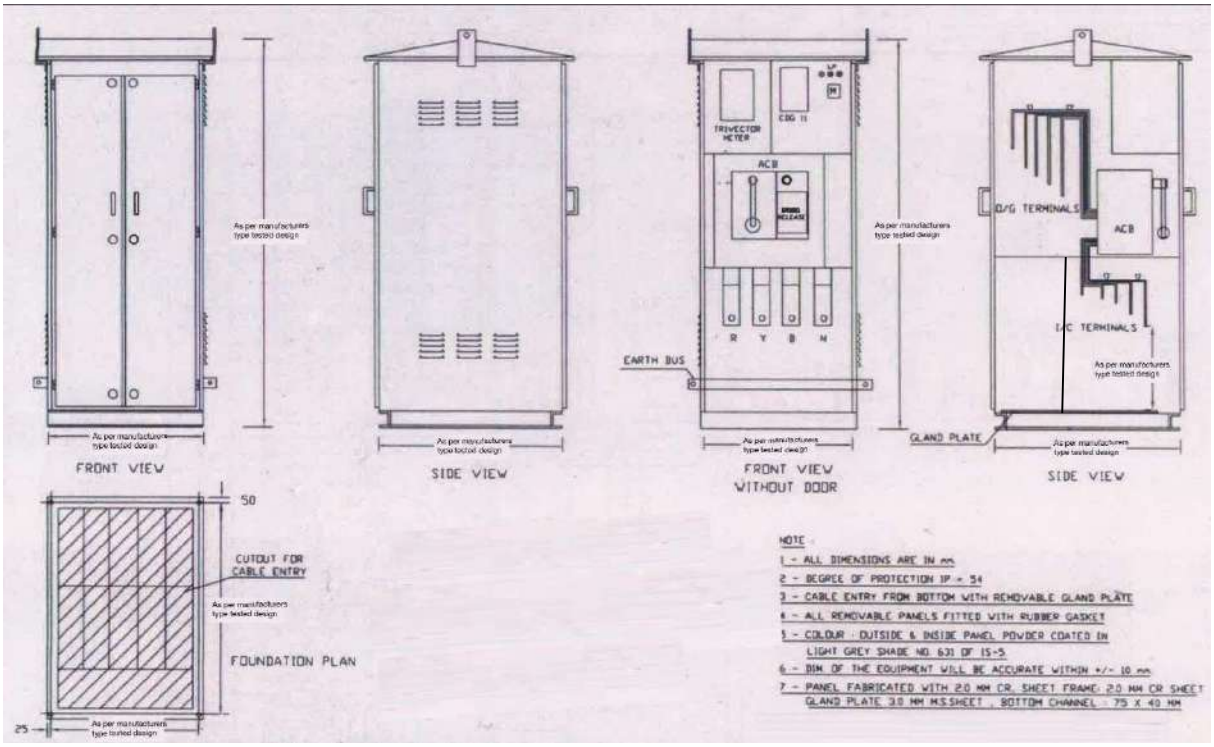
a) Signed & stamped copy of clause-wise compliance on Technical Specification
b) General description & drawing of the equipment
c) Type test Certificates with drawings
d) Experience List
e) Drawing with complete BOM
f) Signed & stamped copy of pre-bid queries
g) Signed & stamped copy of No deviation certificate

After the award of the contract, following documents shall be submitted by the successful Bidders before starting of manufacturing

a) Signed & stamped copy of clause-wise compliance on Technical Specification
b) complete equipment drawing with BOM

c) Foundation Plan Details
d) spare list
e) compliances on undertaking provided during technical evaluation as applicable
f) O&M/Instruction Manual
g) QAP

DRAWING (General Arrangement shall be as per drawing. However, dimensions are subject to change as per Manufacturers type tested design while maintaining required clearances and relevant Specification) (Indicative drawing only)



Note: Degree of protection shall be IP 55 instead of IP 54 mentioned in drawing
*For Reference purpose only .
Dimensions may vary as per ACB rating and Manufacturer's type tested design.

19. GUARANTEED TECHNICAL PARTICULARS

Bidder shall have to comply & submit clause wise compliance of this specification

20. SCHEDULE OF DEVIATIONS

(TO BE ENCLOSED WITH TECHNICAL 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

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1.0 ORGANIZATIONAL VALUES

The Tata Group has always been a value driven organization. These values continue to direct the Group's growth and businesses. The six core Tata Values underpinning the way we do business are:

Integrity - We must conduct our business fairly, with honesty and transparency. Everything we do must stand the test of public scrutiny.

Understanding - We must be caring, respectful, compassionate and humanitarian towards our colleagues and customers around the world and always work for the benefit of India.

Excellence - We must constantly strive to achieve the highest possible standards in our day to day work and in the quality of goods and services we provide.

Unity - We must work cohesively with our colleagues across the group and with our customers and partners around the world to build strong relationships based on tolerance, understanding and mutual co-operation.

Responsibility - We must continue to be responsible and sensitive to the countries, communities and environments in which we work, always ensuring that what comes from the people goes back to the people many times over.

Agility - We must work in a speedy and responsive manner and be proactive and innovative in our approach.

2.0 ETHICS

In our effort towards Excellence and in Management of Business Ethics at TPCODL, an Ethics Management Team is constituted.

The main objective of the Ethics Management Team is to:

1. Record, address and allay the issues and concerns on ethics raised by different stakeholders like employees, consumers, vendors, Associates etc. by initiating immediate corrective actions.
2. Ensure proper communication of the ethics policies and guidelines through prominent displays at all offices of TPCODL and through printed declarations in all concerned documents where external stakeholders are involved.
3. Ensure proper framework of policies as preventive measures against any ethics violation recorded by them.
4. Prepare and submit MIS of all issues and concerns, corrective and preventive actions on monthly basis to the top management for their information.

All Associates and Stakeholders are requested to register any grievance on ethics violation on our website www.tpcentralodisha.com.

3.0 CONTRACT PARAMETERS

3.1 Issue/Award of Contract

TPCODL awards the contract to the Associate in writing in the form of Purchase Order (PO) or Rate Contract (RC), hereafter referred as Contract, through in any or all of following modes physical handover / post / e-mail / web document / fax with all the attachments/enclosures which shall be part of the contract document.

On receipt of the contract, the associate shall return to TPCODL copy of the contract document duly signed by legally authorized representative of associate, within two days of Effective Date of Contract for contracts having contract execution time less than 30 days and within five days for all other contracts.

3.2 Contract Commencement Date

The date of issue/award of contract shall be the Effective Date of Contract or Contract Commencement date.

3.3 Contract Completion Date

The date of expiry of Guarantee Period shall be deemed as the Contract Completion Date.

3.4 Contract Period/Time

The period from Contract Commencement Date to Contract Completion Date shall be deemed as the Contract Period/Time.

3.5 Contract Execution Completion Date

The stipulated date for completing the supply as per schedule of quantities shall be deemed as the Contract Execution Completion Date.

3.6 Contract Price /Value

The total all inclusive price/value mentioned in the PO/RC is the Contract Price/Value and is based on the quantity, unit rates and prices quoted and awarded and shall be subject to adjustment based on actual quantities supplied and accepted and certified by the authorized representative of the company unless otherwise specified in schedule of quantities or in contract documents.

3.7 Contract Document

The Contract Document shall mean and include but not limited to the following:

- NIT/Tender Enquiry, QR, Instruction to Bidders, Special Condition of Contract (SCC) of tender, GCC, Technical & Commercial Specifications including relevant annexure and attachments).
- Bids & Proposals Received from Associate including relevant annexure/attachments.
- RC/PO with agreed deviations from the tender/bid documents.
- All the Inspection and Test reports, Detailed Engineering Drawings.
- Material Dispatch Clearance Certificate (MDCC).
- Minutes of Meeting (MoM)

3.8 Contract Language

All documents, instructions, catalogues, brochures, pamphlets, design data, norms and calculations, drawings, operation, maintenance and safety manuals, reports, labels, on deliveries and any other data shall be in English Language.

The Contract documents and all correspondence between the TPCODL, Third Parties associated with the contract, and the Associate shall be in English language.
However, all signboards required indicating "Danger" and/or security at site and otherwise statutory required shall be in English, Hindi, and local languages.

3.9 Reverse Auction

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 in Annexure F.

4.0 SCOPE OF WORK

All the activities that are to be undertaken by the Associate to realize the contractual deliverables in completeness form Scope of Work. Following clauses list, but not limited to, major requirements of the scope of work.

The associate shall satisfy himself and undertake fully the technical/commercial requirements of items to be supplied as listed in the Schedule of Quantities together with the tests to be performed /test reports to be furnished before dispatch, arrangement of stage and final inspections during manufacturing as per terms and conditions of contract, technical parameters & delivery terms and conditions including transit insurance to be met in order to fully meet TPCODL's requirements.

Completeness: Any supplies and services which might have not been specifically mentioned in the Contract but are necessary for the scope mentioned in Special Terms & Conditions and/or completeness of the works at the highest possible level, including any royalties, license fees & compensation to be paid, whether incurred by the associates or by a third party for the work covered in the scope, regardless of when incurred, shall be supplied/provided by the associate without any extra cost and within the time schedule for efficient , smooth and satisfactory operation and maintenance of the works at the highest possible level under Indian conditions (but according to international standards for facility of this type), unless expressly excluded from the scope of supplies and services in this Contract.

TPCODL have the right, during the performance of the Contract, to change the scope and/or technical character of the Project and/or of the supplies and services stipulated in the Contract by submitting a request in writing to the Associate. The Associate shall, within fifteen days of receipt of such request from the TPCODL, provide Purchaser with a reasonably detailed estimate of the cost of the change outlined in the request.

In the event, TPCODL requests a change, the Contract price and time shall be adjusted upwards or downwards, as the case may be and shall be mutually agreed to. The associate shall not be entitled to any extension of time unless such changes adversely affect the time schedule.

The Associate shall not proceed with the changes as requested till adjustment of contract price and time schedule where so applicable in terms of or otherwise directed by the TPCODL.

5.0 PRICES/RATES/TAXES

Unless specified elsewhere in the contract document, the prices/rates are inclusive of cost of finished product for which MDCC will be issued by TPCODL, packaging and forwarding charges, freight and transit insurance charges covering loading at Associate's works, transportation to TPCODL store/site & unloading & delivery at TPCODL stores/TPCODL site, cost of documentation including all the relevant test certificates and other supportive documents to be furnished.

The Prices/Rates are inclusive of all taxes, levies, cess and duties, particularly Goods and Services Tax as applicable. All government levy / taxes shall be paid only when the invoice is submitted according to the relevant act.

The prices/rates shall remain firm till actual completion of entire supply of goods/material/equipment as per contract is achieved and shall remain valid till the completion of the contract.

The prices shall remain unchanged irrespective of TPCODL making changes in quantum in all or any of the schedules of items of contract.

5.1 Changes in Statutory Tax Structure

If rate of any or all of the statutory taxes and duties applicable to the contract changes, such changes shall be incorporated by default if the changes occur within the contract execution time and shall be applicable if the contract is executed by the Associate within the Contract Execution Time.

For execution of contracts beyond contract execution time, where the delay is not attributable to TPCODL no upward revision in tax /duties shall be considered irrespective of changes in the statutory tax structure either within the contract execution time or beyond. However, in such cases, benefits due to any downward revisions in statutory tax rates shall be passed on to TPCODL.

6.0 TERMS OF PAYMENT

On delivery of the materials in good condition and certification of acceptance by TPCODL official, Associate shall submit the Bills/Invoices in original in the name of “TP Central Odisha Distribution Limited” to invoice desk, complete with all required documents as under:

- Test Reports (4 sets).
- MDCC issued by TPCODL.
- Packing List.
- Drawing and Catalogue.
- Guarantee/Warrantee Card.
- Delivery Challan.
- O&M Manual.
- Copy of Order.
- Minutes of Meeting.

Bills/ invoices shall mention Supplier’s GST Number. TPCODL will make 100% payment within 30 days of submission of the Bill/Invoice complete in all respects and along with all the requisite documents mentioned above, subject to condition that Associate has furnished the requisite Security-cum-Performance Guarantee as stipulated in the contract.

6.1 Quantity Variation

Payment will be made on the basis of actual quantity of supplies/actual measurement of works accepted by TPCODL and not on the basis of contract quantity.

6.2 Full and Final Payment

Full & Final Payment in all contracts shall be made subject to the associate submitting "No Demand Certificate" in the format as per Annexure-C.

7.0 MODE OF PAYMENT

Payment shall be made through crossed Cheque or RTGS whichever of the two modes chosen by the Associate, in favour of Associate's Bank Account on TPCODL records, on whose name Contract has been issued. Those Associates opting for the RTGS mode shall submit the details of Bank Account and other details as per annexure G. Further, for any payments made, TPCODL is not responsible for any consequences/disputes Associate have among the owners channel partners, sub-Associates and all such dispute/concerns shall be settled solely by the Associate.

8.0 SECURITY CUM PERFORMANCE DEPOSIT

Associates shall submit within 15 days from the effective date of issue of PO/RC, Security Performance Bank Guarantee (SPBG) in the format as per Annexure B of this document from banks acceptable to TPCODL for:

(a) 5% of the PO value if purchase order value is more than Rs 5 Crores.

(b) 10% of the PO value if purchase order value is less than Rs 5 Crores.

This shall remain valid till the end of the Guarantee Period of contract, plus one month.

(c) 5% of the RC value in case of Rate Contract. This shall remain valid till the Guarantee period plus one month.

- For PO/RC values less than Rs. 5 lacs, Associate may request for deduction of amount equivalent to SPBG value from their first invoice. Such amount shall be withheld by TPCODL while processing the invoice and shall be released after completion of Guarantee Period plus one month.
- For PO/RC values less than Rs. 3 lacs, the clause (8.0) for Security cum Performance Bank Guarantee (SPBG) shall not be applicable.
- In case of RC (Rate Contract) after the expiry of RC validity, Associate shall have to submit SPBG. However, the Associate has the option to re-submit the SPBG as per actual RO (Release Order) value issued against the RC, valid for Guarantee Period plus one month. The Guarantee Period shall be considered as per the last RO issued against the said RC. The original SPBG as submitted against the RC shall be released on submission of the new SPBG to TPCODL. Alternatively, Associate may extend the validity of original SPBG only till the requisite period, i.e. Guarantee Period plus one month.

9.0 STATUTORY COMPLIANCE

9.1 Compliance to Various Acts

Associate should ensure adherence to all applicable laws, rules and regulation applicable under this contract from time to time. In case of violation any risk, costs etc shall be in associates account and keep TDPPL indemnified always till completion of contracts.

9.2 SA 8000

TPCODL expects its Associates to follow guidelines of SA 8000:2014 on the following aspects

1. Child Labour
2. Forced or Compulsory Labour
3. Health & Safety
4. Freedom of Association & Right to Collective Bargaining
5. Discrimination
6. Disciplinary Practices
7. Working Hours
8. Remuneration
9. Management System

9.3 Affirmative Action

TPCODL appreciate and welcome the engagement/employment of persons from SC/ST community or any other deprived section of society by their business associates.

Relaxation in Contract Clauses under Affirmative Action for SC/ ST Business Associates**

TPCODL believes that inclusive growth is the key to sustainable development, and to promote the same Policy on Affirmative Action for Scheduled Caste & Scheduled Tribe Communities has been adopted across the company.

Under the same pre-text, and to promote entrepreneurship among SC/ST community TPCODL has taken initiative by proposing relaxations in contract clauses as per below:

S. No	Initiative	for SC/ ST BA's	Guideline Document
1	Tender Fees	100% waiver for SC/ST community	All Open Tenders
2	Earnest Money Deposit	50 % relaxation of estimated EMD value	All limited and Open Tenders
3	Performance Bank Guarantee	50% relaxation in PBG for order value above 50 lacs else 25% relaxation	All limited and Open tenders
4	Turnover	25% relaxation in company turnover under qualifying requirement criteria	All Open Tenders

****Classification of BAs under SC/ST shall be governed under following guidelines:**

- Proprietorship/ Single Ownership Firm: Proprietor of the firm should be from SC/ST community. Governing document shall be duly audited balance Sheet for the last FY bearing the name of proprietor.
- Partnership Firm: Only such firms shall qualify which have SC/ST partners holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Partnership Deed and audited balance sheet/ ITR for last FY.
- Private limited company: Only such firms shall qualify which have SC/ST directors holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).

Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).

Note: Certification from SC/ST commission shall be required for deciding upon SC/ST status of a person.

10.0 QUALITY

10.1 Knowledge of Requirements

The Associate shall be deemed to have carefully examined and to have knowledge of the equipment, the general and other conditions, specifications, schedules, drawings, etc. forming part of the Contract and also to have satisfied himself as to the nature and character of the work to be executed and the type of the equipment and duties required including wherever necessary of the site conditions and relevant matters and details. Any information thus procured or otherwise obtained from TPCODL/Consultants shall not in any way relieve the Associate from his responsibility and executing the works in accordance with the terms of contract.

10.2 Material/Equipment/Works Quality

The items / works under the scope of the Associate shall be of the best quality and workmanship according to the latest engineering practice and shall be manufactured from materials of best quality considering strength and durability for their best performance and, in any case, in accordance with the specifications set forth in this Contract. All material shall be new. Substitution of specified material or variation from the process of fabrication/ construction/ manufacture may be permitted but only with the prior written approval of the TPCODL.

10.3 Adherence to Rules & Regulations

The Associate shall procure and/or fabricate/erect all materials and equipment in accordance with all requirements of Central and State enactment, rules and regulations governing such work in India and at site. This shall not be construed as relieving the Associate from complying with any requirement of TPCODL as enumerated in the Contract which may be more rigid than and not contrary to the above mentioned rules, nor providing such construction as may be required by the above mentioned rules and regulations. In case of variance of the Technical Specification from the laws, ordinance, rules and regulations governing the work, the Associate shall immediately notify the same to the TPCODL. It is the sole responsibility of the Associate, however, to determine that such variance exists. Wherever required by rules and regulations, the Associate shall also obtain the statutory authorities' approval for the plant, machinery and equipment to be supplied by the Associate.

10.4 Specifications and Standards

The Associate shall follow all codes and standards referred in the Contract Document. Codes and standards of other may be followed by the Associate with the prior written approval of TPCODL, provided materials, supplies and equipment according to the standard are equal to or better than the corresponding standards specified in the Contract.

Brand names mentioned in the Contract documents are for the purpose of establishing the type and quality of products to be used. The Associate shall not change the brand name and qualities of the bought out items without the prior written approval of the TPCODL. All such products and equipment shall be used or installed in strict accordance with original manufacturer's recommendations, unless otherwise directed by the TPCODL. In any circumstances the codes, specimen and standards prescribed by any government agency should not be violated.

11.0 INSPECTION/PARTICIPATION

11.1 Right to Carry Out Inspection

TPCODL reserves the right to send its representatives for inspection or participation at various stages of contract execution listed below, applicable as per contract construction.

- During basic design and detail engineering of material/ Equipment carried out by Associate /Outsourced Agencies.
- During manufacturing stages of the product at Associate's/Associate's Outsourced Agency's Plant/Facility.
- During Pre-dispatch Inspection and Testing of finished/manufactured product at Associate's/Associate's outsourced Agency's Plant/Facility.
- During Installation & Commissioning Activities/Stages.
- Prior to Clearing of the completed installation for commissioning.
- Any other stage as find appropriate by TPCODL during contract execution time.

All inspections and participations shall be carried out by TPCODL giving written intimation to the Associate or receiving appropriate advance written inspection call from the Associate, unless otherwise specified elsewhere in the contract document.

11.2 Facilitating Inspection

The Associate shall provide all opportunities and information to TPCODL's engineers to get acquainted with the technical know-how and the methods and practices adopted by the Associate in basic and detail engineering. The Associate shall provide documents, drawings, calculations etc. as may be required by TPCODL's Engineers.

The Associate shall provide free of charge office accommodation, office facilities, secretarial services, communication facilities, general and drawing office stationary, etc. as may be reasonably required by the TPCODL's engineers. Similarly, facilities shall also be provided by Associate's outsource agencies/partners/authorized dealers (collectively termed as sub associates) if such basic and detail engineering activities are carried out in the design offices of sub-Associates.

The Associate shall be responsible for the safety of employees of TPCODL/Third Party Agency when they are at the Associate's /Associate's outsource agency's plant or facility for carrying out/witnessing inspection/testing. All statutory safety precautions as applicable shall be followed by the Associate during Inspection Testing. If TPCODL inspectors are not satisfied with the safety arrangements at the plant, TPCODL have the right to call off inspection till such time corrective action is taken by the Associate.
Before raising the call for pre-dispatch final inspection and testing, the Associate shall conduct all the tests—type tests, routine tests etc-as specified in the contract document and submit copies of the test certificates to TPCODL along with the inspection call, for scrutiny of TPCODL.

The Associate and TPCODL shall jointly document all the observations, comments and action points after completion of inspection and it shall be binding on the Associate to provide compliance on all the points requiring compliance and furnish the compliance report to the designated authority of TPCODL for receiving clearance for dispatch of materials

11.3 Third Party Nomination

TPCODL also may nominate a third party for the purpose of carrying out the inspection and such an agency shall be entitled to all the rights and privileges of TPCODL as far as conducting the inspection.

11.4 Waiver of Inspections

TPCODL on its own discretion shall chose to waive off any inspection and ask the Associate to submit all the test reports as applicable as per contract specifications, related to inspection and testing of the goods ordered for scrutiny and clearance for dispatch.

11.5 Incorrect Inspection Call

In case it is observed that the material offered for inspection is not ready at the time of TPCODL inspection visit rendering it as futile, all costs towards such inspection shall be recovered from the BA. Taxes as applicable on such recoveries shall be borne by the BA.

12.0 MDCC & DELIVERY OF MATERIALS

12.1 Material Dispatch Clearance Certificate

Associate shall deliver material/goods/equipment against Supply Contracts or Supply Part of Composite/Service Contracts only after receiving Material Dispatch Clearance Certificate (hereafter termed as MDCC) issued by designated authority of TPCODL. Material delivered at TPCODL stores or at project site without a valid MDCC issued by the designated official of TPCODL shall be rejected. MDCC shall be issued to associate furnishing compliance report on the action points documented during pre-dispatch inspection and testing at Associate's/ Sub Associate's plant/ facility. In case Pre-dispatch inspection is waived at the discretion of TPCODL, then, MDCC shall be issued on receiving all the test reports-routine& type-from the Associate and finding them in order.

The associate shall include and provide for securely protecting and packing the materials so as to avoid loss or damage during handling and transport by air, sea, rail and road or any other means.

All such packing shall allow to the extent possible for easy removal and checking at Site. The associate shall take special precautions to prevent rusting of steel and iron parts during transit by sea. Gas seals or other materials shall be utilized by the associate for protection against moisture during transit of all Plant and Equipment.

Each Equipment or parts of Equipment shall be tagged with reference to the assembly drawings and corresponding part numbers. Each bale or package shall contain a packing note quoting specifically the name of the associate, item description, quantity, item / package identification.

All packing cases, containers, packing and other similar materials shall be new and supplied free by the associate and it shall not be required to be returned to the associate.
Notwithstanding anything stated in this clause, the associate shall be entirely responsible for loss, damage or depreciation or deterioration to the materials and supplies due to faulty and/or insecure packing or otherwise during transportation to the Site until otherwise provided herein.

In case of the consignments dispatched by road, the associate shall ensure that it or its subcontractors:

i) Identify and obtain the correct type of trucks/trailers, keeping in view the nature of consignments to be dispatched.

ii) Take such actions as may be necessary to avoid all possible chances of damages during transit and to ensure that all packages are firmly secured.

Timelines for inspection and MDCC is as below:

S. No.	Inspection	MDCC issuance time including Inspection time (max.)
1	Outside Bhubaneswar	12 days
2	Within Bhubaneswar	5 days
3	Waiver*	3 working days

* Associate is expected to raise the inspection call assuming that Inspection shall be carried out by TPCODL. The decision for waiver of inspection shall be on sole discretion of TPCODL.

12.2 Right to Rejection on Receipt

Goods/Material/Equipment delivered in condition physically damaged & incomplete as a product ordered, or not packed and transported as per the terms and conditions of the contract is liable to be rejected. Such item shall be lifted back by Associates within 15 days from receipt of rejection note from TPCODL and have to supply back the material within next 30 days or within the timeframe mutually decided by Associate and TPCODL.

If delivery of the material is beyond the agreed time, Liquidated damage clause, mentioned in this GCC separately shall be applicable; but the period for levy of LD shall be considered as per the original delivery schedule and not from the agreed timelines for material rectification.

12.3 Consignee

Unless otherwise specified in the Contract Document, Materials/Goods/Equipment shall be consigned to “Stores-In-Charge”, TPCODL, Bhubaneswar.

12.4 Submission of mandatory documents on Delivery

Following documents shall be mandatorily submitted by BA along with supply of material to TPCODL stores/site:

S. No.	Documents	Requisite
1	Invoice copy in original	With all consignments
2	LR copy	Wherever required
3	Packing list	With all consignments
4	MDCC	With all consignments
5	Purchase order / Release order	Signed copy
6	Test certificates	With all consignments
7	Inspection/JVR report	In case pre-dispatch inspection is conducted
8	Device data in CD as per template for metering items	Wherever applicable

12.5 Dispatch and Delivery Instructions

S. No.	Instructions
1	Purchase order/ Release order no. shall be mentioned on invoice and on material

2	TPCODL material code and material description shall be mentioned in invoice and on material.
3	“Property of TPCODL” shall be embossed on material.
4	The material shall be properly sealed and packed in standard packing as per purchase order terms & conditions.
5	The weight and quantity of material shall be mentioned wherever applicable
6	The material supplied shall be co-related with the packing list.
7	The name plate detail on equipment shall include Material code, Material description, specification detail of material [as applicable], Serial No. Year of manufacturing, PO/RO no. and date, “PROPERTY OF TPCODL, Bhubaneswar”, Guarantee period and Associate’s name.
8	In case of manual unloading, supplier / transporter shall deploy sufficient Labour for unloading the material at TPCODL central store. For heavy item(s), crane will be provided by TPCODL [unloading cost will be recovered from the associate].
9	The driver should have valid License and one helper in truck. All the documents of truck like registration papers, PUC etc. should be available in Truck.
10	BA representative should accompany the material and get it unloaded / stacked in his presence wherever possible.

13.0 GUARANTEE

13.1 Guarantee of Performance

Associates shall stand guarantee that the equipment and material supplied under the contract is free from design, manufacturing, material, construction, erection & installation and workmanship & quality defects and is capable of its due, rated and intended quality performance, as an integrated product delivered under the contract, for a specific period termed as Guarantee Period(as elaborated elsewhere in this clause). The Associate should also guarantee that the equipment/material is new and unused except for the usage required for the tests and checks required as part of quality assurance.

13.2 Guarantee Period

The Guarantee Period will be equipment/service/work specific and shall be as specified in the Standard Specifications of TPCODL for the equipment/material/service/work and where standard specifications are not part of contract documents or guarantee period is not specified in the standard specifications,, the guarantee period shall be as per the Special Terms and Conditions of the Contract. In case of no mention of the guarantee period in standard specifications or SCC Guarantee Period will be 12 Months from the Date of Commissioning or 24 months from the date of delivery of final lot of supplies made, whichever is earlier.

