

Open Tender Notification

For

Strengthening of electrical infrastructure in elephant corridor & movement area in TPCODL on Turnkey basis