13.3 Failure in Guarantee Period (GP)

If the equipment and material supplied under the contract fails to perform its due, rated & intended quality performance, during the Guarantee period, the associate is liable to undertake repair/rectify/replace the equipment and material supplied within time frame specified in the SCC or elsewhere in the contract documents at associate’s cost to make the equipment and material supplied/service or work rendered under the contract of performing its due, rated and intended quality performance. If Associate fails to repair/rectify/replace the equipment or material supplied rendered under the contract, failed in Guarantee Period, TPCODL will be at liberty to get the same done at Associate’s risks and costs and recover all such expenses plus the TPCODL’s own

charges (@ 20% of expenses incurred), from the Associate or from the "Security cum Performance Deposit" as the case may be.

If during the Warranty/ Guarantee period some parts of the supplies are replaced owing to the defects/ damages under the Warranty, the Warranty period for such replaced parts shall be until the expiry of twelve months from the date of such replacement or renewal or until the end of original Guarantee period, whichever is later.

Any repairs during the Guarantee Period shall be carried out by the Associate within 30 days of reporting the issue to Associate by TPCODL. However, if replacement of the Equipment is required, Associate shall notify the same to TPCODL within 7 days of reporting the issue by TPCODL. Thereafter, the total time for supply of new equipment/ material shall be equal to the original delivery period of that equipment/ material as specified in the Contract. In case the Associate is not able to rectify/ replace the faulty equipment/ material within the stipulated timelines as mentioned above, penalty shall be levied as per the Liquidated Damages clause mentioned in this document. The penalty amount shall be recovered from the payment due to the vendor or by encashment of the SPBG as the case may be.

13.4 Cost of repairs on failure in GP

The cost of repairs/rectification/replacement, required transportation, site inspection /mobilization/dismantling and re-installation costs as applicable, to be borne by Associate. The Associate has to ensure that the interruption in the usage of intended purpose of the equipment is minimized to the maximum extent In lieu of the time taken for repairs/rectification/replacement.

13.5 Guarantee period for Goods Outsourced

If the Associate outsources partly equipment/materials/services from third party as mutually agreed upon at the pre award stage of contract, TPCODL shall have the benefit of any additional guarantee period if provided by the third party for the part supplied/executed by them.

13.6 Latent Defect

Hidden defects in manufacturing or design of the product supplied and which could not be identified by the tests conducted but later manifested during operation of the equipment are termed as latent defects. Associates 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 Company.

13.7 Support beyond the Guarantee Period

The Associate shall ensure availability of spares and necessary support for a period of atleast 10 years post completion of guarantee period of equipment supplied against the contract.

14.0 LIQUIDATED DAMAGES

a) For supplies which are of standalone use, multiple in quantities and having a single final delivery schedule, Liquidated damages shall be levied without prejudice to any of the other contractual rights of TPCODL, as described below:

   For delay of each week and part thereof from the delivery schedule specified in the contract, 1% of contract value corresponding to undelivered quantity, provided full quantity is supplied within 130% of the original contract time. If full contractual quantity is not delivered within 130% of contract time for delivery, TPCODL has the right to levy LD on the entire contract value, subject to a maximum of 10% of the total contract value.

b) For Supplies having phased delivery schedule as per contract terms, standalone use and multiple in quantities, Liquidated damages shall be levied without prejudice to any of the other contractual rights of TPCODL, as described below:

For the purpose of calculating and applying LD, each delivery lot shall be considered separately. For delay of each week and part thereof, from the delivery schedule specified for the lot, 1% of the contract value corresponding to the undelivered quantity of the lot subject to a maximum of 10% of the total contract value of the subject lot. However, if full contractual quantity is not delivered within 130% of contract time for delivery, TPCODL has the right to levy LD on the entire contract value, subject to a maximum of 10% of the total contract value. Deduction of LD shall be on landed cost i.e contract value inclusive of taxes and in pursuant statutory compliance GST would be applicable at the stipulated rate and the same shall be borne by Business Associate. In case of LD deduction, a GST invoice shall be issued by TPCODL as a proof of deduction/ recovery.

14.1 LD Waiver Request

Any request of LD waiver shall be submitted within thirty (30) days of deducting LD. Request submitted beyond the timeline shall not be entertained.

15.0 UNLAWFUL ACTIVITIES

The Associate shall have to ensure that none of its employees are engaged in any unlawful activities (whether covered under the scope of the present GCC or not) subversive of the TPCODL's interest failing which appropriate action (legal or otherwise) may be taken against the Associate by the TPCODL, in accordance with the terms of the present GCC.

16.0 CONFIDENTIALITY

Associate and its employees or representatives thereof shall strictly maintain the confidentiality of various information they come across while executing the contract as detailed below.

16.1 Documents

All maps, plans, drawings, specifications, schemes and other documents or information related to the Contract/Project and the subject matter contained therein and all other information given to the Associate by the TPCODL in connection with the performance of the contract shall be held confidential by the Associate and shall remain the property of the TPCODL and shall not be used or disclosed to third parties by the Associate for any purpose other than for which they have been supplied or prepared. The Associate may disclose to third parties, upon execution of confidentiality agreements, such part of the drawings, specifications or information if such disclosure is necessary for the performance of the Work provided such third parties agree in writing to keep such information confidential to the same extent and degree as provided herein, for the benefit of the TPCODL.

16.2 Geographical Data

Maps, layouts and photographs of the unit/plant including its surrounding regions showing vital installation for national security of country or those of TPCODL shall not be published or disclosed to the third parties or taken out of the country without prior written approval of the TPCODL and upon execution of confidentiality agreements satisfactory to the TPCODL with such third parties prior to disclosure.

16.3 Associate's Processes

Title to secret processes if any developed by the Associate on an exclusive basis and employed in the design of the equipment shall remain with the Associate. TPCODL shall hold in confidence such processes and shall not disclose such processes to the third parties without prior approval of the Associate and execution by such third parties of secrecy agreements satisfactory to the Associate prior to disclosure. Upon completion of contract, such processes shall become the property of the TPCODL. Title to technical specifications, drawings, flow sheets, norms, calculations, diagrams, interpretations of test results, schematics, layouts and such other information, which the Associate has supplied to the TPCODL under the Contract shall be passed on to the TPCODL. The TPCODL shall have the right to use these for construction, erection, start-up, Trial Run, operation, maintenance, modifications and/or expansion of the works including for the manufacture of spare parts.

16.4 Exclusions

The provision of Clauses 16.1 to 16.3 shall not apply to information:

- Which at the time of disclosure are in the public domain which later on become part of public domain through no fault of the party concerned, or
- Which were in the possession of the party concerned prior to disclosure to him by the other party, or
- Which were received by the party concerned after the time of disclosure without restriction on disclosure or use, from a third party who did not acquire such information directly or indirectly from the other party or has no obligation of confidentiality for such information.

16.5 Violation

In case of violation of this clause, the Associate is liable to pay compensation and damages as may be determined by the competent authority of TPCODL.

17.0 INTELLECTUAL PROPERTY RIGHTS

If, in the course of performance of its functions and duties as envisaged by the scope of the present GCC, the Associate acquires or develops, any unique knowledge or information which would be covered, or, is likely to be covered within the definition of a trademark, copyright, patent, business secret, geographical indication or any other form of intellectual property right, it shall be obliged, under the terms of this present GCC, to share such knowledge or information with the TPCODL. All rights, with respect to, or arising from such intellectual property, as afore mentioned, shall solely vest in TPCODL.

Moreover, the Associate undertakes not to breach any intellectual property right vesting in a third party/parties, whether by breach of statutory provision, passing off, or otherwise. In the event of any such breach, the Associate shall be wholly liable to compensate, indemnify or make good any loss suffered by such third party/parties, or any compensation/damages arising from any legal proceeding/s, or otherwise. No liability of TPCODL shall arise in this respect, and any costs, damages, expenses, compensation payable by TPCODL in this regard to a third party/parties, arising from a legal proceeding/s or otherwise, shall be recoverable from the Associate.

18.0 INDEMNITY

The Associate shall at all times indemnify, keep indemnified and hold harmless the TPCODL and its officers, directors, employees, affiliates, agents, successors and assigns against all actions, claims, demands, costs, charges and expenses arising from or incurred by reason of any

infringement of patent, trade mark, registered design, copy rights and/or industrial property rights by manufacture, sale or use of the equipment supplied by the Associate whether or not the TPCODL is held liable for by any court judgement. In this connection, the TPCODL shall pass on all claims made against him to the Associate for settlement.

The Associate assumes responsibility for and shall indemnify and save harmless the TPCODL from all liability, claims, costs, expenses, taxes and assessments including penalties, punitive damages, attorney's fees and court costs which are or may be required to be paid by the TPCODL and its officers, directors, employees, affiliates, agents, successors and assigns arising from any breach of the Associate's obligations under the Contract or for which the Associate has assumed responsibilities under the Contract including those imposed under any local or national law or laws, or in respect to all salaries, wages or other compensation for all persons employed by the Associate or his Sub-Associates or suppliers in connection with the performance of any work covered by the Contract. The Associate shall execute, deliver and shall cause his Sub-Associate and suppliers to execute and deliver, such other further instruments and to comply with all the requirements of such laws and regulation as may be necessary there under to conform and effectuate the Contract and to protect the TPCODL.

The TPCODL shall not be held responsible for any accident or damages incurred or claims arising, due to the Associate's error there from prior to completion of work. The Associate shall be liable for such accidents and after completion of work for such accidents as the case may be due to negligence on his part to carry out Work in accordance with Indian laws and regulations and the specifications set forth herein.

19.0 LIABILITY & LIMITATIONS

19.1 Liability

Except for any specific liability which may be identified in the Contract and which may be payable hereunder, Associate shall not be liable for any special, incidental, indirect, or consequential Damages or any loss of business Contracts, revenues or other financial loss (or equivalents thereof no matter how claimed, computed or characterized) arising out of or in connection with the Performance of the Work or supply of Goods ***unless caused by Associate's negligence, willful misconduct or breach of contract.***

If the Associate is a joint venture or consortium, all concerned parties shall be jointly and severally bound to the TPCODL for the fulfillment of the provisions of the Contract. The consortium or the joint venture shall designate one party as their leader, who will be the coordinator between the parties and TPCODL. The constituents & leader of the consortium or joint venture shall not be changed without the prior consent of TPCODL.

TPCODL shall have no liability or any special, incidental, indirect or consequential Damages for any loss of Business Contracts, revenues or other financial loss arising out of this Contract.

19.2 Limitation of Liability

The total liability of Associate against any contract shall be limited to the Total All Inclusive Contract Value.

20.0 FORCE MAJEURE

Force Majeure applies if the performance by either Party ("the Affected Party") of its obligations under Contract is materially and adversely affected.

"Force Majeure" shall mean any event or circumstance or combination of events or circumstances referred below and their consequences that wholly or partly prevents or unavoidably delays any

Party in the performance of its obligations under this Agreement, but only and to the extent that such events and circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided even if the Affected Party had taken reasonable care:

- Act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, embargo, blockade, revolution, riot, bombs, religious strife or civil commotion, etc. ▪ Politically motivated sabotage, or terrorism, etc.
- Action or Act of Government or Governmental agency for which remedy is beyond the control of the affected parties. ▪ Any act of God.

Note: Causes like power breakdown/ shortages/fire/strikes, accidents etc do not fall under Force Majeure.

Time being the essence of the Contract, if either party is prevented from the performance of its obligations in whole or in part due to an event of Force Majeure, then provided Notice of happening of any event by the Affected Party is given to the other party within seven (7) days from the date of occurrence of such event, which DIRECTLY has impact on works and submitted details and quantum of resulting effect, but at the same time had made all possible efforts to mitigate and overcome effects thereof, the Affected Party's performance under this Contract shall be suspended until such event ceases and the Scheduled Completion shall be delayed accordingly.

If Force Majeure event(s) continue for a period of more than three months, the parties shall hold consultation to discuss the further course of action.

Neither party shall be considered to be in default or in breach of its obligation under the Contract to the extent that performance of such obligation by either party is prevented by any circumstances of Force Majeure which arise after effective date of Contract.

Neither party can claim any compensation from the other party on account of Force Majeure.

21.0 SUSPENSION OF CONTRACT

21.1 Suspension for Convenience

TPCODL may, at any time and at its sole option, suspend execution of all or any portions of the schedule of items of contract to be supplied/work to executed by Associate under the contract by providing to the Associate atleast two business days written notice for contracts having contract completion period less than sixty days and atleast seven business days' notice for all other contracts.

Upon receipt of any such notice, the Associate shall respond as follows as applicable as per contract construction.

- Immediately discontinue further supply of material/goods specified in the suspension notice for supply contracts
- Immediately discontinue further service/work and supply of materials of those services/materials/work specified in the suspension notice for service /composite contract
- Promptly make every reasonable effort to obtain suspension, upon terms satisfactory to TPCODL, of all orders, outsourcing arrangements, and rental Contracts to the extent that they relate to performance of the portion of Work suspended by the notice.

- Protect and maintain the portion of the service/Work already completed, including the portion of the Work suspended hereunder, unless otherwise specifically stated in the notice.
- Continue delivering/carrying out the supply/service/work items as per contract conditions, which do not fall under purview of the suspension notice.

On receipt of resumption notice from TPCODL, the Associate shall resume execution of contract as specified in the resumption notice, within the time frame specified in the resumption notice.

21.2 Suspension for Breach of Contract conditions.

TPCODL shall suspend execution of whole/or part thereof the contract till such time Associate complies with the conditions stipulated under section clause 22.1 for breach/default of contract conditions.

21.3 Compensation in lieu of Suspension

If the suspension of the contract in whole or in part is for convenience of TPCODL and not due to any breach of contract conditions by the associate, TPCODL at its discretion shall consider compensating all reasonable additional costs incurred by Associate in lieu of suspension of whole or part of contract, on representation of the Associate providing justified estimates of such additional costs and such estimates are found acceptable and approved by competent authority of TPCODL.

If the suspension of contract in whole or part thereof is due to breach of contract conditions (refer clause 22.1) by the Associate, Associate shall not be entitled for any compensation for any cost incurred in lieu of suspension of whole or part of contract and also shall be liable for compensating all the losses arising to TPCODL in lieu of suspension of contract. Resumption notice shall be subject to the Associate taking corrective action for the breach of contract conditions within the time frame and as per the terms specified in the suspension notice.

22 TERMINATION OF CONTRACT

22.1 Termination for Default/Breach of Contract

The contract / PO /RC shall be subject to termination by TPCODL in case of breach of the contract by the Associate which shall include but not be limited to the following:

a. Withdrawal or intimation by the Associate of its intent to withdraw or surrender the execution / completion of the contracted work /PO or failure in ensuring adherence to any delivery schedules, in deviation of the contract/PO.

b. Refusal or neglect on the part of the Associate to supply material/equipment of quantity or quality as specified by TPCODL and within the timeframe as specified in the contract document or refusal or neglect to execute the services/work in terms of the agreed standards of quantity or quality and/or within the timeframe specified in the contract/PO.

c. Failure in any respect to perform any portion of the Work contracted with promptness, diligence, or in accordance with the terms of the contract.

d. Failure to furnish guarantees as specified and /or failure to comply with the terms thereof.

e. Failure to furnish such relevant documents or information within the time specified which may be necessary for due execution / completion of the works and documentation.

f. Liquidation, bankruptcy either voluntary or involuntary OR entering into any composition or compromise with its creditors, or Insolvency.

g. In case any reasonable information has been received by TPCODL that Associate has adopted/ or attempted to adopt any unethical conduct, action in award of the contract /PO or at any time thereafter.

h. Failure to comply with applicable statutory provisions as contained in the contract or failure to comply with the applicable laws.

i. Failure to comply with safety regulations/clauses stipulated in the contract or as may be generally instructed by TPCODL.

If the default or breach as specified under clause 22 (except sub clause g thereof) be committed by the associate for the first time, TPCODL shall issue, along the with notice of default or breach, a warning notice instructing the associate to take remedial/corrective action within the time frame stipulated in the warning notice and not to repeat the same in future. The timeframe for corrective action by the associate shall be specific to the nature of breach of contract and the same shall not be objected to by the Associate. If the Associate fails to comply with the instructions in the warning notice or in taking corrective action to the satisfaction of TPCODL then TPCODL may terminate the entire or part of contract at its discretion by issuing termination notice without incurring any liability on this ground.

In case the contract is terminated for any breach of the nature specified in clause 22 g stated above, TPCODL shall have the right to terminate all the contracts TPCODL is having with the Associate by issuing termination notice which shall be without prejudice to the other rights of TPCODL available to it under law.
Without prejudice to its right to terminate for breach of contract, TPCODL may, without assigning any reason, terminate the Contract in whole or in part at any time at its discretion while the contract is in force by serving a written notice of two weeks to the Associate.

In the event of TPCODL having proceeded with termination of the contract the associate shall comply and proceed further in the following manner:

a) Associate shall discontinue the supply, on the expiry of the said period of two weeks.

b) Associate shall ensure that no further steps are being taken towards discharge of the obligations, terms and conditions as contained in the contract/PO. This shall include initiation of actions not limited to discontinuation of other allied and associated arrangements which the associate might have entered into with third parties for due discharge of its obligations under the contract with TPCODL.

c) The Associate shall perform thereafter such tasks as may be necessary to preserve and protect the terminated portion of the material/service/work in progress and the materials and equipment at TPCODL sites or in transit thereto. However the associate shall continue to fulfill its contractual obligations with regard to the part of contract not terminated.

d) It shall be open for TPCODL to conduct a joint assessment with the associate of the material, supplies, equipment ,works or in general as to the subject matter of the contract in regard to which the associate claims having completed its obligations before or during such termination.

e) It shall be open to TPCODL to seek invocation of the performance bank guarantee or any other guarantee or other security deposit by whatever name called submitted by the associate, which shall not be objected to or protested against by the associate.

In case of termination of the contract the parties agree to be governed inter alia by the following:

a) In case TPCODL exercises its right of termination as stated above the associate shall not dispute or object to the same.

b) The Associate shall be entitled to receive and claim only such payments OR sums of money from TPCODL as may be found payable to it in regard to works executed by it under the terms of the contract and no other claim of any nature whatsoever shall be made by the Associate.

c) All such provisions which the parties have agreed to survive and prevail even after termination of the contract shall remain effective despite the termination.

In the event of such termination, TPCODL may finish the Work by whatever method it may deem expedient, including the hiring of services and /or purchase of material equipment from such third parties as TPCODL may deem fit or may itself provide any labor or materials and perform any part of the Work. The associate undertakes to bear the incremental costs if any paid by TPCODL in such a case attributable to failure on the part of the associate. The Associate in such a case shall not be entitled to receive any further payments and any sums found payable to it may be adjusted by TPCODL against the amount recoverable from him on this ground. The same shall be without prejudice to other rights available to TPCODL under law against the associate.
Upon the termination of any of the contract due to occurrence of any circumstances provided in clauses stated above and constituting repeated breach or misconduct , TPCODL shall be entitled to bar the associates its agents , affiliates from undertaking any negotiation / tendering, bidding , participation activities concerning TPCODL for a period of two years from date of such termination. The same shall be without prejudice to other rights available to TPCODL.

22.2 Termination for Convenience of Associate

Associate at its convenience may request for termination of contract, clearly assigning the reason for such request. TPCODL has full right to accept, reject or partially accept such request. However, associate shall continue its supply as per contract till final approval is given to associates for such termination.

22.3 Termination for Convenience of TPCODL

TPCODL at its sole discretion may terminate the contract by giving 30 days prior notice in writing or through email to the Associate. TPCODL shall pay the Associate for all the supplies/ services rendered till the actual date of contract termination against submission of invoice by the Associate to that effect.

23.0 DISPUTE RESOLUTION & ARBITRATION

In case of any dispute or difference the parties shall endeavour to resolve the same through conciliatory and amicable measures within 15 Days failing which the matter may be referred by either party for resolution by the sole arbitrator to be appointed mutually by both the parties. The arbitral proceedings shall be conducted in accordance with Arbitration and Conciliation Act 1996 and the place of arbitration shall be Bhubaneswar. The language to be used at proceedings shall be English and the award of the arbitrator shall be final and binding on the parties. The parties shall bear their respective costs of arbitration. The associate shall continue to discharge its obligations towards due performance of the works as per the terms of the contract during the

arbitration proceedings unless otherwise directed in writing by TPCODL or suspended by the arbitrator. Further, TPCODL shall continue making such payments as may be found due and payable to the associate for such works.

23.1 Governing Laws and Jurisdiction

The parties shall be subject to the jurisdiction of the courts of law in Bhubaneswar and any matter arising here from shall be subject to applicable law in force in India.

24.0 ATTRIBUTES OF GCC

24.1 Cancellation

The Company reserves the right to cancel, add, delete at its sole discretion, all or any terms of this GCC or any contract, order or terms agreed between the parties in pursuance without assigning any reasons and without any compensation to the Associates.

24.2 Severability

If any portion of this GCC is held to be void, invalid, or otherwise unenforceable, in whole or part, the remaining portions of this GCC shall remain in effect.

24.3 Order of Priority

In case of any discrepancies between the stipulations in General Conditions of the Contract (GCC) and Special Conditions of Contract (SCC), the GCC shall stand superseded by the SCC to the extent stipulated hereinabove while balance portion of respective clauses of GCC shall continue to be applicable.

25.0 ERRORS AND OMISSIONS

The Associate shall be responsible for all discrepancies, errors and omissions in the drawings, documents or other information submitted by him, irrespective of whether these have been approved, reviewed or otherwise accepted by the TPCODL or not. However any error in design/drawing arising out of any incorrect data/written information from TPCODL will not be considered as error and omissions on part of the Associate.

26.0 TRANSFER OF TITLES

The title of ownership and property to all equipment, materials, drawings & documents shall pass to the TPCODL on acceptance of material by store/site after Inspection.

However, such passing of title of ownership and property to the TPCODL shall not in any way absolve, dilute or diminish the responsibility and obligations of the Associate under this Contract including loss or damages and all risks, which shall vest with the Associate.

27.0 INSURANCE

The Contractor shall take out the Insurance Policies which shall cover all risks including the following, as applicable:-

a) The value of the policy shall cover the total value of all the items till they are handed over to TPCODL.

b) TPCODL shall be the principal holder of the policy. The Associate shall be the loss payee under the policy. Associate / Sub-contractor of the Associate shall not be holders or beneficiaries in the policy nor shall they be named in the policy. TPCODL reserves the exclusive right to assign the policy.

c) While the payment of premium may be phased in agreement with the insurance company, at no time shall goods and services required to be provided by the associate shall remain uninsured in accordance with (a) above.

d) A copy of the Insurance policy shall be made available to TPCODL prior to first dispatch lot of any Equipment and policy shall be kept alive and valid at all times up to the stage of final acceptance.

e) TPCODL reserves the right to take out whatever policy that is deemed necessary by him if the associate fails to keep the said policy alive and valid at all times and/or causes lapses in payment of premium thereby jeopardizing the said policy. The cost of such policy(s) shall be recovered / deducted from the amount payable to the associate.

f) The policy shall ensure that the TPCODL's decision regarding replacement of goods damaged, lost or rendered unusable shall be final.

In all cases, the associate shall lodge the claims with the underwriters and also settle the claims and shall also notify TPCODL of any filed claims. However, the associate shall proceed with the repairs and/or replacement of the equipment/components without waiting for the settlement of the claims. In case of seizure of materials by concerned authorities, the associate shall arrange prompt release against bond, security or cash as required. TPCODL, upon request by the associate, will extend all reasonable assistance to the associate in such a case.

All the insurance claims shall be processed and settled by the associate and the missing/damaged items shall be replaced/repaired by them without any extra cost to TPCODL and without affecting the completion time.

28.0 SUGGESTIONS & FEEDBACK

We welcome all our Business Associates to write to us about their experience with TPCODL; be it our Company, our services or our people. Each and every concern, issue, query and suggestion from you will help us to become a better company to work with and shall help us develop a strong bonding of trust and a long term relationship with you.

You may send your feedback by filling up our Business Associate Feedback Form enclosed herewith as *Annexure-E.* You can also log on to our website www.tpcentralodisha.com to provide your feedback.

- Suggestions for us
- Feedback form
- Knowledge Sharing/ Experience with TPCODL
- Any issues with TPCODL.

Submission of feedback form is mandatory before the release of final payment to the BA.

29.0 CONTACT POINTS

In case Business Associate needs information with respect to payments or has any grievances, same may be lodged by log on to our website www.tpcentralodisha.com

30.0 LIST OF ANNEXURES

S. No.	Subject	Annexure

ANNEXURE-A

PROFORMA FOR BID SECURITY BANK GUARANTEE

The TP Central Odisha Distribution Limited
Bhubaneswar

WHEREAS, (Name of the Bidder) _____

(hereinafter called “the BIDDER”) has submitted his bid dated_____ for the (Name of Contract) _____ (hereinafter called “the BID”).

KNOW ALL men by these presents we (Name of the Bank) _____ of (Name of the Country) _____ having our registered office at_____(hereinafter called "the BANK) are bound unto The TP Central Odisha Distribution Limited (TPCODL) in the sum of _____ for which payment well and truly to be made to the TPCODL the Bank binds himself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 20_____.

The CONDITIONS of this obligation are**:**

i) If the Bidder withdraws his Bid during the period of bid validity specified in the Proforma of Bid or

ii) If the Bidder having been notified of the acceptance of his Bid by the TPCODL during the period of bid validity fails or refuses to furnish the Contract Performance Bank Guarantee, in accordance with the Instructions to Bidders.

We undertake to pay the TPCODL upto the above amount upon receipt of its first written demand, provided that in its demand the TPCODL will note that amount claimed by it is due to it owing to the occurrence of one or both conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force upto and including the date (No of days as mentioned in tender enquiry) days after the closing date of submission of bids as stated in the Invitation to Bid or as extended by you at any time prior to this date, notice of which extension to the Bank being hereby waived, and any demand in respect thereof should reach the Bank not later than the above date.

DATE …… SIGNATURE OF THE BANK ……..

WITNESS …… SEAL ……..

(Signature, Name & Address) (At least 2 witnesses)

ANNEXURE- B

PROFORMA FOR PERFORMANCE BANK GUARANTEE (CP cum EP)

(On Rs.100/- Stamp Paper) Note:

a) Format shall be followed in toto
b) Claim period of one month must be kept up
c) The guarantee to be accompanied by the covering letter from the bank confirming the signature to the guarantee

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The TP Central Odisha Distribution Limited

Bhubaneswar

CP cum EP BG No……

Order/Contract No……dated……

1. You have entered into a Contract No _____ with M/s._____ (hereinafter referred to as "the Vendor") for the supply cum erection / civil work of _____ (hereinafter referred to as" the said Equipment") for the price and on the terms and conditions contained in the said contract.
2. In accordance with the terms of the said contract, "the Vendor" agreed to furnish you with an irrevocable, unconditional and acceptable bank guarantee for 10% of the value of contract and to be valid till the end of Guarantee period plus one month towards "Contract cum Equipment performance". For this purpose you have agreed to accept the guarantee.
3. In consideration thereof, we, _____ hereby irrevocably and unconditionally guarantee to pay to you on demand but in any case before the end of five working days from the date of the claim and without demur and without reference to "the Vendor" such amount or amounts not exceeding the sum of Rs._____ (Rupees _____ only) being _____% (_____ percent) of the total value of the contract on receipt of your intimating that "the Vendor" has not fulfilled his contractual obligations. You shall be the sole judge for such non-fulfillment and "the Vendor" shall have no right to question such judgment.
4. You shall have the right to file / make your claim on us under the guarantee for a **further period of one month** from the date of expiry.
5. This guarantee shall not be revoked without express consent and shall not be affected by your granting time or any other indulgence to "the Vendor", which shall include but not be limited to, postponement from time to time of the exercise the same in you or any right which you may have against "the Vendor" and to exercise the same in any covenant contained or implied in the said contract or any other course or remedy or security available to you, and our Bank shall not be released from its obligations under this guarantee by

your exercising any of your rights with reference to matters aforesaid or any of them or by reasons of any other act or forbearance or other acts of omission or commission on your part or any other indulgence shown by you or by any other matter or thing whatsoever which under the law would, but for this provision have the effect of relieving our bank from its obligation under this guarantee.

6. We also agree that you shall be entitled at your option to enforce this guarantee against our bank as a principal debtor, in the first instance, notwithstanding any other security or guarantee that you may have in relation to “the Vendor’s” liabilities in respect of the premises

7. This guarantee shall not be affected by any change in the constitution of our Bank or “the Vendor” or for any other reason whatsoever.

8. Any claim / extension under the guarantee can be lodge-able at outstation banks or at Bhubaneswar branch and claim will also be payable at Bhubaneswar Branch (to be confirmed by Bhubaneswar Branch by a letter to that effect in case BG is from the branch outside Bhubaneswar).

9. Notwithstanding anything herein contained, our liability under this guarantee is limited to Rs._____ (Rupees_____ only and the guarantee will remain in force upto and including _____(Date) and shall be extended from time to time for such period or period as may be desired by “the Vendor”.

10. Unless a demand or claim under this guarantee is received by us in writing within one months from_____ (expiry date) i.e. on or before _____ (claim period end date), we shall be discharged from all liabilities under this guarantee thereafter.

Dated at_____ this_____ day of _____ 20__

Bank’s rubber stamp

1. Banks full address

Designation of Signatory

2. Bank official number

ANNEXURE-C

PROFORMA FOR "NO DEMAND CERTIFICATE" BY ASSOCIATE

(On Company's Letter head or with Company Seal)
(To be submitted by the Associate to TPCODL Accounts Department at the time of receipt of full and final payment)

(Certificate No. CCP/002)

Name of the Project Order/

Contract No.

Dated

Name of the Associate Scheme

No. / Job No.

We, M/s._____ (Associate) do hereby acknowledge and confirm that we have received the full and final payment due and payable to us from TPCODL, in respect of our aforesaid Order No _____ dated_____ including amendments, if any, issued by TPCODL to our entire satisfaction and we further confirm that we have no claim whatsoever pending with TPCODL under the said contract / W.O.

Notwithstanding any protest recorded by us in any correspondence, documents, measurement books and / or final bills etc., we waive all our rights to lodge any claim or protest in future under this contract.

We are issuing this "NO DEMAND CERTIFICATE" in favour of TPCODL, with full knowledge and with our free consent without any undue influence, misrepresentation, coercion etc.

Place **Name**

(Company Seal)

ANNEXURE-D

PROFORMA FOR APPLICATION FOR ISSUANCE OF CONSOLIDATED TDS CERTIFICATE

To be printed on the letterhead

To,

The TP Central Odisha Distribution Limited,

Bhubaneswar

Sub: Application for issuance of Consolidated TDS Certificate for the FY _____

Dear Sir,

I / we hereby request / authorize you to issue me / us a consolidate TDS Certificate for the financial year _____ against tax deducted at source by you from my / our payments / bills during the said year from time to time under Chapter XVII – B of the Income Tax Act, 1961.
For and on behalf of

Signature

Name

Address

Contact No. (Land Line)

(Mobile)

PAN #

Assessing authority

ATTACH THE COPY OF PAN CARD

ANNEXURE-E

BUSINESS ASSOCIATE FEEDBACK FORM

With an objective to improve our internal processes and systems, and serve you better, we solicit your valuable feedback & suggestions. It is estimated that it will take about 10 minutes to complete this survey. We assure you that your feedback shall be kept confidential. Please send the duly filled feedback form in the "TPCODL addressed - attached envelop"

You are associated with us as

☐ OEMs ☐ Service Contractor ☐ Material Suppliers ☐ Material & Manpower Supplier

You are associated with us for

☐ Less than 1 year ☐ More than 1 year but less than 3 years ☐ More than 3 years

Your office is located at

☐ Bhubaneswar ☐ Within 200 kms from Bhubaneswar ☐ More than 200 kms from Bhubaneswar

Your nearly turnover with TPCODL

☐ Less than 25 Lacs ☐ 25 Lacs to 1 Crore ☐ More than 1 Cr.

Additional Information

Your Name	
Your Designation	
Your Organization	
Contact Nos.	
Email	

We once again thank you for your participation in this survey. Please spare 10 minutes to give your feedback on following pages (Section A to E)

SECTION – A

(Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement).

S. No.	Parameters	1 Do Not Agree	2 Slightly in Agreement	3 In Fair Agreement	4 Mostly in Agreement	5 Fully Agree	Remarks/ Suggestion
1	You receive all relevant queries / tenders from us in timely manner.						
2	We provide you enough lead time to respond to our queries / tenders.						
3	We provide you adequate support (drawings, documents, clarifications, briefing etc.) to enable you meet our requirements.						
4	All following elements of our contract / purchase order are rational :						
4.1	Scope of Work						
4.2	Delivery / Execution Schedule						
4.3	Payment Terms						
4.4	Liquidated Damages						
4.5	Performance Guarantee						
5	Our purchase orders / contracts are simple, specific & easy to understand						
6	TPCODL demonstrate willingness to be flexible in administration of Contract / Purchase Order						
7	We provide timely responses / clarifications to your queries						
8	TPCODL representative you interact / coordinate with is adequately empowered to support you in meeting contractual obligations						
9	TPCODL provide you all necessary infrastructure support for timely and quality completion of work (including AMC)						
10	TPCODL Engineer-in-Charge timely certifies the jobs executed/ material supplied						
11	TPCODL Engineer-in-Charge efficiently supervises the job execution for timely completion of job						
12	BIRD (Bill Inward Receipt Desk) initiative has improved payment disbursement process						

S. No.	Parameters	1 Do Not Agree	2 Slightly in Agreement	3 In Fair Agreement	4 Mostly in Agreement	5 Fully Agree	Remarks/ Suggestion
13	Our approach for Inspection and Quality Assurance effective to expedite project completion?						
14	TPCODL never defaults on contractual terms						
15	In TPCODL Contracts closure is done within set time limit						
16	Our material receiving procedures are well defined and efficiently deployed to reduce mutual inconvenience						
17	Bank Guarantees are released in time bound manner						
18	Our processes related to payment / account settlement are effective.						
19	You get payments on time						
20	TPCODL Employees follow Ethical behaviour						

SECTION – B

SECTION – B (Please rate the following parameters on a scale of 1 to 5, where 1 - Minimum; 5 - Maximum)

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
1	How do you rate courtesy/ empathy/ attitude level and warmth of TPCODL employees you interact with from following team?						
1.1	Project Engineering						
1.2	District / Zones						
1.3	Projects/HOG (TS &P)						
1.4	Inspection & Quality Assurance						
1.5	Stores						
1.6	Metering & Billing						
1.7	Accounts / Finance						
1.8	Administration						
1.9	IT & Automation						
2	How would you rate TPCODL in comparison to your other clients in terms of **fairness of treatment and transparency** with its Business Associates?						
3	How would you rate TPCODL in comparison to your other clients in terms of **processes and systems to manage partnership** with its Business Associates						
4	How would you rate TPCODL in comparison to your other clients in terms of **building long term & mutually relations**hip with its Business Associates						

SECTION – C

Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement.

S. No.	Parameters	Certainly No	Probably No	Certainly Yes	Probably Yes	Remarks/ Suggestion
1	Based on your experience with TPCODL, would you like to continue your relationship with TPCODL?					
2	If someone asks you about TPCODL, would you talk “positively” about					

	TPCODL?					
3	Would you refer TPCODL name to others in your community, fraternity and society as a professional & dynamic organization?					

SECTION - D

If we ask you to rate us on a scale of 1 to 10, how will you rate TPCODL, that truly represents your overall satisfaction with us (please tick appropriate box) -

1	2	3	4	5	6	7	8	9	10

SECTION – E

Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement.

Please spare your thoughts for TPCODL's improvement in particular areas of weaknesses, particularly relating to some great practices, attitudes that you have seen elsewhere in Indian and International Organizations, which you recommend TPCODL to adopt. Please give your valuable salient recommendations.

Please spare your thoughts for TPCODL's improvement in particular areas of major concerns for you. We also welcome your suggestions to adopt any best practices, altitudes that you

Recommendation	*Please tick (√) your top 5 expectations out of the following 10 points listed below -*	
(Please list down improvement you expect from TPCODL)	*Timely payment*	
1	*Flexibility in Contracts/PO*	
	Clarity in PO,s & Contracts	
2	*Timely response to quarries*	
	Timely certification of works executed	
3	*Clarity in Specs, drawings, other docs etc.*	
	Adequate information provided on website for tender notification, parties qualified etc.	
4	*Timely receipt of material at site for execution*	
	Performance Guarantee/EMD released in time	

5	*Inspection & quality assurance support for timely job completion*	

We thank you for your time and courtesy!!

ANNEXURE-F

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed and stamped by the bidder prior to participation in the auction event)

In a bid to make our entire procurement process more fair and transparent, TPCODL intends to use the reverse auctions through SAP-SRM tool 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 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 the 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-G

To,

DGM (Finance)
The TP Central Odisha Distribution Limited
Bhubaneswar

Sub: **e-Payments through National Electronic Fund Transfer (NEFT) OR Real Time Gross Settlement System (RTGS)**

Dear Sir,

We request and authorize you to affect e-payment through NEFT/RTGS to our Bank Account as per the details given below:-

Vendor Code	:	
Title of Account in the Bank	:	
Account Type	:	(Please mention here whether account is Savings/Current/Cash Credit)
Bank Account Number	:	
Name & Address of Bank	:	
Bank Contact Person's Names	:	
Bank Tele Numbers with STD Code	:	
Bank Branch MICR Code	:	(Please enclose a Xerox a copy of a cheque. This cheque should not be a payable at par cheque)
Bank Branch IFSC Code	:	(You can obtain this from branch where you have your account)
Email Address of accounts person: (to send payment information)	:	

Name of the Authorized Signatory: :

Contact Person's Name:

Official Correspondence Address:

We confirm that we will bear the charges, if any, levied by our bank for the credit of NEFT/RTGS amounts in our account. Any change in above furnished information shall be informed to TPCODL well in time at our own. Further, we kept TPCODL indemnified for any loss incurred due to wrong furnishing of above information.

Thanking you,

For _____

(Authorised Signatory)

(Signature with Rubber Stamp)

Certification from Bank:

We confirm that we are enabled for receiving NEFT/RTGS credits and we further confirm that the account number (specify Bank a/c no.) of (Please mention here name of the account holder), the signature of the authorised signatory and the MICR and IFSC Code of our branch mentioned above are correct.

This also is certified that the above information is correct as per Bank record

(Manager's/ Officers Signature under Bank Stamp)

ANNEXURE-H

VENDOR APPRAISAL FORM

TO BE SUBMITTED BY VENDOR (To be filled as applicable)			
VENDOR:			
1.0	**DETAILS OF THE FIRM**		
	1.1	NAME (IN CAPITAL LETTERS)	:
	1.2	TYPE OF CONCERN (PROPRIETARY) Partnership, Pvt. Ltd., Public Ltd. etc.	:
	1.3	YEAR OF ESTABLISHMENT	:
	1.4	LOCATION OF OFFICE POSTAL ADDRESS TELEGRAPHIC ADDRESSES, TELEX NO. FAX NO.	:
	1.5	LOCATION OF MANUFACTURING UNITS	:
		i) UNITS 1	:
		ii) OTHER UNITS	:
2.0	**PRODUCTS MANUFACTURED**		:
3.0	**TURNOVER DURING THE LAST 3 YEARS (TO BE VERIFIED WITH THE LATEST PROFIT & LOSS STATEMENT).**		:
4.0	**VALUE OF FIXED ASSETS**		:
5.0	**NAME & ADDRESS OF THE BANKERS**		:
6.0	**BANK GUARANTEE LIMIT**		:
7.0	**CREDIT LIMIT**		:
8.0	**TECHNICAL**		
	8.1	NO. OF DESIGN ENGINEERS (INDICATE NO. OF YEARS EXPERIENCE IN RELATED FIELDS)	:
	8.2	NO. OF DRAUGHTS MEN	:
	8.3	COLLABORATION DETAILS (IF ANY)	:
		8.3.1 DATE OF COLLABORATION	:
		8.3.2 NAME OF COLLABORATOR	:
		8.3.3 RBI APPROVAL DETAILS	:
		8.3.4 EXPERIENCE LIST OF COLLABORATOR	:
		8.3.5 DURATION OF AGREEMENT	:
	8.4	AVAILABILITY OF STANDARDS / DESIGN PROCEDURES / COLLABORATOR'S /	:

		DOCUMENTS (CHECK WHETHER THESE ARE LATEST/CURRENT	
	8.5	TECHNICAL SUPPORT, BACK-UP GUARANTEE, SUPERVISION, QUALITY CONTROL BY COLLABORATOR (WHEREVER ESSENTIAL). (THIS CLAUSE IS RELEVANT WHEN VENDOR'S EXPERIENCE IS INADEQUATE)	:
	8.6	QUALITY OF DRAWINGS	:
9.0	**MANUFACTURE**		
	9.1	SHOP SPACE, LAYOUT LIGHTING, VENTILATION, ETC.	:
	9.2	POWER (KVA)	:
		MAINS INSTALLED	:
		UTILIZED	:
		STANDBY POWER SOURCE	:
	9.3	MANUFACTURING FACILITIES (ATTACH LIST OF EQUIPMENT AS APPLICABLE)	:
		9.3.1 MATERIAL HANDLING	:
		9.3.2 MACHINING	:
		9.3.3 FABRICATION	:
		9.3.4 HEAT TREATMENT	:
		9.3.5 BALANCING FACILITY	:
		9.3.6 SURFACE TREATMENT PRIOR TO PAINTING/ COATING, POLISHING, PICKLING, PASSIVATION, PAINTING, ETC.	:
	9.4	SUPERVISORY STAFF	:
	9.5	ADEQUACY OF SKILLED LABOURS (MACHINISTS, WELDERS, ETC.)	:
	9.6	NO. OF SHIFTS	:
	9.7	TYPE OF MATERIAL HANDLED (SUCH AS CS, SS, ETC.)	
	9.8	WORKMANSHIP	:
	9.9	MATERIAL IN STOCK AND VALUE	:
	9.10	TRANSPORT FACILITIES	:
	9.11	CARE IN HANDLING	:
10.0	**INSPECTION / QC / QA / TESTING**		
	10.1	NUMBER OF PERSONNEL (INDICATE NO. OF YEARS OF EXPERIENCE)	:
	10.2	INDEPENDENCE FROM PRODUCTION	:

	10.3	AVAILABILITY OF PROCEDURAL WRITE UP/QUALITY PLAN	:
	10.4	INCOMING MATERIAL CONTROL AND DOCUMENTATION	:
	10.5	RELIABILITY/REPUTATION OF SUPPLY SOURCES	:
	10.6	STAGE INSPECTION AND DOCUMENTATION	:
	10.7	SUB-ASSEMBLY & DOCUMENTATION	:
	10.8	FINAL INSPECTION AND DOCUMENTATION	:
	10.9	PREPARATION OF FINAL DOCUMENTATION PACKAGE	:
	10.10	TYPE TEST FACILITIES	:
	10.11	ACCEPTANCE TEST FACILITIES	:
	10.12	CALIBRATION OF INSTRUMENTS AND GAUGES (WITH TRACEABILITY TO NATIONAL STANDARDS) (ATTACH LIST)	:
	10.13	STATUTORY APPROVALS LIKE BIS, IBR, ETC.(AS APPLICABLE)	:
	10.14	SUB-VENDOR APPROVAL SYSTEM AND QUALITY CONTROL	:
	10.15	DETAILS OF TESTS CARRIED OUT AT INDEPENDENT RECOGNIZED LABORATORIES	:
		i) FURNISH LIST OF TESTS CARRIED OUT AND THE NAME OF THE LABORATORY WHERE THE TESTS WERE CONDUCTED	:
		ii) CHECK AVAILABILITY OF CERTIFICATES AND REVIEW THESE WHEREVER POSSIBLE	:
11.0	**EXPERIENCE (INCLUDING CONSTRUCTION / ERECTION / COMMISSIONING) TO BE FURNISHED IN THE FORMAT INDICATED IN APPENDIX)**		:
12.0	**SALES, SERVICE AND SITE ORGANIZATIONAL DETAILS**		:
13.0	**CERTIFICATE FROM CUSTOMERS (ATTACH COPIES OF DOCUMENTS)**		:
14.0	**POWER SITUATION**		:
15.0	**LABOUR SITUATION**		:
16.0 *	**APPLICABILITY OF SC/ST RELAXATION (Y/N)** **IF YES, SUPPORTING DOCUMENTS TO BE ATTACHED**		
17.0	**ORGANIZATIONAL DETAILS** 1. PF NO 2. ESI NO 3. INSURANCE FOR WORK MAN COMPENSATION ACT NO 4. ELECTRICAL CONTRACT LIC NO 5. ITCC / PAN NO 6. SALES TAX NO 7. WC TAX REG. NO		:
18.0	**DOCUMENTS TO BE ENCLOSED:**		

	1. FACTORY LICENSE 2. ANNUAL REPORT FOR LAST THREE YEARS 3. TYPE TEST REPORT FOR THE ITEM 4. PAST EXPERIENCE REPORTS 5. ISO CERTIFICATE –QMS, EMS, OHAS, SA 6. REGISTRATION OF SALES TAX 7. COPY OF TIN NO. 8. COPY OF SERVICE TAX NO. 9. REGISTRATION OF CENTRAL EXCISE 10. COPY OF INCOME TAX CLEARANCE. 11. COPY OF PF REGISTRATION 12. COPY OF ESI REGISTRATION 13. COPY OF INSURANCE FOR WORK MAN COMPENSATION ACT NO 14. COPY OF ELECTRICAL CONTRACT LIC NO 15. COPY OF PAN NO 16. COPY OF WC TAX REGISTRATION 17. DOCUMENTS IN SUPPORT OF SC/ST RELAXATION AT S.NO.16.0 18. GSTN CERTIFICATE	

*** Classification of BA s under SC/ST shall be governed under following guidelines:**

- **Proprietorship/ Single Ownership Firm:** Proprietor of the firm should be from SC/ST community. Governing document shall be Proprietorship Deed.
- **Partnership Firm:** Only such firms shall qualify which have SC/ST partners holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Partnership Deed.
- **Private Limited Company:** Only such firms shall qualify which have SC/ST directors holding equal to or more than 50% of the total ownership pattern of the firm. Governing document shall be Memorandum of Understanding (MoU) and/or Article of Association (AoA).

NOTE: Certification from SC/ST Commission shall be required for deciding upon SC/ST status of a person.

ANNEXURE-I

MANUFACTURER AUTHORIZATION FORM

(To be submitted on OEM's Letter Head)

Date: …….

Tender Enquiry No.: ……..

To,

Chief (Procurement & Stores)

The TP Central Odisha Distribution Limited,
Bhubaneswar

Sir,

WHEREAS M/s. *[name of OEM]*, who are official manufacturers of …… having factories at *[address of OEM]* do hereby authorize M/s *[name of bidder]* to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following Goods, manufactured by us

……and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with the Special Conditions of Contract or as mentioned elsewhere in the Tender Document, with respect to the Goods offered by the above firm in reply to this Invitation for Bids.

We hereby confirm that in case, the channel partner fails to provide the necessary services as per the Tender Document referred above, M/s *[name of OEM]* shall provide standard warranty on the materials supplied against the contract. The warranty period and inclusion / exclusion of parts in the warranty shall remain same as defined in the contract issued to their channel partner against this tender enquiry.

Yours Sincerely,

For ……..

Authorized Signatory

Annexure VIII

Safety Policy and Safety Terms and Conditions

Contractor's Safety Code of Conduct

Reason for Change	Date of Last Revision	Prepared By	Reviewed By	Approved by
Inclusion of Odisha Discom and periodic Revision	*11-May-2015-R1* *15 August-2021-R6*	All Discom and CFT members from all cluster	Debi Prasad Acharya (Head-Safety-Odisha Discom	Suresh H Khetwani (*Chief safety and Environment*)

CONTENTS

APPENDICES-R7

1.0 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.

2.0 **Scope:**

- This procedure applies to all operating and project sites of The Tata Power Company Ltd and Group companies including new businesses like Electric Vehicle charging, Home Automation, Microgrid, Roof top solar etc. *This Code of Conduct also applies to all operating and project sites of four Odisha Discoms and New business based on mutually agreed timeline for implementation. R7*
- *This document is applicable to Odisha Discoms also. Odisha Discoms are a joint venture between Tata Power and the Government of Odisha with the majority stake being held by Tata Power Company (51%). ODISHA DISCOMS is a state electricity distribution utility with sole rights to distribution of electricity in the Odisha covering the distribution companies such as TPNODL, TPCODL, TPSODL and TPWODL. In accordance with the Electricity Act. ODISHA DISCOMS engages contractor workforce to execute, run and maintain various operating sites and facilities across locations The activities range from project execution, operation & maintenance of facilities. (R7)*

3.0 Definitions

3.1. **Order Manager/Engineer in charge:** Order Manager/Engineer in charge is the Tata Power-Division /DISCOM 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-Division/DISCOM. It will contain the entire job specific safety requirement and will be signed by the contractor.

3.3. **Contractor/Business Associate/Vendor (BA)**: An individual or a company that provides services to Tata Power-Division/DISCOM under a signed contract.

3.4. **Emergency:** It is a serious, unexpected, or dangerous situation requiring immediate action, which may result in *loss of life,* 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 and approved by adequate authority of MB level or 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 AI-ML, expert for transmission and distribution network, expert for civil works, expert on transformers, expert for PSCC, expert for equipment overhaul etc.

3.6. **CEO/Chief/Head of division/Unit/Utility**: Business in charge who is overall custodian of the Tata Power-Division/DISCOM.

3.7. **Category A Vendor:** Vendor eligible to carry out Very High & High risk (as per Tata Power-Division 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 4-CSMF-4 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 4-CSMF-4 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 4-CSMF-4 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 14 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 calculated 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 more than 12 months, it is considered as long duration job.* ***R7***

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

3.16. ***Strategic Business Unit-SBU/Division/Discom:*** *A strategic business unit is a fully functional, independently operational setup of a particular business and an important part of the Tata power company*. R7

4.0 Responsibilities

4.1 Order Manager/Engineer in Charge: Order Manager is Tata Power-Division /DISCOM 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 Ensure 100% safety capability building L1, L2, L3 for contractor work force and supervisor before start of Job

4.1.3 Ensure Contractor safety revalidation test for all work force quarterly *or Half yearly for new business such as Odisha Discom (R7)*.

4.1.4 *Conduct competency assessment of all critical work force working on High-Risk Jobs based on Experience, Technical skill and Safety capability through contractor representative along with division/Discom safety representative. R7*

4.1.5 Supervise and ensure work is carried out as per the Site Safety Management Plan including agreed Risk Assessment (HIRA/JSA) and Method Statement.

4.1.6 Conduct audit and evaluate Safety Performance of contractor.

4.1.7 Ensure contractors adhere to all statutory provisions.

4.1.8 In case any Exception needed in agreed safety management plan or in CSCC process for execution of job, *document control procedure-* ***TPSMS/GSP/DC/014*** *Clouse 6.3* will be applicable, and approval may be obtained by the Order Manager from adequate authority of *Chief of Division/CEO of Discom. (R7)*

4.2 Contractor/Business Associate/Vendor (BA): The person, entity or organisation who is executing the job for Tata Power-Division /Odisha Discoms under a contractual agreement and will be responsible for the following

4.2.1 To follow all Tata Power-Division /DISCOM Critical Safety Procedure, Rules and guidelines given in **CSM F3 Safety Terms and Conditions.**

4.2.2 Undertake job as per **CSM F9 Site Safety Management Plan** and method statements agreed with the Tata Power-Division /DISCOM.

4.2.3 Ensure 100% safety capability building L1, L2, L3 for contractor work force and supervisor before start of Job

4.2.4 Ensure Contractor safety revalidation test for all workforce quarterly *or Half yearly for new business such as Odisha Discom up to three years. R7*.

4.2.5 *Ensure competency assessment of all critical work force working on High-Risk Jobs based on Experience, Technical skill and Safety capability through Order manager or Engineer in charge representative along with division/Discom safety representative. R7*

4.2.6 Raise any concerns about their work and its safety with the Order Manager.

4.2.7 Report all injuries, near misses, unsafe acts/conditions, and occurrences to the Order Manager immediately.

4.2.8 Ensure that all sub-contractors follow the Tata Power Safety Procedure and agreed **CSM F9 Site Safety Management Plan.** *If subcontractor detail is not available at stage of Bid evaluation, then this can be agreed with Order manager or Engineer in charge before deployment. Ensure that all sub-contractors follow the Tata Power Safety Procedure and agreed CSM F9 Site Safety Management Plan*.**R7**

4.2.9 To follow all statutory requirements as per the laws of the land.

4.2.10 All vendors applying for category "A "jobs or submitting quote for high-risk jobs shall obtain certificates of ISO:9001, ISO:14001 and ISO:45001 before submitting quote for high-risk Jobs *or otherwise mention plan to get the certification.* R7

4.3 Safety Concurrence Group (SCG): It is Cross Functional Team constituted by Contract department with active support from Safety Team of the Tata Power Division/Discom safety team having representatives from Execution Department, Operation Department, Contract Department, and any other department as deemed fit. SCG will be responsible for the following:

4.3.1 Assessment of Safety Potential of new vendor before registration using **CSM F1 Process Flowchart for Vendor Registration** and **CSM F2 Safety Category Qualification Form.**

4.3.2 Safety Evaluation of the bids as per evaluation format **CSM F7 Safety Bid Evaluation Criteria**

4.3.3 Finalization of the **CSM F9 Site Safety Management Plan** submitted by the contractor.

4.3.4 During Safety Bid Evaluation for following types of jobs are evaluated: R7

4.3.4.1 High-Risk jobs, Medium Risk job, Major Shutdowns and Outages.

4.3.4.2 Capex jobs of High-Risk Category

5.0 Procedure

5.1 Registration of Business Associates (Vendors)

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

1) **CSM F2 Safety Category Qualification Form**
2) **CSM F3 Safety Terms and Conditions**

The document **CSM F3 Safety Terms and Conditions** provides the information about Tata Power-Division /Odisha Discom safety System to the contractor. Contractor will submit the **CSM F2 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 F4 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: CSM F1 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 /Medium Risk" then RFQ will be attached with following documents:

1) **CSM F3 Safety Terms and Conditions**
2) **CSM F6 Safety Competency Assessment Form**
3) **CSM F8 PPE requirements**
4) **CSM F9 Site Safety Management Plan 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 **CSM F3 Safety Terms and Conditions.**

Contracts department will collect duly filled **CSM F6 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 F7 Safety bid evaluation criteria**. If any specific condition related to Contract is required to be conveyed to the 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. Contract will attach a copy of Site Safety Management Plan along with PO to the successful bidder. Please refer **CSM F5 Process Flow Chart for issuing RFQ and PO significant health and safety risk associated with it.**

5.3 Capability Building:

Before issuing gate pass:

For Odisha Discom: All Tata Power contractor and subcontractor workforce is required to

attend Site Safety Orientation Training to receive a Safety Training Card, which is required to obtain a Gate Pass to the site, prior to entry. This Safety Orientation Course will be for duration of minimum half day. The information provided during the orientation will include, but is not limited to Job rules, personal safety, and conduct, Hazard's reporting, reporting of injuries, Emergency procedures, Safety Activities and Program including disciplinary measure and incentives, Critical safety procedure relevant to the job

For Tata Power Divisions: All Tata Power contractor and subcontractor workforce is required to attend L1 Training to receive a Safety Training Card, which is required to obtain a Gate Pass to the site, prior to entry.

For TataPower and Discom: Appropriate practical training such as SHE L1, L2& L3 is given to ensure that a jobholder, either supervisor or worker, is competent to do his/her job safely. The skill training is provided through TPSDI, and other agencies authorized by Tata Power on the list of 15 critical Safety procedures mentioned under safety procedures. Duration of course is as specified by Division/Discom. Contractor shall ensure that concerned workmen are provided with adequate training before he/she is allowed to execute the work. An evaluation test will be conducted after the completion of the training. Those BA employees, who meet the minimum required competency, will be provided with Certificate or Training /Competency Card, which is valid for 3 years, post which the employee must reappear for the assessment. If the workman is not able to qualify the assessment, he/she will be given 3 additional attempts to clear in 3-month time frame failing which he/she will not be allowed to work on Division/Discom any jobs. *After expiry of Certificate or Training /Competency Card again one day recertification of L1, L2 and L3 skill training will be provided. R7.*

The Contactor shall bear the conveyance and food expenses of his staff for attending training sessions and capability building sessions in new business-like Odisha Discom.
The Contactor shall bear the entire cost of L1/L2/L3, the costs towards training, salaries/wages, boarding and lodging of his staff for attending training sessions and capability building sessions These trainings are offered on nominal chargeable basis payable by Contractor and rates shall be decided by TPSDI from time to time in case of training trough TPSDI. Generally, L0 is of one day, L1 is for 2 days for each critical procedure and L3 is for one day. Around Rs 700+GST is approx. cost /Day/Candidate. - R7

All contractors' workmen and Business Associate must attend Safety foundation course Training, all workmen engaged in critical jobs must clear and get certified for critical procedures applicable on his work like Work at Height and Electrical safety-LT & HT/LOTO&LC separately and all supervisors must complete supervisor certification in safety.

Competency assessment of all critical workforce to be carried out for all who has taken L2 training. R7

5.4 Recognition to the Prior Learning in Safety-R7

If "Order Manager" recommends and "Head of the Safety Department of Discom" is satisfied with the safety knowledge and competency of the employee of contractor, a test may be conducted by Tata power Skill development Institute/ other recognized institute to assess the prior learning in safety. If employees of the contractors pass in such test, he will be exempted from appearing in SHE L1 training. *This assessment is on nominal chargeable basis and rates are decided by TPSDI from time to time.*

5.5 Safety performance retention(R7): 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. (R7)

Risk Category-(R7)	Contract Value	Retention Amount (%)
Very high/High risk job/ Medium Risk jobs	Up to 10 Lakhs	2.5
Very high/High risk job/ Medium Risk jobs	10 – 50 Lakhs	2
Low/Very Low Risk jobs	10 – 50 Lakhs	1
Very high/High risk job	0.5 to 10 Cr	2
Medium Risk jobs	0.5 to 10 Cr	1.5
Low/Very Low Risk jobs	0.5 to 10 Cr	1
Very high/High risk job	>10 Cr	1.5
Medium Risk jobs	>10 Cr	1

1. *The safety retention amount will not be applicable if there is clause of Contract Performance Bank Guarantee (CPBG) and safety performance of contractor is as per desired criteria.*
2. *If safety performance of contractor is not as per desired criteria (as per Appendix 10 – CSM F10 – Process Flow Chart for Safety Performance Evaluation and Appendix 11: CSM F11 - Safety Performance Evaluation Criteria- R7.) then safety retention percentage as mentioned in table above will be deducted from running bill.*
3. *Bidder to give understanding that if there are any deductions required to be made for safety non-performance as per the Safety Performance Score, then Tata Power shall recover any such deductions against safety non-performance directly from the monthly bills / final settlement or it shall be within its right to recover such sum from accounts payable or the CPBG or the retention of the Contractor available with Tata Power for the said contract between the Contractor and Tata Power. R7*

For all other contracts retention amount is applicable as per table given above.

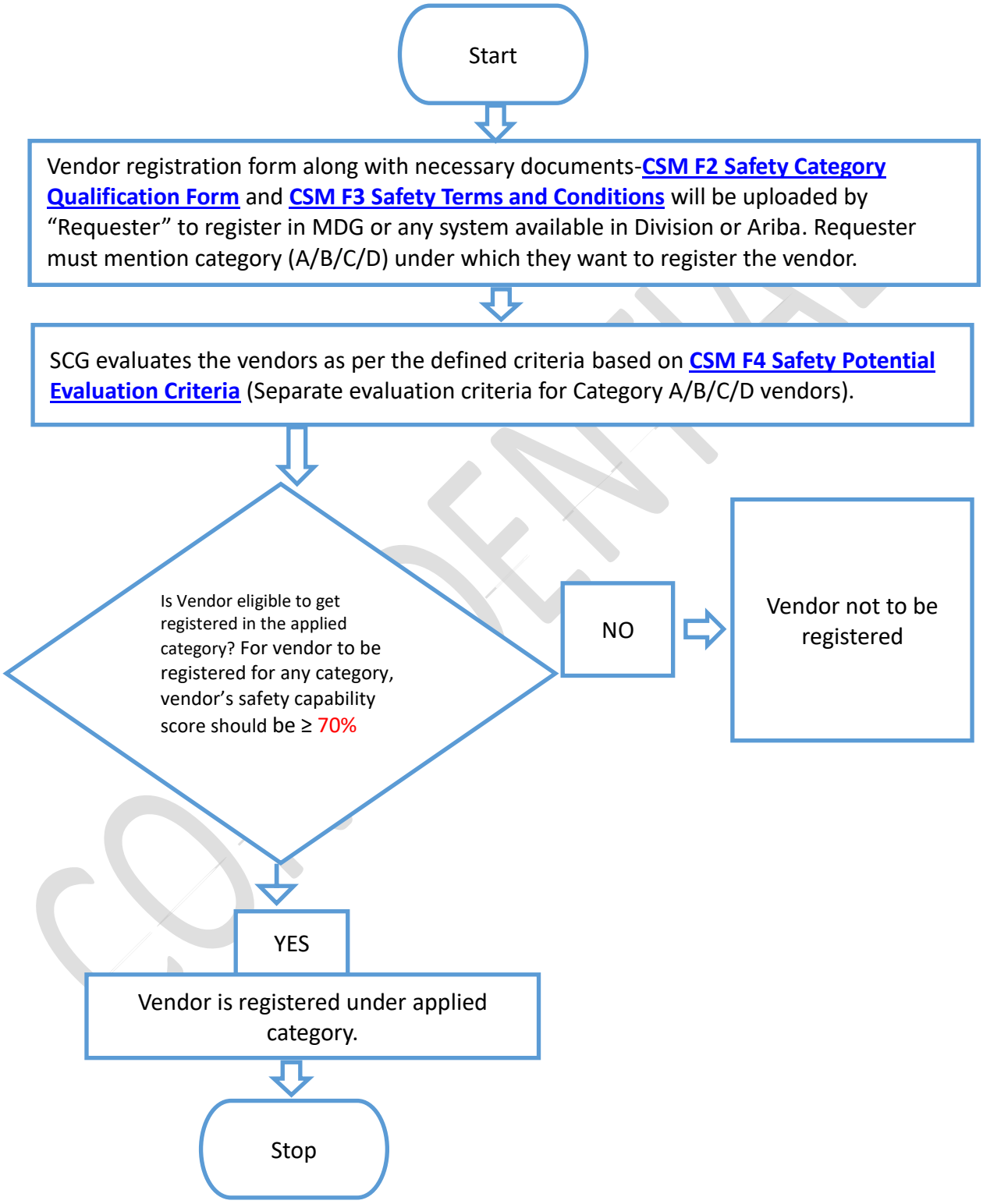
4. *The retention amount against non-safety performance saved and Penalty will go to a separate Safety Improvement Fund.R7*
5. For the contract value of more than Rs 1 Cr or contract duration more than 12 months, the retention amount shall be released half yearly based on safety performance. For all remaining contracts, the retention amount will be released with the final bill.
6. 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 is 100%.

5.6 Safety Performance Evaluation:

During the time of job execution, regular site inspection will be carried out by the Tata Power-Division /DISCOM officials to evaluate monthly safety performance of the contractor as per **CSM F11 Safety Performance Evaluation Report** and monthly score will be maintained by the Order Manager. Violations will be dealt as per **CSM F12 Safety Violation Penalty Criteria**. Please refer **CSM F10 Process Flow Chart for Safety Performance Evaluation**. Percentage of retention amount is usually mentioned in safety terms and conditions.

1. During the progress of the work, concerned site Supervisor/Engineer/Safety representative will visit and inspect the work site regularly and evaluate the safety performance of the contractor based on matrix **Appendix 13** and apply the Consequence management policy/Penalty criteria as applicable.
2. The evaluation criteria include Lead Indicators such as percentage of workers trained in TPSDI, inspection of critical equipment. Lag indicators such as Fatalities, LWDC and man-days lost.
3. In case of job stoppage due to safety violations / unsafe observations at the site, no time extension from PO completion date shall be given to the contractor, if such delays are attributable to contractor.
4. 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 by Division Chief/CEO. This charge is over and above the retention amount. The committee will finalize penalty amount based on factors such as advice by statutory authorities, contract value and impact of accident etc.
5. Order Manager, Head of Business and functional Chief have the authority to terminate the contract as per **CSM F12 Safety Violation Penalty Criteria** Through contract department.

Appendix 1: CSM F1 - Process Flow Chart for Vendor Registration



Appendix 2: CSM F2 - 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 be submitted to Requester / Order Manager with all relevant documents.
2. The same will be evaluated by Safety Concurrence Group of the Division (SCG).
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/Project jobs

Category B Vendor: Vendors eligible to carry out technical jobs, classified as Medium / low risk

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>Yes / No</td><td>Remarks</td></tr>
<tr><td>1</td><td>Certified for
i. 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>If Yes, Attach copy of the certification.

If No, mention plan to get the certification.</td></tr>
<tr><td>2</td><td>Safety Statistics for current and Last Three (3) Years

- LTIFR

- LTISR</td><td>Yes/No</td><td>
<table>
<tr><td></td><td>Current Year</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><td></td></tr>
<tr><td>LTISR</td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

Name of the Vendor:

3	Any Compensation paid due to accidents during current and last three years?	Yes/No	<table><tr><th></th><th>Amount (INR)</th><th>Manhour</th></tr><tr><td>Current Year</td><td></td><td></td></tr><tr><td>Y1 (Last FY)</td><td></td><td></td></tr><tr><td>Y2</td><td></td><td></td></tr><tr><td>Y3</td><td></td><td></td></tr></table>
4	Any prosecution against you by statutory bodies/clients during last three years due to statutory violations, criminal negligence towards safety and dereliction of duty of care towards your employees? Is any case still pending against you?	Yes/No	If yes, give details. If no, give an undertaking that no case is pending against you and you have not been prosecuted by statutory bodies or clients.
5	Do you have Safety Policy? Safety Principles? And Lifesaving Rules?	Yes/No	If yes, attach copy of the documents available.
6	Do you have Safety training process?	Yes/No	If yes, attach safety training process and average training manhour of your employees for the last three years.
7	Do you have a system for recording, reporting, and investigating all incidents or near misses?	Yes / No	If yes, show the incident statistics of last three years and implementation of CAPA.
8	Do you have a disciplinary action program against your employees for violation towards safety rules and procedures?	Yes/No	If yes, show the records of disciplinary action taken the last three years.

Name of the Vendor:			
9	Do you have a reward and recognition scheme for your employees who show exemplary safe behavior and contribute to overall safety improvement at site?	Yes/No	If yes, show the records of Reward and Recognition given during. the last three years.
10	Do you engage in safety promotional activities?	Yes/No	If Yes, Show the proof of engagement in safety promotional activities.
11	Have you been recognized or awarded or rewarded by government bodies of clients for showing excellence in safety management in your jobs during last three years?	Yes / No	If Yes, Show proof.
12	Do you provide adequate quality of PPEs to your workmen?	Yes/No	If yes, please provide details of PPE Matrix and if required, samples for inspection.
13	Do you have Safety organization structure e.g., Safety Officers and Safety Committees?	Yes/No	If yes, attach copy of the safety organization structure, details of safety committees and safety professionals.
14	Name and address of sites where work is in progress or worked earlier	Yes/No	Site details to be attached for inspection by Tata Power-Division /DISCOM Officials.

Note: If you respond NO to any of the above questions, you can mention your plan to get the required documents.

I hereby confirm that the information provided above are true. I give my consent to be penalized as deemed fit in case any information given above are found to be false.

I will abide the general safety guidelines mentioned in the purchase order / work order and will ensure to prepare and follow site specific safe operating practices in consultation with the site-in-charge and safety professional. I will abide by penalty scheme in case of non-compliance.

Signature :

Name and Designation:

Stamp of Organization :

Appendix 3: CSM F3 - Safety Terms and Conditions

(Attached as a separate document under the title CSM F3 – Safety Terms and Conditions)

Appendix 4: CSM F4 - Safety Potential Evaluation Criteria for Vendor Registration

At the time of vendor registration, vendor will be registered under 4 categories

1) **Category A**- Vendors eligible to carry out High risk Jobs
2) **Category B**- Vendors eligible to carry out technical jobs that are Medium/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/B**, a safety potential evaluation will be carried out based on following parameters. (Actual **score is safety capability score)**

Sr No	Description	Weightage (%)	Actual Score
1	Does the service provider have a valid 45001 Certification?	10	
2	During site visit check for safety adequacy at site	20	
3	Check the Safety statistics of Service provider (If available than 10 otherwise Zero)	10	
4	Check the trend LTIFR/LTISR for last 3 years (If less than 0.2 than give 10 Marks if between 0.2 to 0.3 than give 5 marks and otherwise Zero	10	
5	Has there been any prosecution / conviction for any Contravention regarding safety and Health provision under the factories Act/Electricity Act / BOCW Act and Rules framed there under? If yes Give Zero otherwise 10 Marks.	10	
6	Check the Safety orientation & training process of Service provider- Records of Safety training provided to safety officer/supervisor /workmen during last 1 year as percentage (%) of total employed by service provider ✓ **Safety Officer:** >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. ✓ **Safety supervisor**: >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. ✓ **Workmen:** >80% of employees: 10 Marks, 50 to 79% of employee: 5 Marks and <50%: Zero	20	
7	Check the organizational structure for safety professionals & engineers / supervisors. ✓ Check Availability of number of Safety Officers from government recognized institute as per workforce strength. 1 in 50 employees than 10 Marks, if 1 in 100 than 5 Marks otherwise Zero.	15	

	✓ Check Availability of Qualified workforce from government recognised institute/TPSDI. 100% of safety officers qualified than 5 Marks, 50% TO 99% Than 2.5 Marks and if less than 50% than Zero Marks.		
8	Certified/skilled workers as a percentage of overall workforce	5	
	Total	100	

Evaluation Criteria for Category C

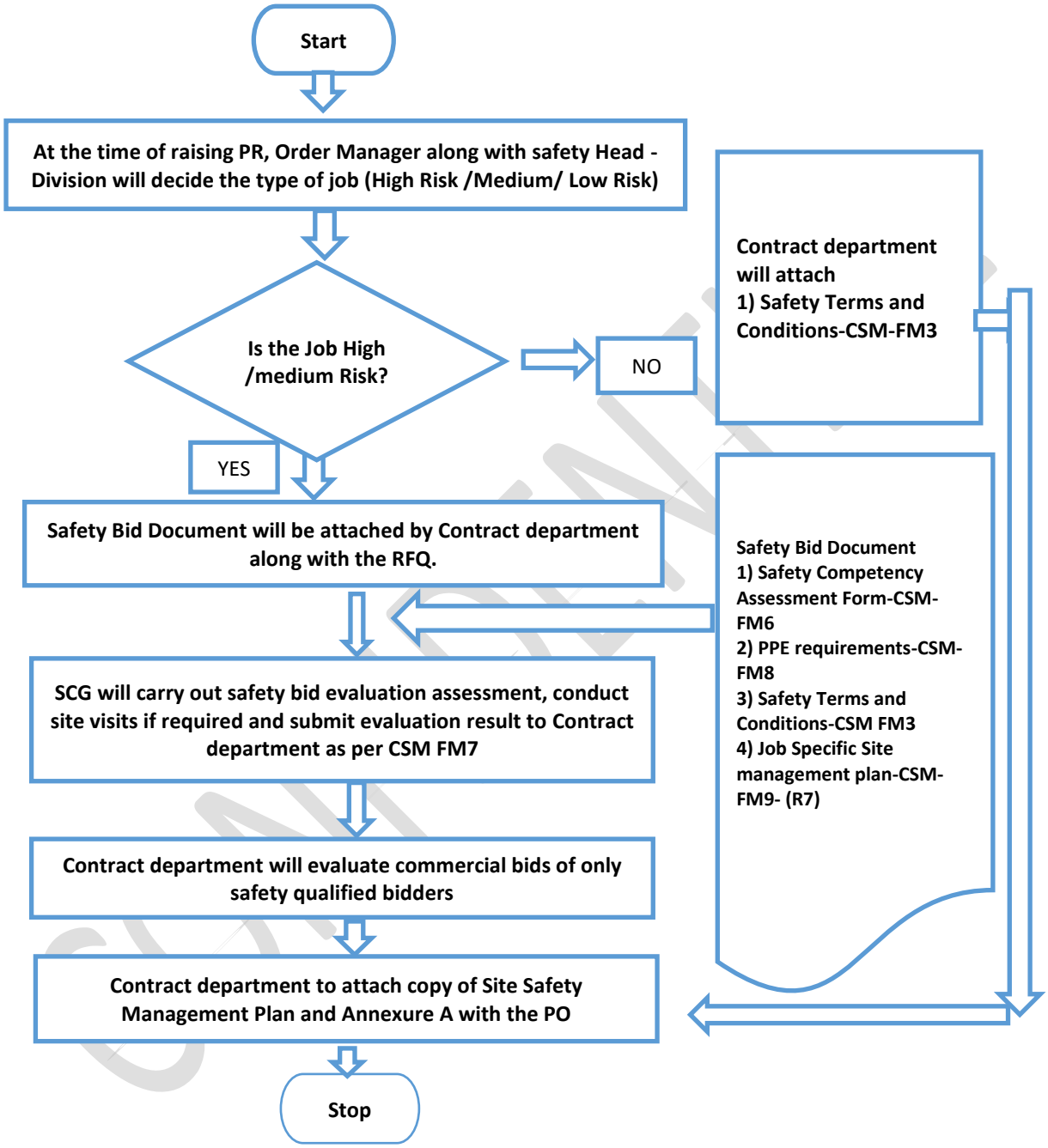
Sr no	Description	Weightage (%)	Actual Score
1	Does the contractor have a valid ISO 9001 certification?	40	
2	Check the Safety statistics of Service provider (If available than 10 otherwise Zero)	10	
3	Check the trend LTIFR/LTISR for last 3 years (If less than 0.2 than give 20 Marks if between 0.2 to 0.3 than give 10 marks and otherwise Zero	20	
4	Has there been any prosecution / conviction for any Contravention regarding safety and Health provision under the factories Act/Electricity Act / BOCW Act and Rules framed there under? If yes Give Zero otherwise 10 Marks.	10	
5	Check the Safety orientation & training process of Service provider- Records of Safety training provided to safety officer/supervisor /workmen during last 1 year as percentage (%) of total employed by service provider ✓ **Safety Officer:** >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. ✓ **Safety supervisor**: >80% of employees: 5 Marks, 50 to 79% of employee: 2.5 Marks and <50%: Zero. **Workmen:** >80% of employees: 10 Marks, 50 to 79% of employee: 5 Marks and <50%: Zero	20	
	Total	100	

Evaluation Criteria for Category D

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

For vendor to be registered for any category, vendor's safety capability score should be ≥ 70%.

Appendix 5: CSM F5 - Flow Chart for Issuing RFQ and PO



Appendix 6: CSM F6 - Safety Competency Assessment 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 : -

Type of manpower	Qualification	Experience	Month 1	Month 2	Month 3	.....
Project /*AMC Manager(R7)*						
Site In Charge						
Safety Manager						
Safety Officer						
Supervisors						
Technicians						
High Skilled workmen						
Skilled workmen						
Semiskilled workmen						
Lineman						
Helpers						
Drivers						
Unskilled						
Others(R7)						

Instruction to Bidders:

i. Indicate the overall site manpower deployment schedule as above
ii. Indicate direct or subcontracted employees by using color code given below:
Direct Bidder Employee – Green
Partly Direct / partly Subcontracted – Yellow
4.3.5 **Subcontracted – Red** *If subcontractor detail is not available at stage of Bid evaluation, then this can be agreed with Order manager or Engineer in charge before deployment Ensure that all sub-contractors follow the Tata Power Safety Procedure and agreed CSM F9 Site Safety Management Plan*.**R7**

iii. Against each category, indicate minimum educational qualification and work experience

iv. Add rows to include other specialized manpower, if any.
v. Extend columns to cover the entire duration of the proposed contract.
vi. If the operation is in shifts, then indicate shift in charge and / or safety officers required for each shift 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	Year of manufacture	Remarks
1						
2						
3						
4						
5						
……						

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 current and Last 3 Years			
	Current Year	Year 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 Appendix 9)

5. PPE Requirement -R7

Division/DISCOM Requirement	Bidders Response
The Bidder/Vendor shall ensure that all PPE of Approved standards as per CSM F8 – PPE Requirements shall be always available and shall be used by his employees with no exception whatsoever. Bidders to also ensure Standard PPE matrix of Tata Power to be followed for all activities.	
10% Buffer stock of PPEs to be provided by bidders at each circle to meet any contingency	
Bidder will ensure that sample PPEs to be submitted/approved by Safety Department along with EIC at the time of submission of Safety bids for evaluation In case bidder manpower found using substandard or any PPEs which are not approved by the Tata Power-Division /DISCOM representative, then Tata Power-Division /DISCOM will provide the same to manpower deployed at the cost of bidders.	

6. ***Vehicle Deployment*:** Bidders to provide details of all vehicles deployed during execution of work-(R7)

S. No.	Vehicle No.	Vehicle Type	Location	EV/CNG/Diesel/Petrol	Year	Whether CNG endorsed on RC

7. ***Crane Deployment***-(R7)**:** Bidders to provide details of crane to be deployed during the execution of work as and when required. Bidders to provide approved new gen crane ACE Model SX150, ACE FX150 and Escorts Model TRX 1550.

Sl No	Crane No	Location	Year

8. ***Training Records***-(R7)**:** Bidders to provide training records of employees deployed for the execution of work during last one year. These training includes OHS (Occupational Health and Safety) Training, Training on SOP/Work Procedures and Medical Emergency trainings imparted at their own facility, cost, and expenses. Bidders to provide the following details:

Tata Power-Division /DISCOM **Requirement**	**Bidders Response**
Training records of employees at their own facility, cost, and expenses for last one year	
Training facility available with Bidders	
Future road map for enhancing the competency of workforce	

9. ***Rewards and Recognition***-(R7)**:** Bidders to provide the details of process deployed in their organization for sharing and resolution of safety concerns raised by their employees. Also, bidders to provide the details of Rewards and Recognition process in their organization for safety to encourage the morale of their workforce.

10. **Management System Certification: -**

Sr.No	Certification	Yes / No	If Yes, Year of Certification	If No, Target date for Certification
1	ISO 9001			
2	ISO 14001			
3	ISO 45001			
4	Any other (Specify….)			
Note: Please attach certificates to support above. In case not accredited for above but applied for, application letters may be attached.				

Appendix 7: CSM F7 - Safety Bid Evaluation Criteria

The User must select whether the job is high /Medium Risk and long duration at time of raising the PR.

1) The decision whether job is "is high /Medium Risk "or not has to be made by order manager based on Risk involved (Risk Priority Number in HIRA) of the Jobs. An indicative list of high-risk jobs is attached as Appendix 14. *The risk assessment will be done along with Division safety Head. R7*
2) *If a technical job is of low risk with estimated duration of the contract more than one year, the job should be treated as "**long duration**". R7*
3) All Safety bids will be evaluated by Safety Concurrence Group. Structure of SCG will be declared by contract department with the assistance of Division / Discom safety. 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 Contract team in existing tracing sheet along with other jobs.
5) *Safety bid evolution will be done by SCG within one working week. R7*
6) *Contracts / Division shall provide a list of regular Contractors participating in multiple tenders during the year for a one-time umbrella Safety Evaluation of Bidder (as against the specific Bid evaluation) by indicating the nature of the type of jobs / works which the BA usually participates in bidding. SCG shall evaluate such bidders for the requested works and on satisfying the evaluation criteria may be granted a Safety Pre-Approved status for the specific types of work (e.g., O&M of Boiler, Turbine, CHP, AHP, Turnkey EPC, Switchyard, Distribution Electrical Contract etc.) which shall be initially valid for a period of 1-year and shall thereon be extended further against revalidation / re-evaluation as required. R7*
7) *Business Associates having such Safety Pre-Approved status for the type / category of jobs shall be exempted from submission of Safety Evaluation Bid against each tender provided that their Safety Pre-Approved status is valid for the subject work / tender. R7*
8) *A suitable system shall be developed by Contracts to track the validity of such Safety Pre-Approved status of Bidder for timely renewal failing which the Safety Pre-Approved status shall cease and Bidder will thereon have to provide Safety Bids with each tender until such one-time approval is renewed. R7*

Safety Bid Evaluation will be based on following parameters.

Evaluation Criteria-(R7)

S. No.	Description	Max Marks	Criteria for evaluation
1.	Qualification and Experience of manpower	15	As per Clause No. 1
2.	Tools and Tackles to be provided by bidder	15	To be evaluated as per approved tool list of concerned departments.
3	PPE Requirements	5	To be evaluated as per approved PPEs standard and PPE Matrix specified in CSM
4	Job Safety Plan/ Method	15	To be evaluated as per as per SOP/WI/HIRA
5	Vehicle Deployment	5	Weightage will be given for CNG Vehicles with endorsement of CNG kit on RC/Electrical Vehicle
6	Crane and Mechanized heavy equipment Deployment	15	Date of manufacturing or running hours
7	Training Records	5	Training records to be evaluated with evidence and scoring to be done as per availability of records
8	Certificate Accreditation	5	ISO 9001-2.5 Marks ISO 45001- 2.5 Marks ISO14001- 2.5 Marks. Total Max 5 Marks for all Three
9	Safety Initiative for learnings implemented in accidents in organization and work force (Fatal / Non-Fatal)	15	Maximum 15 marks will be awarded for visible evidence in terms of safety initiative deployed based on learning of accident in organization and workforce in case of accident
10	Rewards and Recognition Process	5	Maximum 5 marks will be awarded for R&R process evidence
Total		**100**	
Safety Records (Lag Parameter)- -(R7)			
1.	Fatal Accident	(-) 10 Marks for each case with max of 15 marks	For any fatality in Tata power /Other company in Current and last three years 10 marks will be deducted with maximum up to 15 marks. For new entrant BA, these marks will be deducted for Past safety records. If and BA found hiding such facts, then contract will be terminated immediately during the execution stage.

2	LWDC (Non-fatal)	(-) 5 Marks for each case with max of 10 marks	For each LWDC (Non-Fatal) case in Tata power /Other company in Current and last years, 5 marks will be deducted with maximum up to 10 marks. For new entrant BA, these marks will be deducted for past safety records. If and BA found hiding such facts, then contract will be terminated immediately during the execution stage.

Final Qualifying Criteria

S. No.	Description	Max Marks	Criteria for evaluation
1.	Qualified Bidders	More than 70 marks	Marks Obtained. 60 Marks for New business-like Odisha Discom for one year from CSCC implementation date.

		Minimum Requirement	Weig ht age (%)	Score Obtained
Manpower	**Safety Officer (1 per 500 workers) or as per requirement**	**Qualification** - Safety Officer shall possess recognized degree in any branch of engineering with practical experience in similar industries of Min 2 years and Advance Diploma In Industrial Safety by State technical board. (Each state government prescribes the qualification of safety officer.). Require knowledge of Local language. **Experience**- Minimum 2-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. PDIS is desirable, but not mandatory. Require knowledge of Local language. **Experience**- Minimum 5-year experience in relevant field as mentioned in the job in PR.	5	

		Training – Trained and certified by Tata power Skill development Institute 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.		
	Qualified Technician (Skilled workers as electrician, rigger, fitter, welder, cable jointer, line men etc.)	**Experience**- Minimum 2-year experience (or experience prescribed by state government) 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.	15	

Appendix 8: CSM F8 - PPE requirements-(R7)

The Contractor shall ensure that the following PPE of Approved standards shall be always available and shall be used by his employees with no exception whatsoever. • PPE shall be conforming to BIS/DGMS/DIN specifications, in good condition and shall be comfortable to his employees, when used. This is indicative. For better clarification refer PPE procedure-***TPSMS/GSP/PPE/023.*** as per safety terms and condition Appendix 3 CFM 3 in detail. R7

PPE Requirement

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/Gas cutters	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 / Linemen	Rubber hand gloves *with correct voltage rating and expiry date normally one year from Manufacturing date-(R7)* & Electrical resistant shoes, Safety helmet with induction strip to alert about presence of voltage for those linemen who climb the poles or work on electrical equipment
6	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, Work positioning attachment

PPE Type and Testing Frequency

Sl. No.	Name of PPE	IS / EN Standard	Testing Frequency	Remarks
01	Leather Safety Shoes (Color – Black) with PU toe cap.	IS:15298 (Part-2)	Monthly and visual check every day for any crack or damage in the leather or sole.	

02	HDPE Safety helmet with chin strap and ratchet type for adjustment for non-Electrical work	IS:2925-1984	Monthly and visual check every day for any crack in shell.	
03	Full body harness (Safety belt)	EN 361	Monthly and visual check every day of the bends and the harness.	
04	Electrical Safety Gloves	EN: 60903 CE marked	Weekly and visual check for any crack and blow test before every work.	Manufactured not beyond 12 months.
05	Full face visor with safety helmet	EN: 166 CE marked (Visor)	Monthly and visual check every day for any crack in shell.	Clear acrylic visor attached with safety helmet.
06	Fireproof jacket for chest protection		Monthly and visual check every day.	
07	Safety helmet with induction Strip for linemen and working for electrical work-Class E	EN 397/2012	Monthly and visual check everyday	Induction Strip alerts presence of voltage
08	Shorting clamps, crocodile clamps, Discharge Rod and Neon tester		Monthly and visual check everyday	For discharging the residual voltage and test before touch

Pictorial View of PPEs for reference purpose

Sl. No.	Name of PPE	IS / EN Standard	Picture
01	Leather Safety Shoes (Color – Black) with PU toe cap.	IS:15298(Part-2) and with test report of electrical resistance.	

02	HDPE Safety helmet with chin strap and ratchet type for adjustment for Nonelectrical work and electrical work	IS:2925-1984/ EN 397/2012	
03	Full body harness (Safety belt) The straps at shoulder and thigh shall have full pad for comfort. The back shall be so designed that harness straps do not tangle with each other.	EN 361:2002 EN 358 : 2000 IS: 3521:1991/2002	
04	Electrical Safety Gloves – Composite type Soft electrical gloves as per size of individual.	EN: 60903 CE marked	
05	Full face visor with safety helmet	EN: 166 CE marked (Visor)	
06	Fireproof jacket for chest protection		
08	Reflective jacket to each workman	As per Tata Power standard	

These pictures are indicative. Actual product may vary.

Note:

1. Any other Personal Protection Equipment required beyond above list will be according to BIS or EN Standards.
2. All Personal Protection Equipment will be checked by the engineer in-charge or SAFETY group of company.
3. Safety Representative of the BA must maintain the record of the availability, condition and checking of the PPEs.
4. All tools required as per the contract must be according to respective IS / EN standards.
5. Company may revise or add the above list of PPE and their specifications as and when feel necessary. The information about new specifications /models will be circulated by the Engineer In-charge (EIC), which shall adhere by the business associated in the shortest possible time. The EIC shall issue a memo / instruction to BA with timeline for implementation. Any delay will be treated as non- compliance / safety violations.

Appendix 9: CSM F9 - 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 roles and responsibilities of all personnel involved in activity i.e., Site management staff including subcontractors' staff, Project Manager/Site Manager of principal contractor, Sub Contractor Site Manager, Project Engineer, Safety officer, Competent Supervisory Staff etc.)

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).*

S. 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)							
	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

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, firefighting, 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*

Safety Helmet / Hard Hats		*Safety Shoe / Safety Boots*	
Gum Boot		*Double Lanyard Safety Harness with work positioning attachment*	
Electrical Hand gloves		*Other hand gloves*	
Eye protection		*Respiratory protection*	
Ear Protection		*Electrical Arc flash suit*	
Chemical resistant suit		*Reflective Jackets*	
Any Other		*Any Other*	

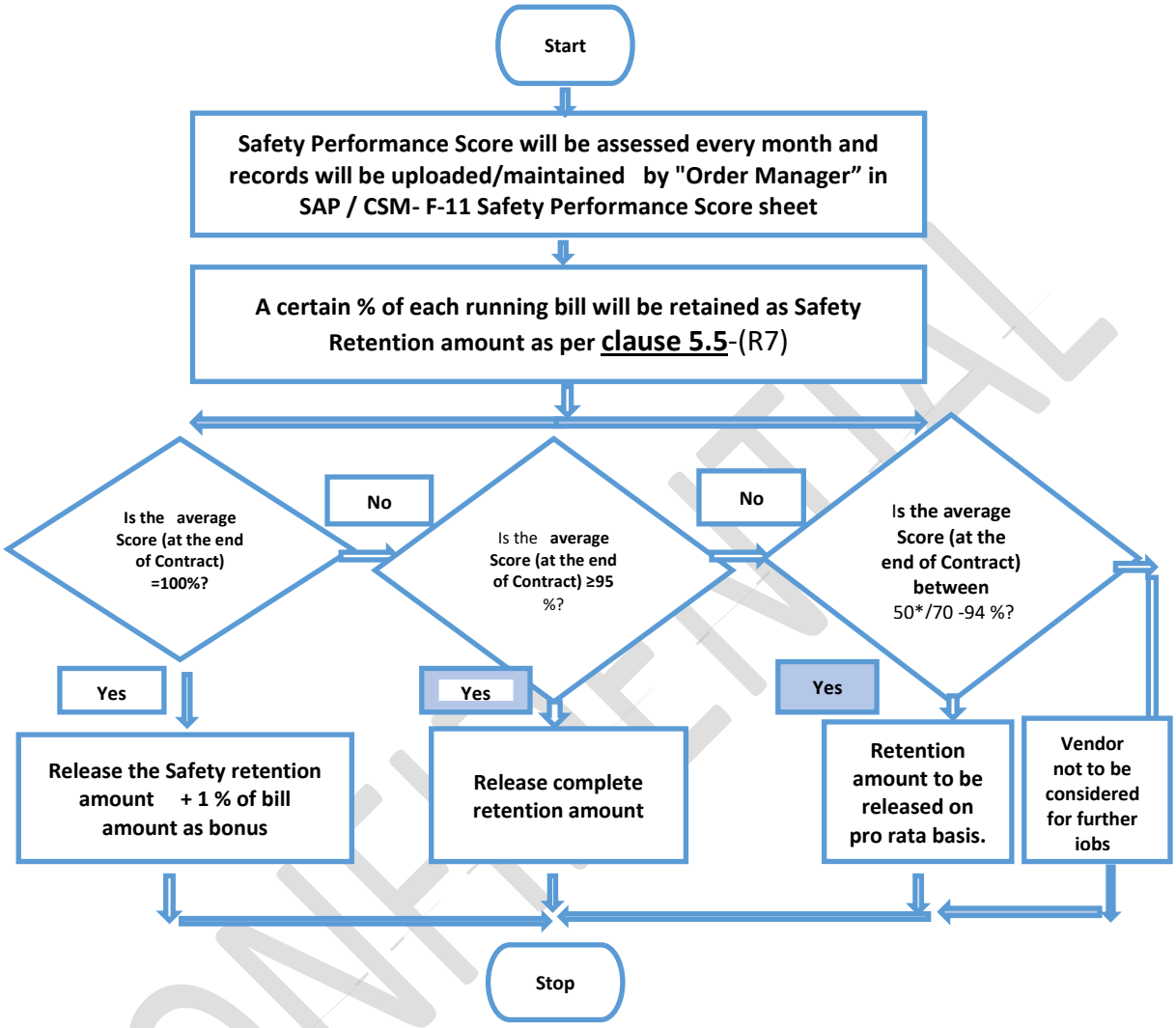
10.0 First Aid facilities and Nearby Hospitals Details

- Name of On Site First Aider
- First Aid Box Location
- Location of nearest hospital

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

• Please give a brief writeup / methodology of your organization's plan to avoid impact of the COVID-19 pandemic at Tata Power working site. • 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 – CSM F10 – Process Flow Chart for Safety Performance Evaluation



*** For New Business such as Odisha Discoms**-(R7)

Appendix 11: CSM F11 - Safety Performance Evaluation Criteria

Safety Performance Evaluation Report- CSM F11

Sr. No	Parameter	Unit of Measurement	Target	Weightage	Actual Performance	Actual Score
Lead Indicator						
1	% of Employee certified in TPSDI/Authorized agency	%	100%	20		
2	Monthly inspection and replacement of damaged Personal Protective equipment -PPE by contractor	%	100	10		
2	Monthly inspection and replacement of damaged Critical Equipment, lifting Tools & Tackles and hand tools used at site by contractor	%	100%	15		
3	Condition of critical tools, tackles, and equipment to be checked by order manager or Engineer in Charge.	%	100%	10		
4	Safe Disposal of Waste generated (Designated way) Records of Waste generation (Hazardous waste, oily cotton waste, E Waste) No effluent to drain or discharge to ground	Yes / No	Yes	10		
Lag Indicator						
1	Number of Fatalities	No	0	15 / 20*		
2	Number of Lost workday case (LWDC) (reportable)	No	0	10 / 15*		
3	No of Recordable Cases (Exclude Fatalities and LWDC)	No	0	5 / 0*		
4	Man-days Lost	Man-days	0	5 / 0*		
					Final Score	
					Invoice Value	
					Amount to be released	

Safety Performance Evaluation Criteria

Lead Indicators

		Target			
1	% of employees certified in TPSDI/Authorized agency	100%	51% to 99%	50%	<50%
	Score	**20**	**Pro-rata**	**10**	**0**
2	Monthly inspection and replacement of damaged Personal Protective equipment - PPE by contractor	100%	99% to 50%	<50%	
		10	**5**	**0**	
2	Monthly inspection and replacement of damaged Critical Equipment, lifting Tools & Tackles and hand tools used at site by contractor	100%	99% to 50%	<50%	
	Score	**15**	**7**	**0**	
3	Condition of critical tools, tackles and equipment *to be checked by order manager*	100%	<100%		
	Score	**10**	**0**		
4	Safe (designated way) Disposal of Waste generated, Records of waste (Hazardous Waste – Oily cotton waste – E- waste etc.) generation No effluents to drain/discharges to ground	YES	NO		
	Score	**10**	**0**		

Lag Indicators

		Target		
1	Number of Fatalities	0	>0	
Score	**Score**	15 / 20*	0	
2	No of LWDC - Reportable	0	>0	
Score	**Score**	10 / 15*	0	
3	No of Recordable Cases (Exclude Fatalities and LWDC)	0	1	>1
Score	**Score**	5 / 0*	5	0
4	Man-days Lost	0	1-5	>5
Score	**Score**	5 / 0*	5	0

* *For New Business such as Odisha Discoms*-(R7)

Appendix 12: CSM F12 - Safety Violation Penalty Criteria

Major Violations and Escalation matrix-(R7)

Consequence of safety violation observed not related to incidents or accidents		Violations				
Sl. No.	**Safety Violation**	**1st**	**2nd**	**3rd**	**4th**	**Subsequent violation**
1	Working without required PPE such as Helmet/gloves/safety shoes/Safety harness etc.	A	B	C	D	Will Attract the same penalty as 4th violation
2	Working without proper tools and tackles	A	B	C	D	
3	Poor or bad condition of Crane/Hydra/Vehicle and/or Incompetent driver and/or helper).	B	C	D	E	Termination of Contract and blacklisting after repetition of violations (3 to 4 times as the case may be)
4	Improper Working at Height	B	C	D	E	
5	Untrained /unauthorized workman engaged in high-risk jobs	B	C	D	E	
6	Violation of SOP or WI or LOTO	C	D	E		
7	Working without PTW or LC / Without authorization / Without creating Safe Zone	C	D	E		

Legend	Action to be Taken	Responsibility	Penalty (INR)	Repeat Violations
A	Levy of Penalty	Order manager / EIC	5000	The no. of repeat violations shall be calculated cumulative during the contract period, not on a monthly basis
B	Memo to BA and Levy of Penalty	Order manager / EIC	10000	
C	Memo to BA and Levy of Penalty	Order manager / EIC	25000	
D	Memo to BA and Levy of Penalty	Order Manager / EIC	50000	
E	Memo to BA, Levy of Penalty, Termination of Contract, Blacklist	Order Manager / EIC	100000	

Other Violations and Penalty

Penalty shall be imposed on the contractors under the following circumstances for breaching the contractual agreements. The list is not exhaustive, but indicative.

Sl. No.	Description of Violation	Severity	Penalty (INR)
1.	Unhygienic/Bad condition of PPE	2	500
2.	Unsafe Act/Condition of Severity 4	4	4000
3.	Unsafe Act/Condition of Severity 5	5	5000
4.	No Earthling of Electrical equipment	5	5000
5.	Working without efficient supervision	4	4000
6.	Non-reporting of incidents	3	3000
7.	Starting the job without Toolbox Talk	4	4000
8.	Electric cable tied with metal wire / Use of damaged electrical cable / Use of two core cable	3	3000
9.	Rubber mat not available in front of electrical panels.	3	3000
10.	Inserting naked wire into the socket instead of a plug	5	5000
11	Inflammable materials stored inside PSS/FCC/Distribution Room	5	5000
12	Water accumulation found near electrical panels / equipment	5	5000
13	Grinding wheel/ Coupling/ Piling winch/other rotating parts without guard	4	4000
14	Inadequate illumination of working area	3	3000
15	Bringing inside PSS/FCC or any other work area any chemicals without approval.	5	5000
16	Loose materials in work area which can fall down or fly during a storm	5	5000
17	Misusing emergency facilities like fire hydrant line/ hose box/ spray system/ eye wash etc.	3	3000
18	Entering restricted areas like switch yard, hazardous material storage room etc. without authorization	3	3000
19	Not using 24 V lamp inside confined spaces	3	3000
20	Bypassing/overriding safety interlocks	5	5000
21	Working besides road without proper barricading and monitoring of traffic	5	5000

22	Smoking in prohibited area (Closed Go-downs, Storage of flammable material, Storage of Gas cylinders, PSS , Offices etc.)	3	3000
23	Improper stacking of materials in Storage Yard	4	4000
24	Sleeping at workplace	3	3000
25	First aid box not available / in locked condition	2	2000
26	Appointment of subcontractor without his Safety Bid Evaluation and/or without the permission of engineer in charge or Order manager.	5	5% of order value
27	Bad Housekeeping with respect to ***TPSMS/GSP/GHK/022*** • 1st Instant • 2nd instant • 3rd instant • 4th instant • Subsequent instants	2	• 1000 • 2000 • 5000 • 10000 • 10000
28	Violations related to vehicles with respect to ***TPSMS/CSP/RSP/015.*** • Parking without wheel choke • Parking in undesignated area • Heavy vehicle without helper or co-driver • Seat belt not available / not used • Driver without license • Heavy vehicles without reverse horn • Using mobile phone while driving • Lights/mirrors not working /broken	3	1000 per each violation
28	Violation in Gas cutting and Gas cylinder handling • Cylinder valve without guard • No flashback arrester • Leaky DA/Oxygen hose • Cylinders not kept in secured manner • Cylinder trolley not available • Cylinders are transported by manual rolling	5	2000 per each violation
29	Violations in Lifting Operations w.r.t. to *TPSMS/CSP/HEMS/005* • Hook latch missing • Load raised or swung over people or occupied areas of building • Persons standing within the swing area of the crane • No barricading of crane working area • Use of damaged lifting tools and tackles	5	2000 per each violation

	• Lifting tools and tackles not tested / Test certificate expired • Crane operator without proper license • Angular loading • Lifting / shifting heavy material without guide rope • Using mobile phone during loading and unloading jobs		
30	Violation in Scaffolding work w.r.t. to TPSMS/CSP/SCAF/007 • Unstable scaffolding/nonstandard Scaffolding in use • Handrails/mid rails/toe guards missing • Safety harness not anchored on fixed structure • Opening found in working platform	5	2000 per violation
31	Violation in Excavation Work w.r.t. to TPSMS/CSP/EXS/002 • Loose material falling into excavated pit • Water logging in excavated pits / trenches • Inadequate or no barricading • Undercut / cave in found on sides of excavated pits	4	2000 per violation
32	Caution boards, danger signs (luminescent /red) along with emergency contact number are not found displayed.	3	3000
34	Spillage of hazardous material/chemicals during transportation	4	4000

Penalty for Incidents / Accidents-(R7)

Consequence of incident / Accident		Incident / Accident				
Sr.No.	**Type of Injury**	**1st**	**2nd**	**3rd**	**4th**	**Action Required**
1	Major Injury (Bone injury or burn or hospitalization >48 hrs.) Non-fatal	**F**	**F**	**G**	G	
2	Major Injury (Bone injury or burn or hospitalization >48 hrs.) Non-Fatal (Two or more non-Fatal in one event)	**G**	**G**	**H**		**Intolerable**
3	Single fatality	**G**	**H**			
4	Multiple fatalities (Two or more fatalities in one event). Anywhere in Tata power.	**H**				

Legend	Action to be taken	Responsibility	Penalty (INR)	
F	Memo to BA and Levy of Penalty	Order Manager/Engineer in charge	200000	The no. of violations shall be calculated cumulative during the contract period for all contracts in SBU, not on a monthly basis
G	Memo to BA and Levy of Penalty	Order Manager/Engineer in charge	500000	
H	Memo to BA, Levy of Penalty, Termination of Contract and Blacklisting the BA	Order Manager/Engineer in charge	1000000	

Appendix -13: CHECKLIST TO BE USED DURING SITE VISIT

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: Indicative List of High-Risk Jobs

Indicative high-risk jobs are given below. This is not an exhaustive list. This is only indicative.

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	Maintenance / Testing and Replacement of High Voltage (33 KV etc.) Switchyard equipment
6	Installation of Lifts
7	Installation of EOT Cranes
8	Tower Dismantling
9	Working on H Frame /Pole mounted Transformers
10	Excavation in operational Area having power cables in receiving station
11	Identification and spiking of cable / disconnection of cables from poles
12	Working on Electrical Panels
13	Working on live electrical switch yard, Material handling and equipment repair/installation.
`14	All activities that require climbing on a pole/structures/Towers/Transformers
15	Cable laying and termination jobs
16	Excavation beyond 5 feet near existing building and structures
17	Working in confined Spaces
18	Stringing of new conductors over poles

Appendix 3:

Safety Terms and Conditions

Reason for Change	Date of Last Revision	Prepared By	Reviewed By	Approved by
Inclusion of Odisha Discom and periodic Revision	*10-Jan-2021-R4*	All Discom and CFT members	Debi Prasad Acharya (Head-Safety-Odisha Discom	Suresh H Khetwani (*Chief safety and Environment*)

1.0 Objective:

The Objective of Safety Terms and Conditions is to apprise the Business Associates about various critical procedures of the Tata power Division/Discoms and the expectations from the BA to implement such procedures without fail. Certain terms and conditions are also mentioned to ensure a safe work atmosphere round the year. Refer Contractor's Safety Code of Conduct- *Document no TPSMS/GSP/ CSM/015*

2.0 Scope:

This procedure applies to all operating and project sites of The Tata Power Company Ltd and Group companies including new businesses like Electric Vehicle charging, Home Automation, Microgrid, Roof top solar etc. *This Code of Conduct also applies to all operating and project sites of four Odisha Discoms and New business based on mutually agreed timeline for implementation. R5*

3.0 Safety Organization & Responsibilities

3.1 Contractor Site Management and Supervision

Each Contractor will be responsible for fulfilling all statutory and safety requirements as per the laws of the land and not limited to Factory Act, Electricity Act, Electricity Rules and Regulations, Shop and Establishment Act etc.

Each Contractor shall provide at least one competent full-time safety supervisor for workforce of every 50 workers or less than that. When workforce ranges to 500, the contractor must provide at least one qualified safety officer (This may be subjected to change as per applicable act). Thus, for work force of 500 workers there will be one qualified safety officer and 10 safety supervisors. For every 500 additions in workforce, the contractor must add 1 safety officer and 10 safety supervisors. The Order Manager or Safety Department of the Tata Power Division /Discoms will review and approve the appointment of all safety officers and supervisors. The safety supervisors/officers will work with the guidance from Tata Power Division /Discoms Safety Department and align themselves with Tata power Division/Discom safety requirements.

For O&M related AMC activities, minimum one qualified safety officer to be deployed for each Division of the Discoms.

Qualified safety officer means he or she has completed PDIS or ADIS from a recognized institute.

Site Safety Officer/Safety Supervisor / Safety Coordinator shall be interviewed by the Order Manager/ Safety head of the Tata Power Division/Discom and then gate passes shall be issued if the interview is successful.

Site Manager of Contractor/Subcontractor is responsible, and will be held accountable, for the safety of their own workforce as well as that of sub-contractors. He should also ensure that all equipment, materials, tools, and procedures remain in safety compliance at job site.

Responsibility of Site manager includes, but not limited to:

3.1.1 Holding officer/supervisors accountable for safety and actively promote safe work performance.
3.1.2 Participate in and cooperate with all safety program requirements to be implemented to meet Tata Power Division /Discoms safety objectives
3.1.3 Ensure timely reporting of safety incidents, near misses, unsafe acts, and conditions.
3.1.4 Identify the training needs of BA employees and maintain all safety training documents.
3.1.5 Provide Safety Performance Report at an agreed frequency.
3.1.6 Stopping of unsafe work (Acts and/or Conditions) immediately. Work to start only after corrective actions are implemented.
3.1.7 Ensure and participate in daily toolbox talk for all the jobs.
3.1.8 Ensure that only tested and certified tools and equipment are issued to the workers and being used at the site.

3.2 Contractor Supervisors and General Staff.

Contractors' site supervisors and general staff members in charge of job site functions such as field engineering, warehousing, purchasing, costing, and scheduling etc. are responsible for the safe performance of the work of those they supervise. They must set an example for their fellow employees by being familiar with applicable sections of the Site Safety program and ensuring that all site activities are performed with SAFETY as the primary objective.

Each site supervisor is responsible and will be held accountable for identifying, analyzing, and eliminating or controlling all hazards through implementation of an aggressive, pro-active Health, Safety and Environmental Program. Each supervisor will proactively participate in the Safety program by observing, correcting, and recording unsafe acts and conditions at plant / sites.

3.3 Contractor Workforce

3.3.1 *Contractors shall provide adequate quality and quantity of manpower as mutually agreed. (R5)*

3.3.2 All the contractor employees shall attend "SHE L0(Other than new business and Odisha Discom)/L1 Foundation Course in Safety". Depending on the critical procedure in job employees shall also be required to attend "SHE L2 course of critical/high risk operations". All Supervisors shall be required to attend "SHE L3 Supervisory Training". All the above trainings will be conducted by TPSDI/Skill development institute of Disco, or other equivalent institute approved by Tata Power.

3.3.3 Contractor employees shall be required to attend any other additional training if suggested by Order manager or Site Safety Head. The cost of such additional training shall be borne by the Vendor.

3.3.4 Contractor / Vendor shall mobilize their manpower well in advance to complete the training through TPSDI/*Sill development Institute*.

3.3.5 *The Vendor / BA shall arrange or bear the conveyance and food expenses incurred during training of BA employees in Odisha Discom. (R5)*

3.3.6 The validity of the training L1, L2 and L3 is 3 years. *There will be competency assessment as Revalidation test in every three months for Tata Power Division and six months for Odisha Discom till one year from implementation of CSCC*.(R5) Those who fail in the competency assessment shall undergo training again.

3.3.7 Supervisors/Welder/Electricians/Line man /Fitters /Radiographers/ Riggers engaged by the contractor shall have valid competency certificates issued by authorized agency/Institute.

3.3.8 Contractor workforce must make safety a part of their job by following safety rules and regulations and by using all safeguards and safety equipment. They must take an active part in the Safety programs for the Site.

3.3.9 Every member of the workforce is expected to report for work without influence of any Drug/Alcohol. Failure to comply with this requirement shall result in immediate termination of employees under the influence of drug and alcohol plus show cause notice/penalty to the vendor.

3.3.10 All employees shall report hazardous conditions, practices and behaviours in their work areas and correct wherever possible.

3.3.11 Workforce is responsible for active participation in safety and health programs, suggestion systems, trainings and reporting of unsafe act/practices, Unsafe conditions incidents and injuries to their supervisors.

3.4 Vendor/Contractor/sub-contractor

3.4.1 Vendors/Contractor shall always comply with and ensure that their workforce comply with all site safety rules and regulations. Specifically, with applicable provisions of the Site Safety Management Plan and all statutory safety rules and regulations.

3.4.2 After receiving the work order/ purchase order vendor/contractor/bidder shall not appoint Sub-contractor without safety assessment of the sub-contractor through safety concurrence group Under Contractor Safety Code of Conduct. Penalty of 5% of contract value will be applicable to the contractor if subcontractor is appointed without the permission of SCG and without evaluation through CSCC process.

4.0 Tools and Tackles(R5)

4.1 Tools & Tackles used to carry out the job shall be checked and inspected by Order Manager and safety Officer.

4.2 Vendor must submit a valid Certificate from Competent person under the Factories Act 1948 and State Factories Rule for all Lifting Tools and Tackles (like Hoist, D Shackles, chain Block, wire ropes etc.).

4.3 All Electrical Hand Tools must be tested for leakage of current by a person /agency authorized by Tata Power Division /Discoms. Electrical power must be taken though RCCB of 30mA. Electrical hand tools should not have cord more than 3 meters in length. If power source is at > 3 meters, extension boards with RCCB of 30 mA and ON/OFF switch, shall be used.

4.4 Removal or inclusion of tools any new tool /tackles / machinery / equipment at site should only be done with concurrence of the order Manager / Head Safety.

5.0 **Site Safety Rules and Procedures:**

The work in the safest possible manner can only happen when it has been carefully planned and all applicable procedures are followed. The Tata Power Safety Procedures are derived from Tata Power best practices and the applicable Government acts regulations. In each case, the most stringent regulation is used. All safety rules and procedures developed from time to time shall be mandatorily followed by the vendor and his employees while working at Site.

6.0 Critical safety Rules and Procedures: Following is the list of Tata Power's critical Safety Rules and Procedures. Contractor shall refer to approved Rules and Procedures for detailed requirements and ensure conformance

6.1 Lock Out and Tag Out Procedure.

This procedure is intended to be used for the protection of Personnel while servicing or performing maintenance on distribution network/ equipment / pipeline / vessel / process systems. This is a general procedure that shall be used as the minimum requirements for isolation of equipment, pipelines, machines, system from all possible sources of hazardous energy and / or material such as Steam, Hot Water, Compressed Air, any other process fluid / chemical energy /Mechanical energy or Electrical energy. For complete procedure kindly refer Procedure Document No. **TPSMS/CSP/LOTO/001**

6.2 Excavation Safety (Shoring and Sloping) Procedure

This procedure is developed to cover the safe practices required for shoring and sloping in excavation and trenching jobs. This procedure is developed to establish mandatory requirements for practices to protect personnel, property and equipment from hazards associated with above activities. For complete procedure kindly refer Procedure Document No TPSMS/CSP/EXS/002

6.3 Confined Space Entry Procedure:

This procedure outlines the steps required to perform the confined space entry and to protect personnel from the hazards of entering and conducting operations in confined spaces. For complete procedure kindly refer Procedure Document No – TPSMS/CSP/CSE/003.

6.4 Working at Height Procedure:
This procedure describes the rules and procedures to protect employees from the hazards of working at heights. This procedure is developed to cover the safe practices required for Working at Heights. This procedure is developed to establish mandatory requirements for practices to protect personnel from hazards associated in this area. For complete procedure kindly refer Procedure Document No – TPSMS/CSP/WAH/004.

6.5 Heavy Equipment Movement Safety Procedure.
Heavy equipment lifting and movement is an activity involving loading, unloading, storage and movement from one place to another including lifting and erection or repairing of equipment with cranes or hoists. Material, machinery and equipment handling operations are being carried out by large capacity cranes and hoists, which make the job safer and faster. This procedure addresses the hazards and precautions associated with such equipment and their use. For complete procedure kindly refer Procedure Document No –TPSMS/CSP/HEMS/005.

6.6 Mobile Crane Safety Procedure.
Mobile cranes are responsible for many incidents, injuries. Falling loads from mobile cranes pose a severe hazard to operators and nearby workers and property. Many types of cranes, hoists, and rigging devices are used for lifting and moving materials. To maintain safe, appropriate standards must be adhered to and only qualified and licensed individuals shall operate these devices. For complete procedure kindly refer Procedure Document No –TPSMS/CSP/MCS/006.

6.7 Scaffold Safety Procedure.
This procedure is developed to provide information on the safe erection, use, dismantling and maintenance of access scaffolding in the workplace. It is developed to establish mandatory requirements for practices to protect personnel from hazards associated with erection, use and dismantling of scaffolds. For complete procedure kindly refer Procedure Document No –TPSMS/CSP/SCAF/007.

6.8 Permit to Work Procedure.
Given the inherent hazards of the power generation and distribution industry, a significant number of TATA POWER operations and installations are critical. Work Permit (WP) System is an essential element in controlling the workplace risks in an effective manner. For complete procedure kindly refer Procedure Document No – TPSMS/CSP/PTW/008.

6.9 Job Safety Analysis (JSA) Procedure.
This objective of this procedure is to have a task-based risk assessment process in place that identifies, evaluates and controls the risks associated with work activities, and as a result, prevents those involved in the task or those potentially affected by the task, from being harmed. For complete procedure kindly refer Procedure Document No- TPSMS/CSP/JSA/009 REV 01.

6.10 Electrical Safety Procedure.

The objective of these standards is to specify minimum mandatory requirements and advisory guidance for identifying and controlling hazards to ensure 'Zero Harm' regarding operation maintenance and testing of electrical equipment. For complete procedure kindly refer Procedure Document No- TPSMS/CSP/ELEC/010

6.11 Fire Safety Management Procedure.

Objective of This standard is to specify the minimum mandatory requirements and advisory guidelines to ensure prevention of fire related incidents and managing / controlling their impacts if they do occur. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/ELEC/011

6.12 Hazard Identification & Risk Assessment (HIRA) Procedure(R5):

Objective of this procedure is to define guidelines for Hazard identification, Risk assessment and determination of controls. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/HIRA/012.

6.13 *Management Of Change (MOC) Procedure(R5)*:

The objective of this document is to establish the procedures necessary to ensure that HSE risks are managed to an acceptable level in Tata Power Management of Change (MOC) process. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/MOC/013.

6.14 *Pre-Start-up Safety Review (PSSR) Procedure*(R5).

Objective of this procedure is to provide guidelines for safe initial startup of a new facility or restart of a modified facility. The PSSR process verifies that the new/modified facility meets the original design and operating parameters. The intent is to prevent incidents caused by inadequate, incomplete, unauthorized design, construction, installation, and/or commissioning. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/MOC/014.

6.15 *Road Safety procedure(R5)*:

To provide Safety Rules for road travel management and safe usage of all types of vehicles viz. passenger/ commercial, owned/ hired by company, driven by employees or contractors. For complete procedure kindly refer Procedure Document No - TPSMS/CSP/RSP/015.

7.0 General safety Rules and Procedure:

7.1 Lift (Elevator) Safety Procedure:

To provide safe operating procedure for taking control of lift car before entering and existing the pit of OTIS make elevators. For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/LIFT/001**,

7.2 Working on conveyor belt Procedure:

This procedure is developed to cover the safe practices required for Working on live equipment and to protect personnel from hazards associated with it. For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/CONV/003**

7.3 Batteries Handling & Disposal(R5)

To provide procedure for recycling and / or safe disposal of used / waste batteries in compliance with all legislation. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/HAZM/003***

7.4 **Material Handling and Storage Procedure**:

The purpose of this document is to provide procedures to assist the safe handling of materials (manual handling and mechanical handling). For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/MATL/004.**

7.5 ***Office Safety Procedure(R5):***

The objective is to provide a safe working environment to those working in office premise, who may be exposed to emergency situations and other chronic / cumulative risks that may arise due to various reasons of unsafe act, unsafe condition, fire and or pandemic crisis like COVID-19 etc. For complete procedure kindly refer Procedure Document No -***TPSMS/GSP/OFS/006***

7.6 ***Earth Leakage Circuit Breaker (ELCB) Testing Procedure(R5)*****:**

The objective of this procedure is to define the minimum requirements for testing of Earth Leakage Circuit Breaker (ELCB). For complete procedure kindly refer Procedure Document No - ***TPSMS/GSP/ELCB/008.***

7.7 ***Occupational Health & Safety Legal Compliance Procedure(R5):***

Objective of this procedure is provide guidelines for compliance of Occupational Health & Safety (OH&S) legal requirements and all ratified protocols and agreements are incorporated in Tata Power Safety Management System (SMS). For complete procedure kindly refer Procedure Document No - ***TPSMS/GSP/LEGL/009*****.**

7.8 ***Incident Reporting & Investigation Procedure(R5):***

Objective of this procedure is to outline the process for reporting, recording and investigating an incident, recommending corrective and preventive actions and to communicate the lessons learned to prevent recurrence of similar incidents. For complete procedure kindly refer Procedure Document No - ***TPSMS/GSP/IRI/011*****.**

7.9 **Contractor Safety Management Procedure.**

The purpose of this document is to engage with contractors in a way to create safe work environment for everyone working for Tata Power. For complete procedure kindly refer Procedure Document No – **TPSMS/GSP/CSM/015**.

7.10 ***Tree Trimming Procedure(R5):***

The objective of this procedure is to define guidelines and minimum requirements for Tree trimming. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/TTRM/017***

7.11 ***Safe Lone Working Procedure(R5):***

Objective of this procedure is to lay down guidelines for reduction and safe managing of any additional risk arising from lone working. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/LONE/019.***

7.12 ***Good Housekeeping(5S) Procedure(R5):***

Objective of this procedure is to explain the meaning, importance and provide guidelines for implementation of Good Housekeeping(5S) at workplaces across organization. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/GHK/022***.

7.13 Personal Protective Equipment(R5):

This procedure describes the basic requirements, applicability, minimum specifications of Personal Protective Equipment (PPE). For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/PPE/023.***

7.14 Process Safety Management Procedure(R5):

The objective of this document is to provide a standardized & uniform guideline to implement Process Safety Management in Tata Power, its JVs, and subsidiaries to prevent or minimize the consequences of releases of toxic, flammable, pressurized or uncontrolled chemicals/Steam/Water or any other material which may result in toxic, fire, explosion, burn or flood like situation. For complete procedure kindly refer Procedure Document No – ***TPSMS/GSP/PSM/024***

The above procedures will be updated time to time and the updated version of the procedures as well as any additional critical procedure will be available on official website of Tata Power (www.tatapower.com) for your reference.

8.0 **Training and Capability Building**.

Safety Training and capability building of workforce is a major component of safety management program. All training required must be provided and documented as specified by Tata Power and Indian Regulations. Tata Power Division /Discoms Safety department will audit contractors training and related documentation to assure its adequacy.

8.1 Tata power Odisha Discom Site Safety Orientation.R5

All Tata Power contractor and subcontractor workforce is required to attend Site Safety Orientation Training to receive a Safety Training Card, which is required to obtain a Gate Pass to the site, prior to entry. This Safety Orientation Course will be for duration of minimum half day. The information provided during the orientation will include, but is not limited to following:

8.1.1 Job rules, personal safety, and conduct
8.1.2 Hazard's reporting
8.1.3 Reporting of injuries
8.1.4 Emergency procedures
8.1.5 Safety Activities and Program including disciplinary measure and incentives.
8.1.6 Critical safety procedure relevant to the job

8.2 **Capability Building:**

8.2.1 All Tata Power contractor and subcontractor workforce is required to attend L1 Training to receive a Safety Training Card, which is required to obtain a Gate Pass to the site, prior to entry.

8.2.2 Appropriate practical training such as SHE L1, L2& L3 is given to ensure that a jobholder, either supervisor or worker, is competent to do his/her job safely. The skill training is provided through TPSDI, and other agencies authorized

by Tata Power on the list of 15 critical Safety procedures mentioned under safety procedures. Duration of course is as specified by Division/Discom

8.2.3 Contractor shall ensure that concerned workmen are provided with adequate training before he/she is allowed to execute the work. An evaluation test will be conducted after the completion of the training. Those employees who meet the minimum required competency will be provided with Certificate (Card), which will be valid for 3 years, post which the workmen have to reappear for assessment.

8.2.4 If the workman is not able to qualify the assessment, he/she will be given 3 additional attempts to clear in 3-month time failing which he/she will not be allowed to work in the Division /Discoms.

8.2.5 *After expiry of Certificate or Training /Competency Card again one day recertification of L1, L2 and L3 skill training will be provided. R7.*

8.2.6 Quarterly /Half yearly(For Odisha and New business) Revalidation Test - "SHE L1 Revalidation test" will be conducted for the contractor's employees to revalidate their safety awareness and knowledge.

8.2.7 Order Manager and Safety In charge of the Division/Site /Plant will conduct a Competency Assessment of all workforces, going to be deployed at site / plant for high-Risk job.

8.2.8 *The Contactor shall bear the conveyance and food expenses of his staff for attending training sessions and capability building sessions in new business-like Odisha Discom.*

8.2.9 *The Contactor shall bear the entire cost of L1/L2/L3, the costs towards training, salaries/wages, boarding and lodging of his staff for attending training sessions and capability building sessions. These trainings are offered on nominal chargeable basis payable by Contractor and rates shall be decided by TPSDI from time to time in case of training trough TPSDI. Generally, L0 is of one day, L1 is for 2 days for each critical procedure and L3 is for one day. Around Rs 700+GST is approx. cost /Day/Candidate. -R5*

8.2.10 *Competency assessment of all critical workforce to be carried out for all who has taken L2 training. R5*

9.0 Recognition to the Prior Learning in Safety-R5

If "Order Manager" recommends and "Head of the Safety Department of Discom" is satisfied with the safety knowledge and competency of the employee of contractor, a test may be conducted by Tata power Skill development Institute/ other recognized institute to assess the prior learning in safety. If employees of the contractors pass in such test, he will be exempted from appearing in SHE L1 training. *This assessment is on nominal chargeable basis and rates are decided by TPSDI from time to time.*

10.0 **Safety performance retention(R5) and Safety Performance Evaluation:** *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. This is as per CSCC Document no TPSMS/GSP/ CSM/015*

This safety retention shall be waived for Contractors who have either submitted a Contract Performance Bank Guarantee or have a retention from each running bill for an amount not less than 10% of each bill subject to the express undertaking / understanding that if there are any deductions required to be made for safety non-performance as per the Safety Performance Score, then Tata Power shall recover any such deductions against safety non-performance directly from the monthly bills / final settlement as the case may be failing which it shall be within its right to recover such sum from accounts payable or the CPBG or the retention of the Contractor available with Tata Power for the said contract or any other contract between the Contractor and Tata Power.

11.0 Pre-Employment and Periodic Medical check-up:

Contractor shall arrange to conduct a pre-employment and periodic medical check-up for its entire workforce by Tata Power medical officer or Tata Power authorized medical officer. The contractor shall be able to produce the certificate prior to the employment. The contractor shall also organize to conduct periodical medical checkup (six monthly) for the following category of employees:

- Drivers (Check for Vision & Hearing)
- HEM Equipment Operators (Check for Vision & Hearing)
- Workforce working at Height (Check for Vision, Hearing, Vertigo & Height Phobia)
- Workforce Handling the hazardous substances - Coal, ash and chemicals (Chest X-ray and Lung Function T)
- Workforce in high Noise area (> 90 Decibel), Check for Hearing
- Workforce handling radiography equipment for conducting NDT.
- Workforce, working in specific areas requiring specific medical attention should conduct the medical tests test as laid down in the respective Site Safety Management Plan.

12.0 Other Conditions:

12.1. The manpower/vehicles/Tools & Tackles/Equipment provided shall be as per mutually agreed SLA.
12.2. No Supervision No work policy should strictly be followed.
12.3. Test Before Touch must be ensured every time a job is being carried out in electrical network.
12.4. HIRA /JSA as per the job scope must be prepared in detail and submitted along with Site Safety Plan by the successful bidder.
12.5. Personal protective equipment (PPE) must always be checked before use to ensure that they are in good condition and clean. Replace them if necessary.
12.6. All relevant PPE shall be provided by the vendor while working at the site.
12.7. Housekeeping shall be maintained all the time while execution of work. All the unwanted material shall be removed from the site at the end of the day's work. Old/damaged parts if taken out of the system shall be kept at

identified placed and it shall be shifted to scrap yard or disposed of as per instruction of order manager.

12.8. Site Safety Plan shall be prepared by successful bidder along with order manger. Appendix 1 to be filled by successful bidder and submitted to Tata Power safety in-charge, before mobilization of team at site and start of the work.

12.9. The Owner or Proprietor of BA must visit worksite at least once in a month and meet Order Manager every month. In case of incidents, the Owner or Proprietor of BA is required to attend Time Out Meetings to understand the gaps that contributed to the incident.

General Safety Conditions for various contracts Specific to Odisha Discom(R5)

13.0. Safety Conditions for maintenance of STS (Sub Transmission System) Network.

A BA awarded a major contract work of maintenance of sub – transmission network in area of a power system will be required to fulfil the following conditions:

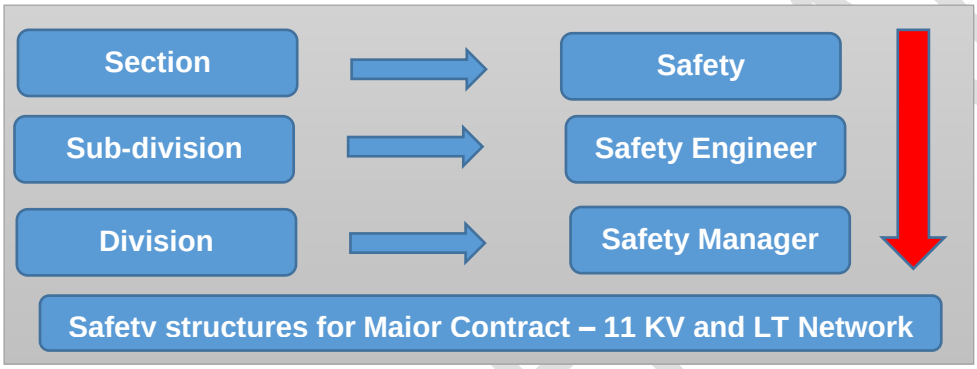
- Availability of Discharge Rods - Minimum 6 Nos. in each maintenance vehicle, fit for purpose and in good conditions and defective rods are removed from service.
- Availability of Neon tester - Minimum one Neon Tester in each Maintenance Vehicle, in good and working condition and defective or non-standard neon testers are removed from service.
- Electrical hand Gloves - Minimum two sets of 33 KV and two sets of 11 KV in maintenance vehicles.
- The BA linemen must be having required ELBO certification for the voltage level involved.
- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute Safety Staff for managing safety in worksites. In case the BA has been awarded work in more than one area power system, then the following safety structure will be adopted.
- Safety manager and Safety engineer must be having PDIS or ADIS.

14.0 Safety Conditions for maintenance of 11 KV and LT Network.

A BA awarded a major contract work of maintenance of 11 KV and LT Network in area of a power system will be required to fulfil the following conditions:

- Availability of Discharge Rods - Minimum 6 Nos. in each PSS/FCC and maintenance vehicle, fit for purpose and in good conditions and defective rods are removed from service.
- Availability of Neon tester - Minimum one Neon Tester in each PSS/FCC/ Maintenance Vehicle, in good and working condition and defective or non-standard neon testers are removed from service.
- Electrical hand Gloves - Minimum two sets of 33 KV and two sets of 11 KV in each PSS/Maintenance vehicles and two sets of LT hand gloves at each FCC.
- The BA linemen must be having required ELBO certification for the voltage level involved.
- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not engage new workman without training and issue of ID card.
- PSS operator shall not be involved in maintenance activities.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA to ensure that all LT complaints are routed through Call Centre and recorded in FCC. Rectification of fault shall be done only after call centre logging and with the knowledge of BA supervisor.
- No one will work alone or unsafely under public pressure or otherwise.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.

- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute Safety Staff - One safety supervisor per section, One safety engineer per sub-division and one safety manager per Division Safety manager and Safety engineer must be having PDIS or ADIS.



15.0 **Safety Conditions for the major contract work in Civil Projects:**

A BA awarded a major contract work of / in civil project will be required to fulfil the following safety conditions:

- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.

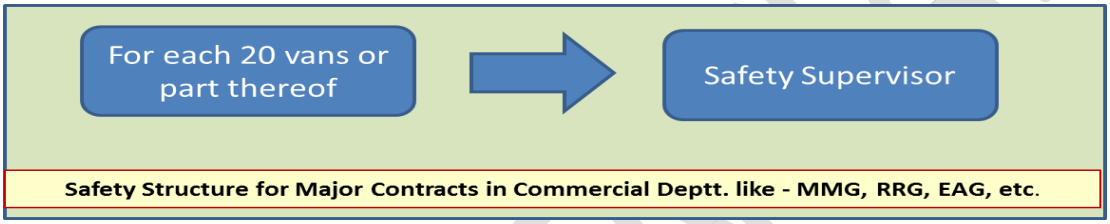
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall refer Construction Safety Manual of the Discom for details.
- BA shall ensure to depute a Safety Supervisor (for workforce up to 100 at site) / a safety engineer (for workforce up to 250 at site) / safety manager (for more than two safety engineers) for managing safety at the project site. In case the BA has been awarded more than one major contracts, then the following safety structure will be adopted.
- Safety Engineers and Safety Managers must be having PDIS or ADIS.

16.0 **Safety Conditions for the major contract work in Commercial Department like - MMG, RRG, EAG, etc.:**

A BA awarded a major contract work in meter management group & energy auditing group will be required to fulfil the following safety conditions:

- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.

- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute a Safety Supervisor for managing safety at worksite.
- The BA for the RRG work shall depute one Safety supervisor.



17.0 **Safety Conditions for Major Projects in Distribution Network**

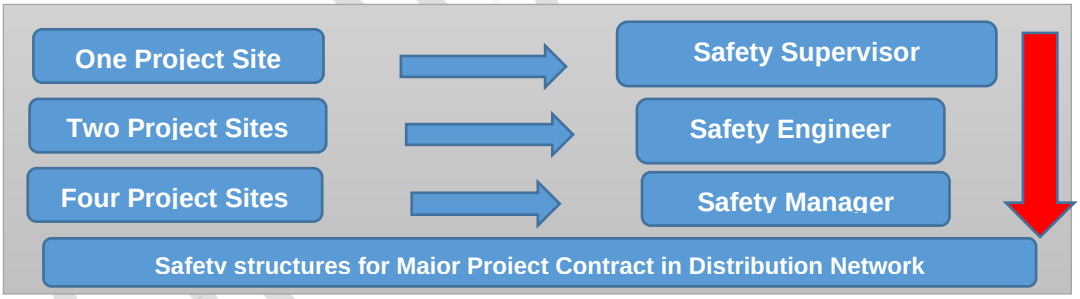
A BA awarded a major Projects in Distribution Network shall be required to fulfil the following conditions:

- Availability of Discharge Rods - Minimum 6 Nos. for each project site, fit for purpose and in good conditions and defective rods are removed from service.
- Availability of Neon tester - Minimum one Neon Tester in each project site, in good and working condition and defective or non-standard neon testers are removed from service.
- Electrical hand Gloves - Minimum one sets of 33 KV, 11 KV and LT in each project site.
- The BA linemen must be having required ELBO certification for the voltage level involved.
- BA shall provide Safety Policy, Safety Objectives, Organogram showing structure and responsibility of Safety management of his company and shall document the work practices and procedures in terms of Safety Management.
- BA shall comply with all statutory requirements like applicable acts, regulations, codes of practice, OHSAS Standards, Labour laws, etc.
- BA shall abide by Safety manuals and guidelines of Discom issued from time to time.
- BA shall ensure safety training and induction program for the employees. The BA employees must carry safety training card / competency card to the worksite and produce the card on demand.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- All BA employees must be given valid ID card issued by BA cell of Discom who will check statutory compliances before issuing ID cards.
- BA shall not employ a new workman without training and issue of ID card.
- BA shall conduct safety audits & inspections as per Discom procedures.
- BA shall provide proper PPEs as per CSM F-8 ensure periodic inspection of PPE, Tools and tackles to ensure their serviceability.

- BA shall ensure the adherence to standard operating procedures or guidelines laid down by the Discoms.
- BA shall ensure that no job shall be carried out without efficient supervision.

Sr. No	Type of Audit	Frequency
1	Tool Bag and PPE audit	Weekly
2	First Aid Box Maintenance Record	Fortnightly
3	Fire Extinguisher Record(Applicable for the BA involved in major construction works and have storage of flammable material at worksite)	Monthly
4	Safety Talk Register	Weekly
5	Site Safety Audit	Daily

- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident, or accident to engineer in-charge and SAFETY team of the Discom.
- BA shall provide safety performance and Safety MIS to engineer in-charge and Discom SAFETY group periodically. Based on any non-confirmation to the safety procedures and guidelines, BA is liable to be negatively marked for his performance and suitable penalty will be imposed.
- The BA shall participate in Safety promotional activities like celebration of Lineman day on 4th March, National Fire Service Day on 14th April and Theme based safety campaigns undertaken by the Discoms every month.
- BA safety staff shall work as per the guidance of the Discom safety department and functionally report Safety Head of Discom. Any leaves by safety staff of the BA shall have to approved by Discom Safety Department.
- BA shall ensure to depute Safety Staff for managing safety in worksites. One safety supervisor per project site or 100 persons, one safety engineer for 2 project sites of 250 persons, and one safety manager for four project sites or 500 persons.
- Safety manager and Safety engineer must be having PDIS or ADIS.



18.0 **Schedule of Safety Audits by BA Safety Staff**

Safety Undertaking of BA by way of Affidavit

I_____ s/o_____R/o_____ (AUTHORIZED REPRESENTATIVE/PARTNER/DIRECTOR/PROPRIETOR) of M/S _____(name of company/firm)__ having its office at (Complete address of Company), authorized vide power

of attorney dated ------/Board resolution dated----/letter of authority dated----, hereinafter referred to as **Contractor [or Business Associate (BA)]** which expression shall, unless it be repugnant to or inconsistent with the meaning or context thereof, be deemed to include its heirs, executors, administrators, and assigns do hereby affirm and undertake as under :

1. The present undertaking shall remain in force from the date of execution of contract and shall be valid till the date of termination of the said contract by either party. The undertaking is binding on me (contractor) as well as my sub-contractor and its employees, representatives etc.
2. That I (the contractor) will be responsible and liable to comply and abide by all the safety rules, instructions and regulations as may be specified and laid down by the Discom to achieve its goal of Zero for on-site incidences.
3. That the Contractor shall be fully responsible for ensuring occupational health and safety of its employees, representatives, agents as well as of its subcontractor's employees, at all times during the discharge of their respective obligations under the contract including any methods adopted for performance of their tasks / work.
4. That Contractor shall ensure ,at its own expense to arrange for and procure, implement all requisite accident prevention tools, first aid boxes, personal protective equipment, fire extinguisher, safety training, Material Safety Data Sheet, pre-employment medical test, etc. for operations & activities including as & when so specified by Discom specifically. , failing which Discom shall be entitled, but not obliged, to provide the same and recover the actual cost thereof from the Contractor's payments.
5. That the Contractor shall engage adequate and competent Safety – Supervisor / Engineer / Manager / Skilled persons at site as per the Para 5 (Qualification and experience of safety personnel) and Annexure 3 of Contract Safety Management.
6. That the Contractor shall engage the competent Site – Supervisor with each group of workers for safe and correct workmanship, proper co-ordination of material and site work as per contract.
7. That the Contractor shall immediately replace supervisor in case it is found to be not up to the level of skill and experience required, but any such replacement shall be only with the prior concurrence of the Discom representative.

8. That the Contractor and its subcontractors shall abide by all the safety guidelines as per Safety Manual, Contract Safety Management and other guidelines issued from time to time by Discom during the contract period.
9. That in case the Contractor and/or any of its Subcontractor fail to ensure the compliance as required in terms of this undertaking the Contractor shall keep and hold Discom / its directors / officers / employees indemnified against any / all losses / damage / expense / liability / fines / compensation / claims / action / prosecutions or the like which might be suffered by Discom or to which Discom might get exposed to as a result of any breach /wilful negligence /deliberate default on the part of the Contractor /Subcontractor in complying with the same. Contractor shall also furnish any press release, clarification etc. if sought by Discom for any near miss or safety violations, accidents, which are attributable to fault of Contractor.

DEPONENT

VERIFICATION

Verified at ……on this _Day of _____20__ that the contents of the above affidavit are true and correct and nothing material has been concealed therefrom

Annexure IX

Tata Code of Conduct (TCoC)

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-mailID: pravin.jain@tpcentralodisha.com.

Annexure X

Environment & Sustainability Policy

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!

ANNEXURE-XII

MANUAL ARIBA - E - AUCTION

SUPPLIER MANUAL ANSWERING

TO

E-BIDDING & E-AUCTION

CELEBRATING 100 YEARS OF INVISIBLE GOODNESS TATA POWER

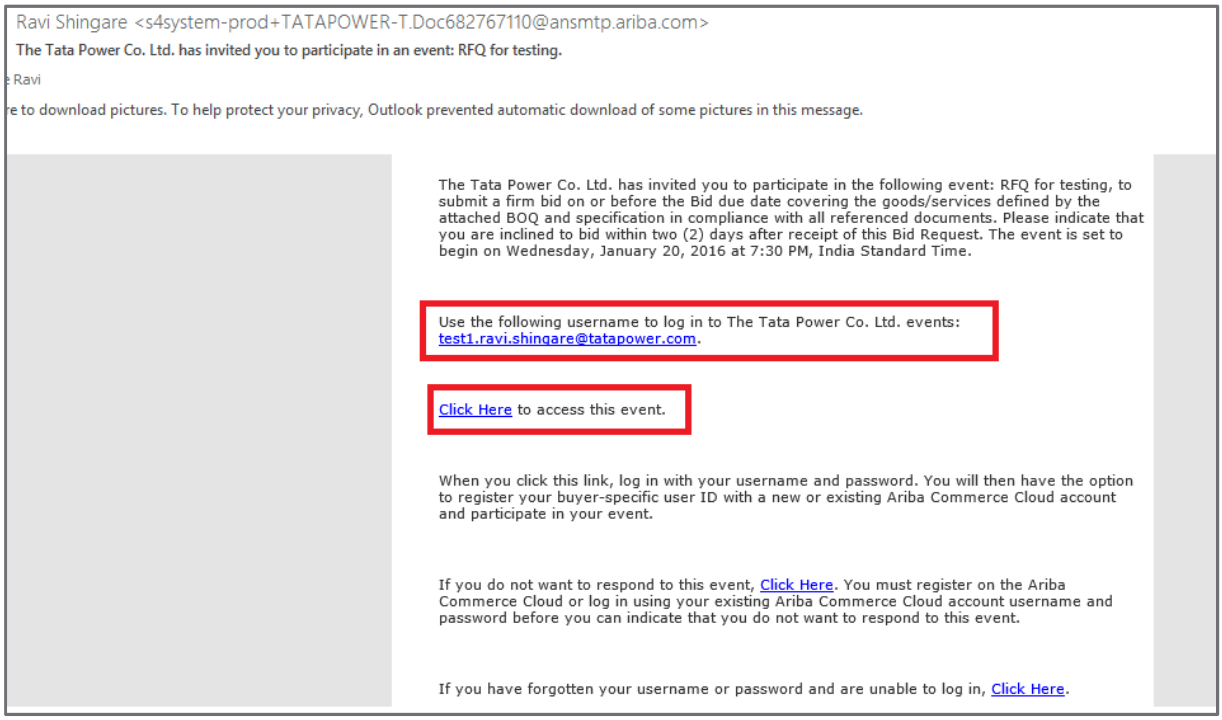
	Version 1.1
Company Confidential	DEC - 2016

INDEX

1- Accessing Ariba Sourcing

Step 1: You will get an invitation to your email from Ariba System. Keep this email, it contains your login Information and a direct link to Ariba.

Step 2: Click “Click Here” to access the Ariba Web Site.



Ravi Shingare <s4system-prod+TATAPOWER-T.Doc682767110@ansmtp.ariba.com>

The Tata Power Co. Ltd. has invited you to participate in an event: RFQ for testing.

Ravi

re to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

The Tata Power Co. Ltd. has invited you to participate in the following event: RFQ for testing, to submit a firm bid on or before the Bid due date covering the goods/services defined by the attached BOQ and specification in compliance with all referenced documents. Please indicate that you are inclined to bid within two (2) days after receipt of this Bid Request. The event is set to begin on Wednesday, January 20, 2016 at 7:30 PM, India Standard Time.

Use the following username to log in to The Tata Power Co. Ltd. events: test1.ravi.shingare@tatapower.com.

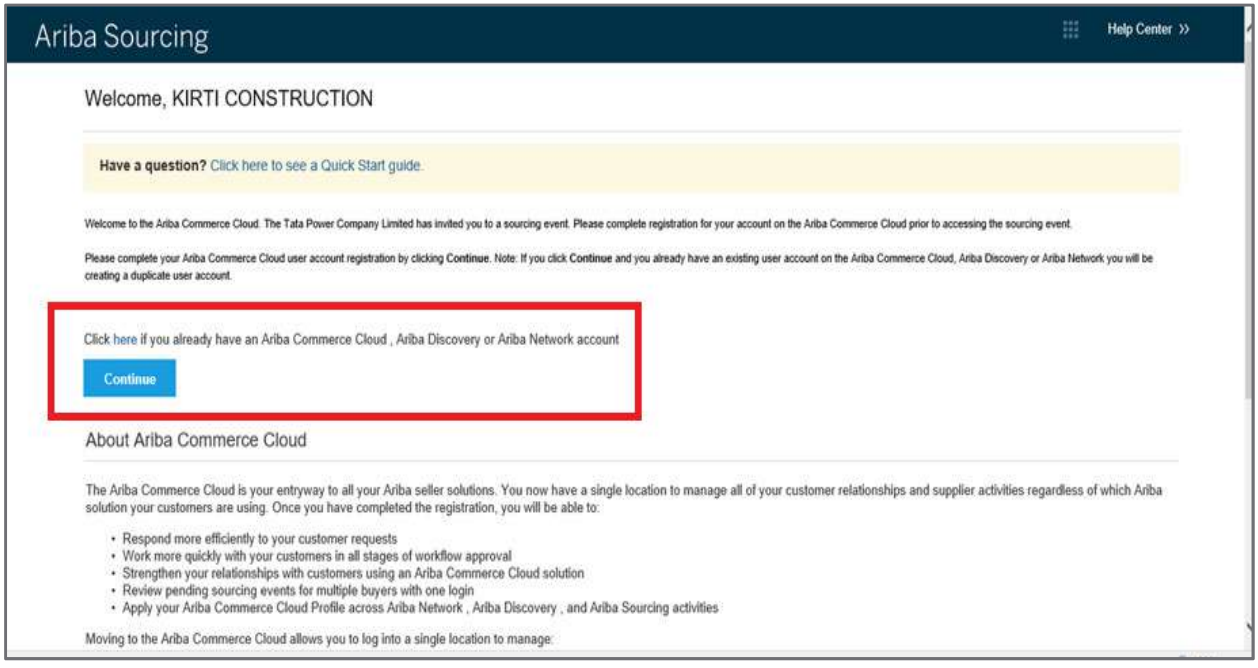
Click Here to access this event.

When you click this link, log in with your username and password. You will then have the option to register your buyer-specific user ID with a new or existing Ariba Commerce Cloud account and participate in your event.

If you do not want to respond to this event, Click Here. You must register on the Ariba Commerce Cloud or log in using your existing Ariba Commerce Cloud account username and password before you can indicate that you do not want to respond to this event.

If you have forgotten your username or password and are unable to log in, Click Here.

Step 3: Supplier has to click on "Continue"



Ariba Sourcing

Help Center »

Welcome, KIRTI CONSTRUCTION

Have a question? Click here to see a Quick Start guide.

Welcome to the Ariba Commerce Cloud. The Tata Power Company Limited has invited you to a sourcing event. Please complete registration for your account on the Ariba Commerce Cloud prior to accessing the sourcing event.

Please complete your Ariba Commerce Cloud user account registration by clicking **Continue**. Note: If you click **Continue** and you already have an existing user account on the Ariba Commerce Cloud, Ariba Discovery or Ariba Network you will be creating a duplicate user account.

Click here if you already have an Ariba Commerce Cloud , Ariba Discovery or Ariba Network account

Continue

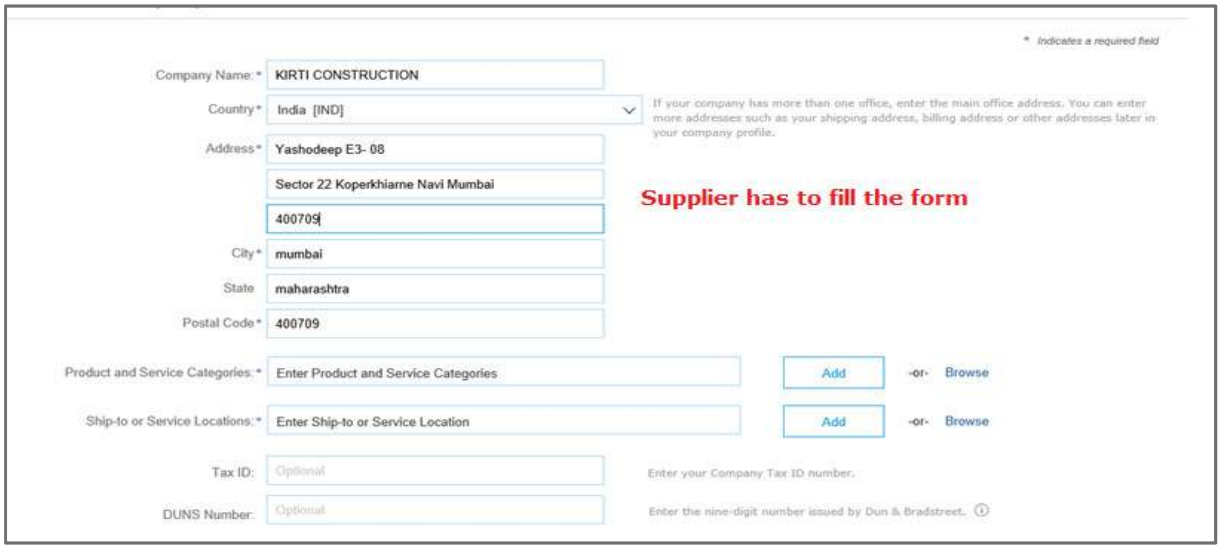
About Ariba Commerce Cloud

The Ariba Commerce Cloud is your entryway to all your Ariba seller solutions. You now have a single location to manage all of your customer relationships and supplier activities regardless of which Ariba solution your customers are using. Once you have completed the registration, you will be able to:

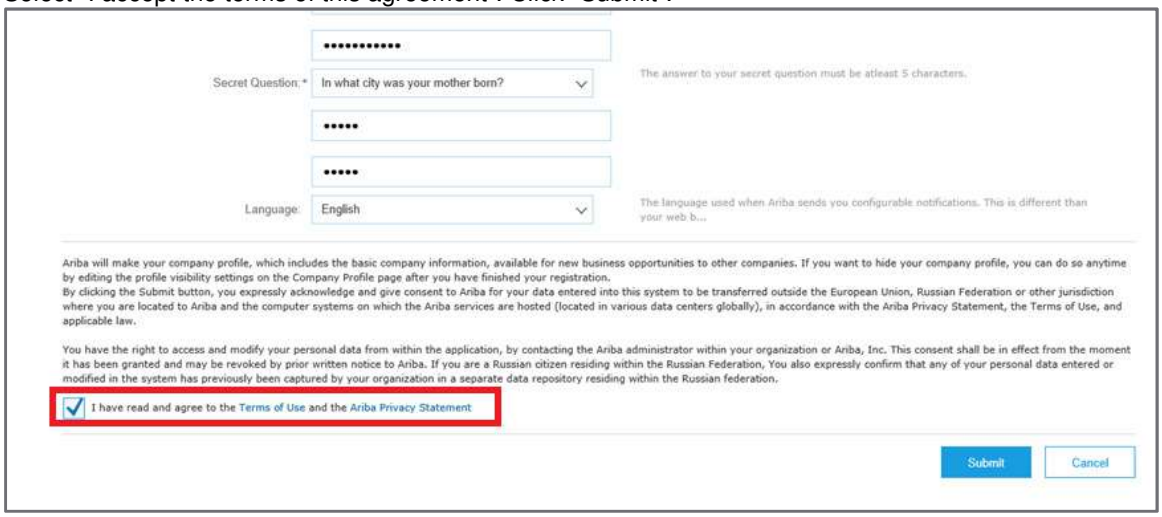
- Respond more efficiently to your customer requests
- Work more quickly with your customers in all stages of workflow approval
- Strengthen your relationships with customers using an Ariba Commerce Cloud solution
- Review pending sourcing events for multiple buyers with one login
- Apply your Ariba Commerce Cloud Profile across Ariba Network , Ariba Discovery , and Ariba Sourcing activities

Moving to the Ariba Commerce Cloud allows you to log into a single location to manage:

Step 4: The registration process only takes a few moments, with a simple one-page registration Define your password and secret question. Click “OK”



Step 5: If it’s the first time you are invited to use UPM Ariba, you’ll need to accept the “Participant Terms”. Select “I accept the terms of this agreement”. Click “Submit”.

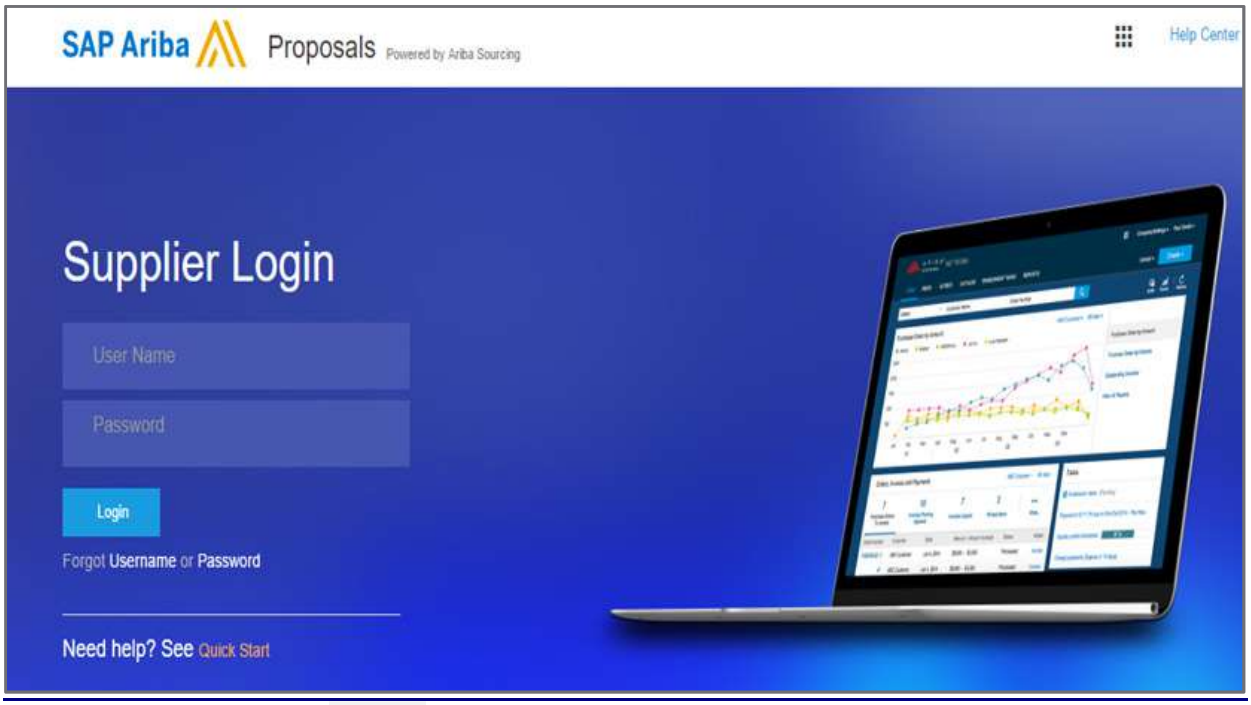


2 Vendor Screen

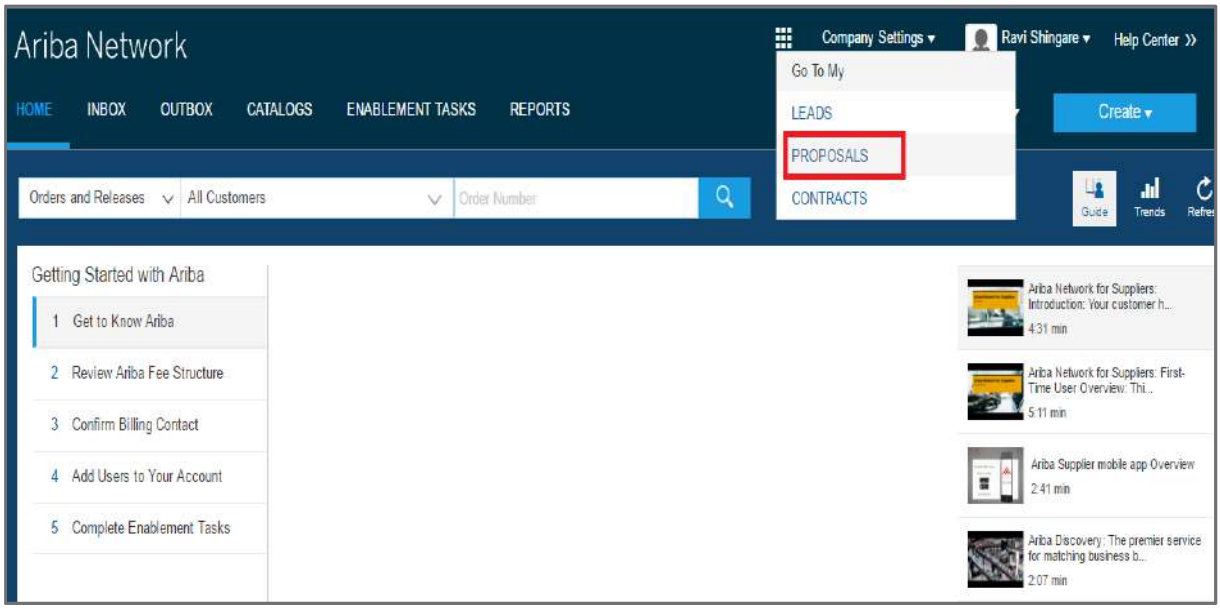
2.1.1 If vendor goes through mail invitation then directly Screen 3.1.1 will appear, but if If you have used Ariba before and have already accessed an event for the buyer-specific account with your current log in ID, click the **Login** button to continue. Log in with your Ariba username and password in order to participate in the event OR you have to follow the following steps.

Step 1 - Log on **supplier.ariba.com**

Step 2 - Put your USER ID and Password in following screen



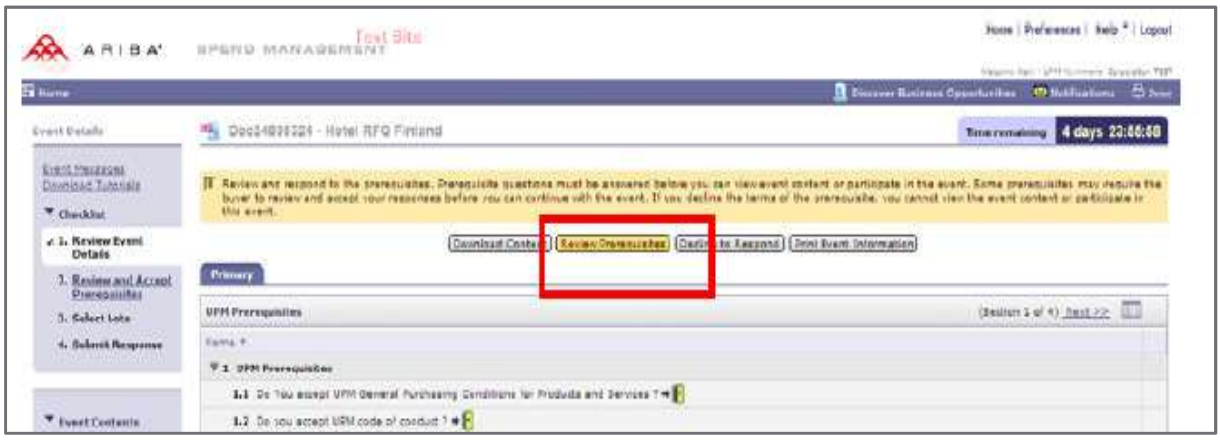
Step 3 - Go to ARIBA APPS  and click on Proposals.



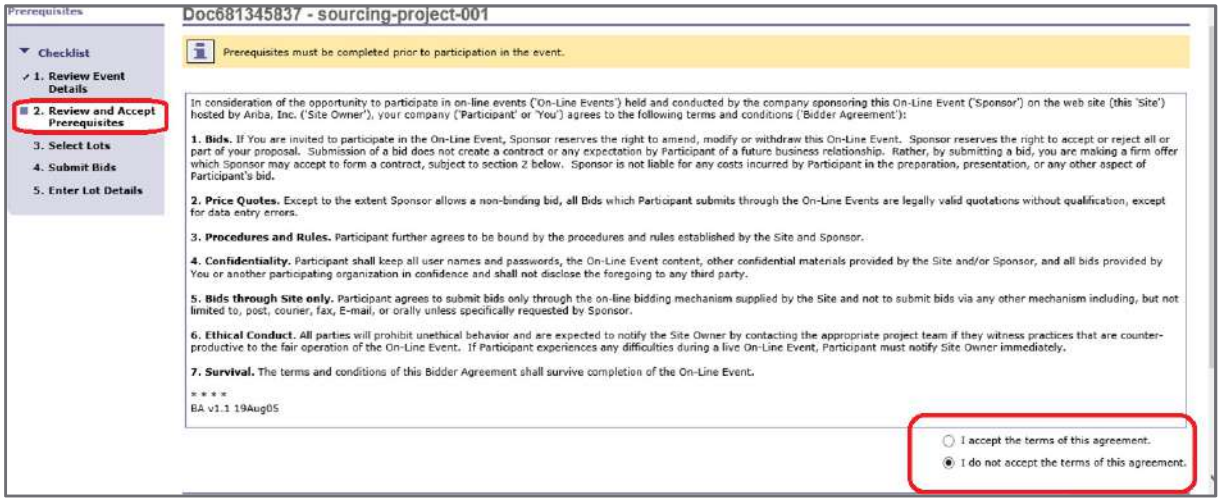
3 Submitting Your Answers / Proposal

3.1.1 Review and Approve “Prerequisites”

Step 1: Review and download all documents & then Click on “Review Prerequisites”



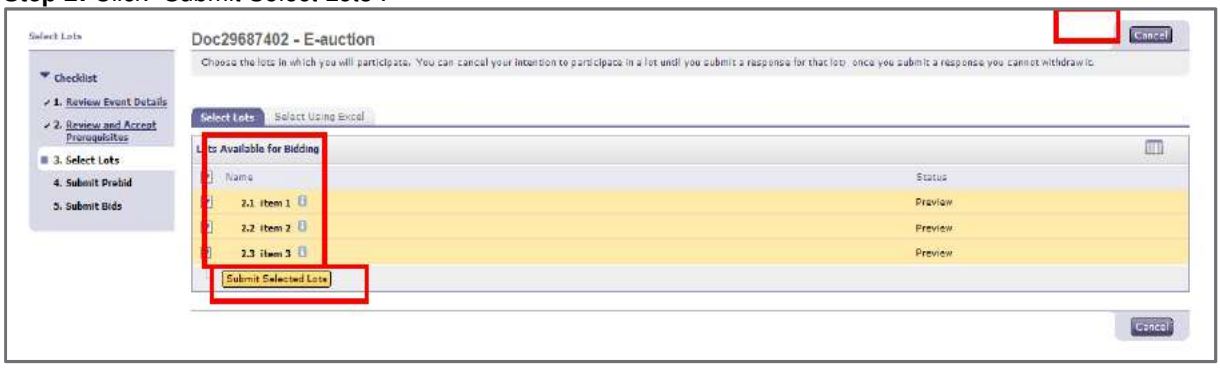
Step 2: Review and accept “Bidder Agreement”.



3.1.2 Select Items or Lots

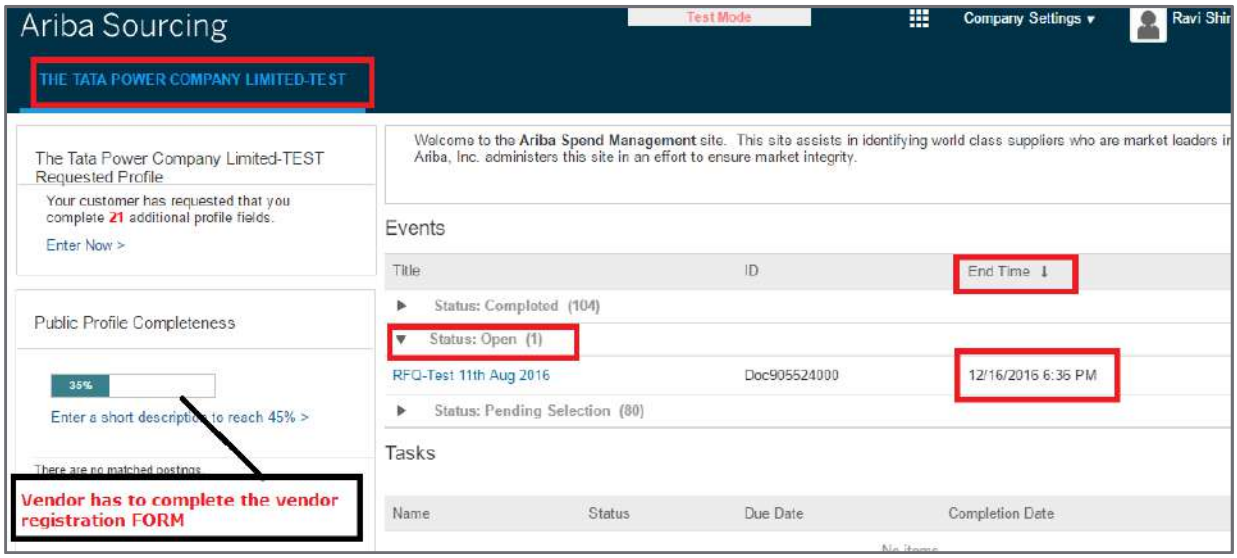
Step 1: Select Items. - If you do not want to quote for any items/lots then you do not select that lot / items and then go ahead for select and submit lot.

Step 2: Click “Submit Select Lots”.



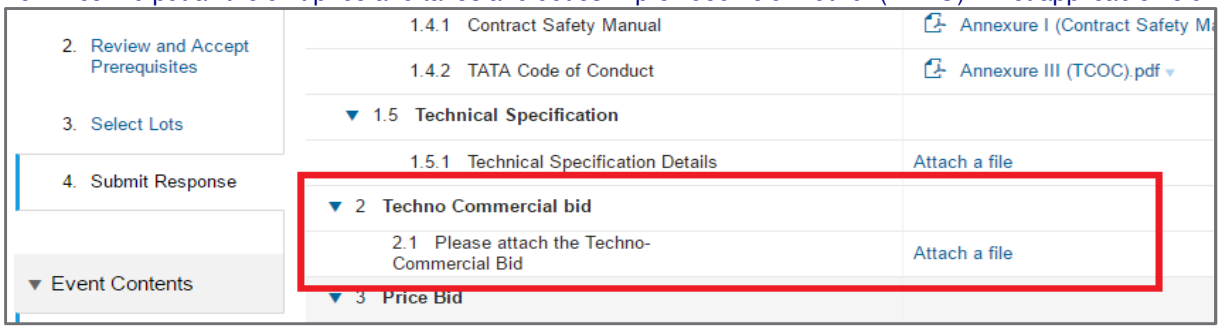
3.1.3 Entering your offer for RFQ

Step 1: as per following screen Vendor Dashboard will appear where RFQ from TATA Power will be visible.

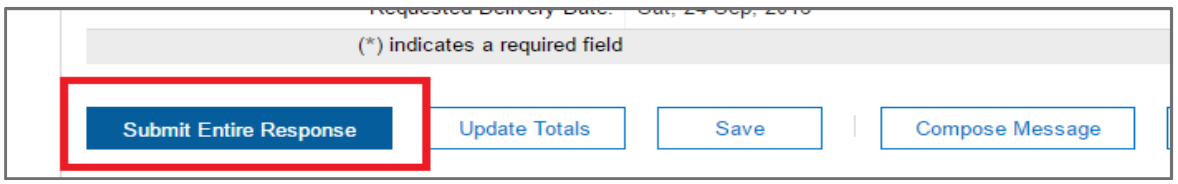


Step 2 - Follow all the steps of 3.1.1 to 3.1.3

Step 3 - Vendor has to submit their techno commercial offer in 2.1. In this field Do No attach any price content. For Price Bid put all the unit price and taxes and duties in provided field. Put "0" (ZERO) in not applicable field.



Step 4 - After successfully putting Techno commercial offer and price part then click on "Submit Entire Response"

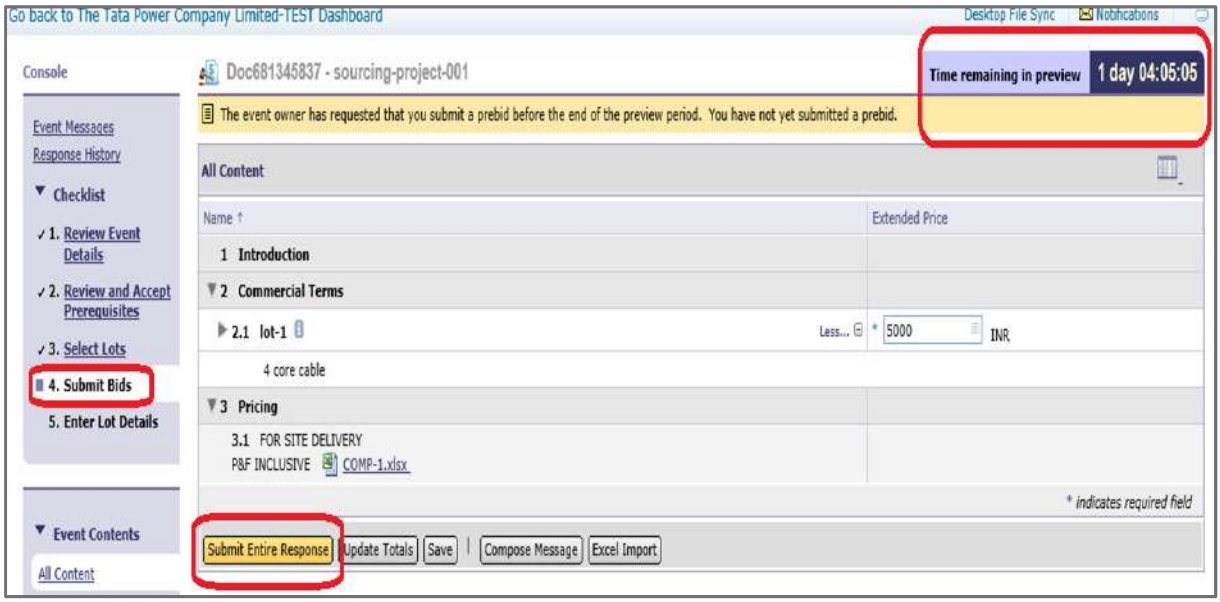


3.1.4 Entering Your Prebid for e-auction

Before participation to the e-auction you must place a pre-bid. If you haven't placed a Prebid in the Prebid time you won't be able to participate to the auction itself.

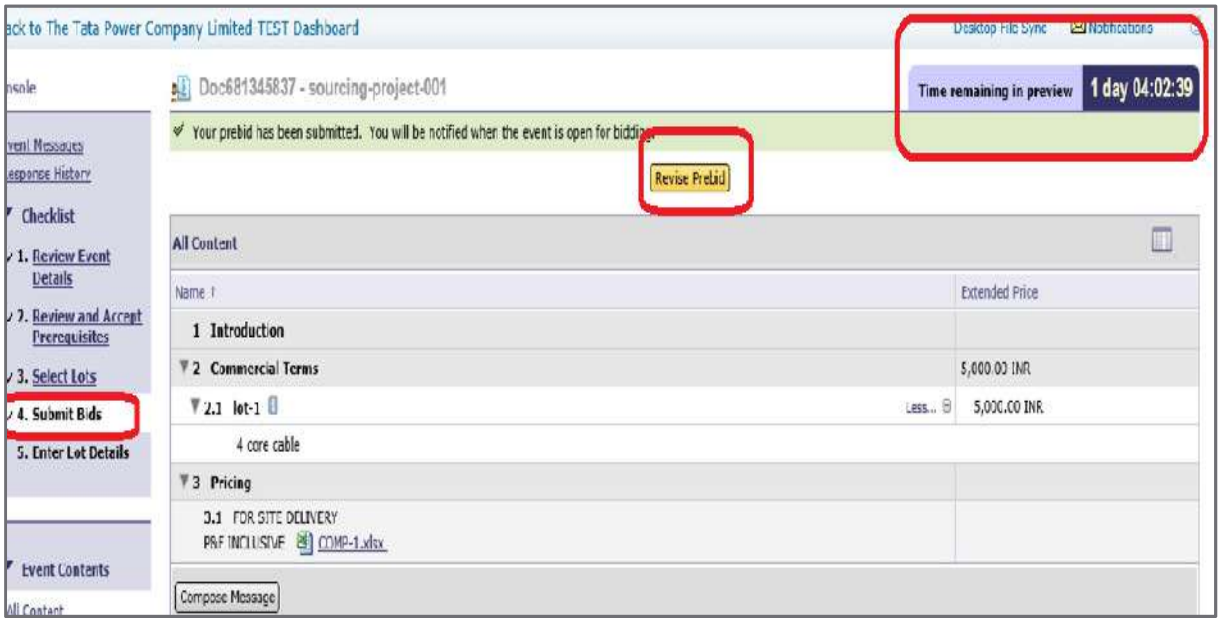
Step 1: Populate Your Answers.

Step 2: Click "Submit Entire Response".



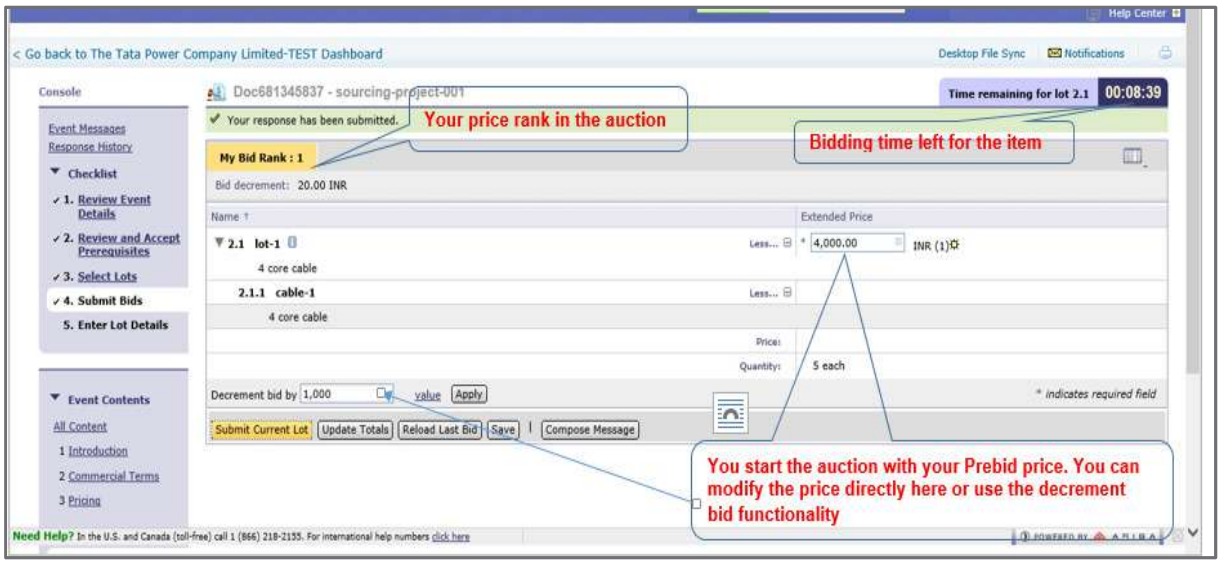
When the Prebid time is still open you can still modify your Prebid:

Click on "revise Prebid" and repeat in step 1 and step 2.



3.1.5 Participate to the e-auction

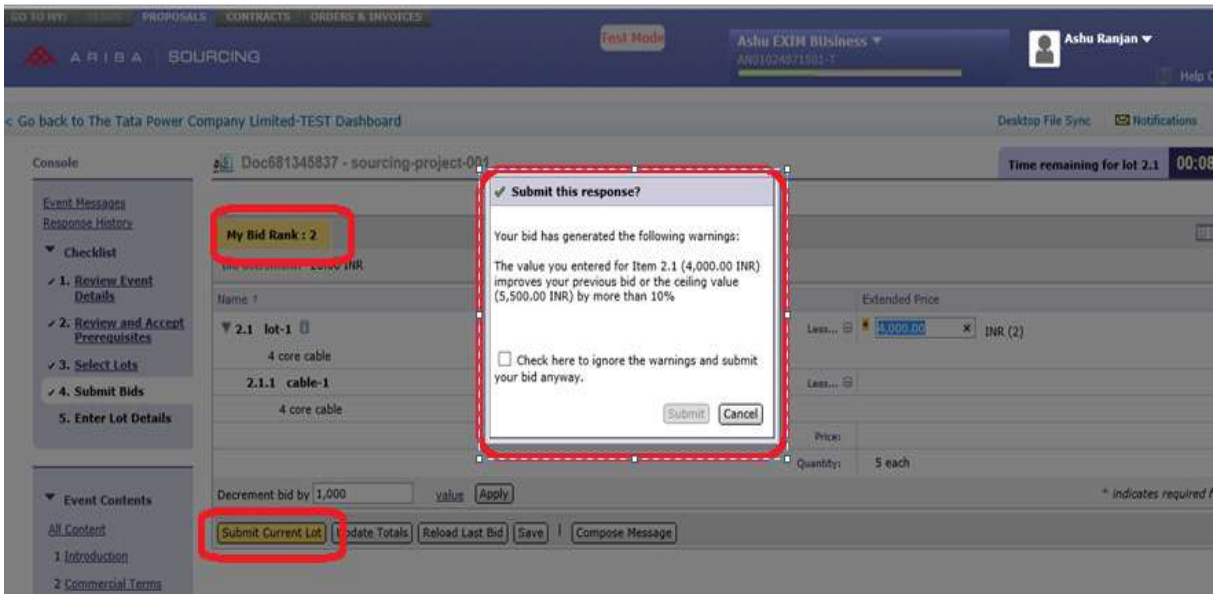
If you have placed a bid in the Prebid time you will be able to participate to the e-action. E-auctions are rather sort in time (usually less than 20 min per item). Once the time is closed you won't be able to bid anymore.



When you want to submit your price presses "submit current lot"

In case the new price you submit is lower by 10% of the starting price (Prebid Price) the following warning Message will be displayed.

To submit the new price, check the box and press submit. If you made a mistake press cancel so that you Mistake would not be submitted.



3.1.5.2 What to do if you have a problem during the e-auction?

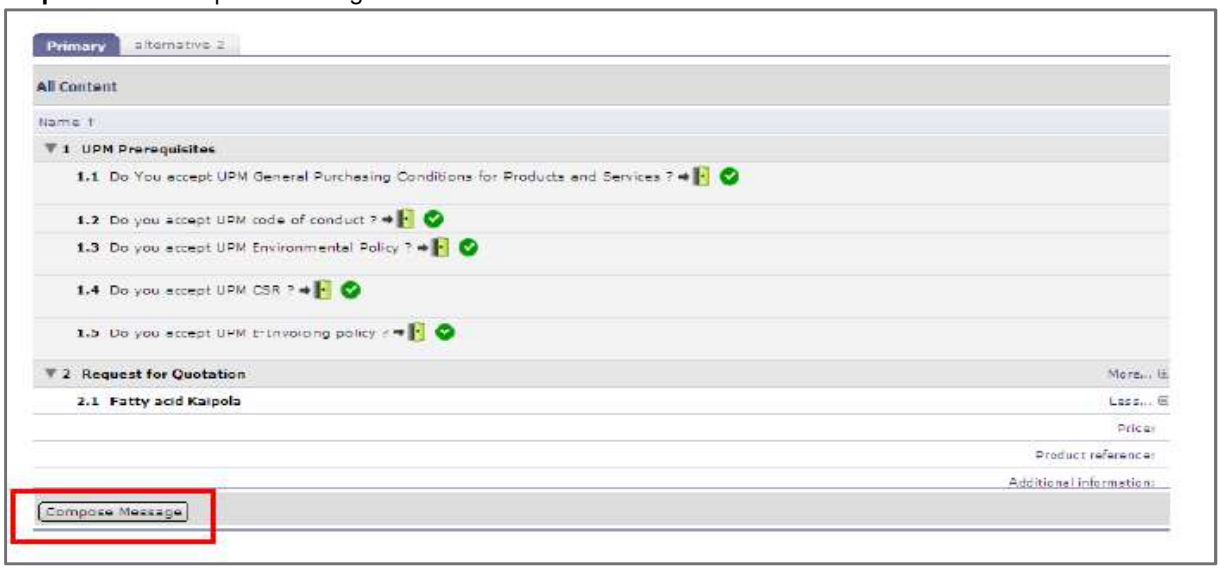
If you have any problem related the system: - **Call first Tata Power e- Bidding / Auction Cell**

- **e- Bidding /Auction Cell details:-**

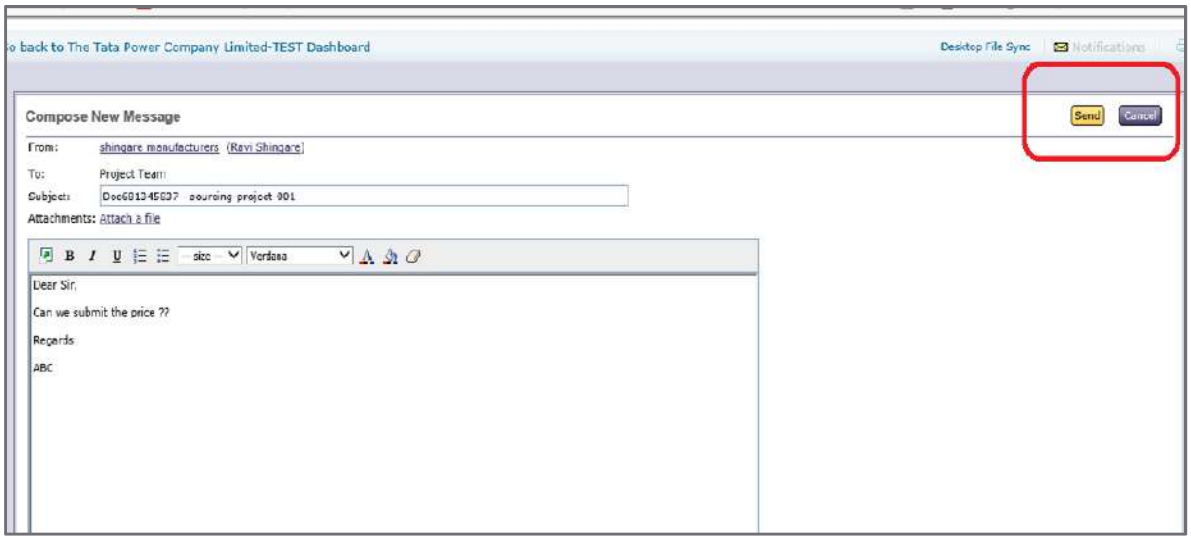
Core team		
Contact Person	**E-Mail Id**	**Contact Details**
Ravi Shingare	ravi.shingare@tatapower.com	9029004168
Himanshu Ranjan	himanshur@tatapower.com	9820339961
Escalation Matrix		
Paresh Bhatt	pareshbhatt@tatapower.com	
C T Prakash	ctprakash@tatapower.com	9223545185

4 Communicating with Tata Power Buyer & Auction team during auction / e- bidding

Step 1: Click "Compose Message".



Step 2: Compose Your Message and click "Send".



SUPPLIER-FREQUENTLY ASKED QUESTIONS

- **If I registered on my buyer's Ariba Sourcing site in the past, do I need to register again?**

Answer- Yes. Although you have registered on your buyer's Ariba Sourcing site in the past, registering on the Ariba Commerce Cloud is required. The registration process only takes a few moments, with a simple one-page registration. Registering on the Ariba Commerce Cloud gives you access to all your buyer relationships with one username and password.

- **What is the Ariba Commerce Cloud?**

Answer: - The Ariba Commerce Cloud is your entry point to all of your seller solutions.
Rather than managing log in information for multiple buyers' sites, you will have one log in and one account. This means fewer passwords to remember, easier user maintenance for your company, and a unified profile for your organization.

- **Do I need to add Product and Service Categories during registration?**

Answer:-Yes; this is a required field. Product and Service Categories classify what your company sells, and the system uses this information to match potential business opportunities with your products and services.

Click **Add Product and Service Categories** to select one or more categories from the list of options. During registration, you only need to choose one category, preferably related to the event you are joining. You can add, refine, or remove categories any time after the registration process.

- **Do I need to add ship-to or service locations during registration?**

Answer: - Yes; this is a required field. Ship-to or Service locations inform buyers where your company sells its products or provides its services, and the system uses this information to match potential business opportunities with your products and services.

Click **Add Ship-to or Service Locations** to select one or more sales territories from a list. You can add, refine, or remove ship-to or service locations any time after the registration process.

- **Do I need to enter a D-U-N-S number when I register?**

Answer: - No; this is an optional field. You are only required to complete the fields marked with an asterisk (*). If you enter a D-U-N-S number, and you get a message that the value is already in use, leave the field blank, as D-U-N-S numbers must be unique within the Ariba Commerce Cloud. Your company can have multiple Ariba accounts, but only one account can use the D-U-N-S number.

Additional Information: - D-U-N-S is a registered trademark of Dun & Bradstreet or its subsidiaries in the United States and other countries.

- **Do I need to enter a Tax ID when I register?**

Answer: - No, the Tax ID is an optional field. You are only required to fill in the fields marked with an asterisk (*).

- **What is the difference between the Email and Username fields in my profile?**

Answer: - The Email field represents the email address where you wish to receive email notifications. The Username field is the identifier that you use to access your account. The Username field must be in email format, but you do not have to use a valid email address.

Note: Leave the **This is my username** box checked if you want your email address to be the same as your username.

- **How do I participate in my buyer's event using an email invitation?**

Answer: - Use the **Click here** link in the email notification to access the sourcing event.

While buyers might customize the email content you receive, all email invitations contain a link to access the event.

Depending on your previous experience with Ariba solutions, do one of the following to access the event after you click the link:

- If you are new user, click **Continue** on the welcome page. You continue to register an Ariba account to link with your buyer and participate in the event.
- If you have used Ariba before and have already accessed an event for the buyer-specific account with your current log in ID, click the **Login** button to continue. Log in with your Ariba username and password in order to participate in the event.
- If you already have an existing Ariba Network, Ariba Discovery, or Ariba Sourcing supplier account, but you have not accessed any events for the inviting buyer's site, use the **Click here if you already have an Ariba Commerce Cloud, Ariba Discovery or Ariba Network account** link. After clicking the link, log in with your existing account to move your information to your buyer's site.

Additional Information :- Registering an Ariba account provides you with a consolidated view of all your customer relationships. With this one profile, you can view business opportunities, participate in sourcing events, participate in contract negotiations, and manage orders, catalogs, and invoices.

- **Why doesn't the link in the email invitation to participate in a sourcing event work?**

Answer:-If you cannot click the link, or the link does not open the log in page, highlight and copy the Uniform Resource Locator (URL), and then paste the URL into your web browser.

- **Can my company have multiple accounts?**

Answer:-Your Company can have multiple Ariba accounts, depending on your business needs. For example, if your company has several locations around the world, you might want a separate account for each region.

Most companies choose to have one account with multiple customer relationships, which provides a centralized location to maintain their company profile information and all of their customer relationships.

Additional Information

Consider the following items when deciding whether to have more than one account:

- **Administrators**: For each account, you can have only one account administrator, but the account administrator can provide access to multiple users. All users from your company have their own **Username** and **Password** to access the account.
- **DUNS** (data universal numbering system) **numbers**: You can add your company's DUNS number to only one account. If you plan to have multiple accounts, leave the DUNS number blank during registration.

- **How do I complete registration if my username already exists?**

Answer: - This message means that you already have an Ariba Network, Ariba Discovery, or Ariba Sourcing supplier account registered under username you entered. You can either register ua new account by creating a new username, or access one of the following sites to request a password reset for the registered username:

- Ariba Network (This login page is used for all Ariba Network, Ariba Sourcing, or Ariba Contracts suppliers).
- Ariba Discovery login page

To reset your password, click the **Having trouble logging in?** Link on the Login page.

- **Nothing happens when I click Forgot Username and enter my email address**

Issue: - Nothing happens when I click the **Forgot Username** link and enter my email address.

Cause: - After you submit your request to retrieve your username, the Ariba Network sends an email notification with usernames that match the email address you submitted.

Some possible reasons why you may not receive this username retrieval email notification:

- The email address on your account does not match the email address you entered when submitting the request.
- Your buyer-specific account was deactivated before you could move it to the Ariba Commerce Cloud. Generally, that means you probably have not participated in an event with that buyer for a while.

Solution: -

- To ensure you receive this email notification:
- Make sure you type the email address configured within your account.

If your buyer-specific account has been deactivated, contact your buyer to determine how to proceed.

- **Where is my password reset email?**

Answer: - After you submit your request for a password reset, Ariba sends instructions to the email address associated with your account. If you didn't receive a password reset email, check the following scenarios to troubleshoot.

The username you entered is in the wrong format, or it isn't associated with the email address you are checking.

- Keep in mind, your username is in the format of a full email address, but it can be associated with any email address you entered previously.
- Your username is also case-sensitive.
- To confirm that you are using the correct username and format, return to the Ariba login page, and click the **Having trouble logging in?** link (**Forgot Username** if you're working in Ariba Discovery).
    - Choose **I forgot my username**, and click **Continue**.
    - Enter the email address associated with your account, and click **Submit**.
    - You will receive an email that lists the exact format of the username associated with the email you entered.

You entered the correct username, but you still didn't receive the password reset email notification.

- This can occur if the configured email address is different from the account you are checking.
- You might have multiple accounts for your company, so make sure you are attempting to access the correct account.

Your email configuration or company's security settings might also prevent you from receiving the password reset email. To find out, check your junk mail folder or email filter settings to verify that automated emails from Ariba are not blocked from your email account.

- **Why do I get this message on the SAP Ariba Login page: "The username and password pair you entered was not found"?**

Answer: - You entered an incorrect **Username** or **Password**. You might receive this message if you entered a previous **Username** or **Password**. Remember that your **Username** has the format of an email address, and both the **Username** and **Password** are case sensitive.

Click the **Having trouble logging in?** Link on the Login page if you don't remember your log in information.

-: Steps for tender submission:-

Step 1: Vendor will get an **invitation email** from Ariba System. Keep this email, it contains your login Information and a direct link to Ariba.

URL for Supplier Users: http://tatapower.supplier.ariba.com

Step 2: Click **"Click Here" to access this event.**

Step 3: If you are first time vendor you will get the **"Sign UP" window**. Click on the same. If this screen is not appearing then close the window and follow the steps.

If the vendor has already created User id and password then after step 2 he will directly get the login screen. After credentials → click on ARIBA APPS and click on Proposals.

Step 4: After Continue simple one-page registration screen will open. Define your password and secret question. Click "OK"

Step 5: You will be able to see the RFQ

Step 6: After review and downloading of all documents click on **"Review Prerequisites"**

Step 7: Review and accept **"Bidder Agreement".**

Step 8: Select Items or Lots → **Click "Submit Select Lots"**

Step 9: Vendor has to submit their **techno commercial offer in 2.1." Pls Attach Techno commercial Bid "**In this field Do No attach any price content.

For Price Bid put all the unit price and taxes and duties in provided field. Put "0" (ZERO) in not applicable field.

Step 10: After successfully putting Techno commercial offer and price part then click on **"Submit Entire Response"**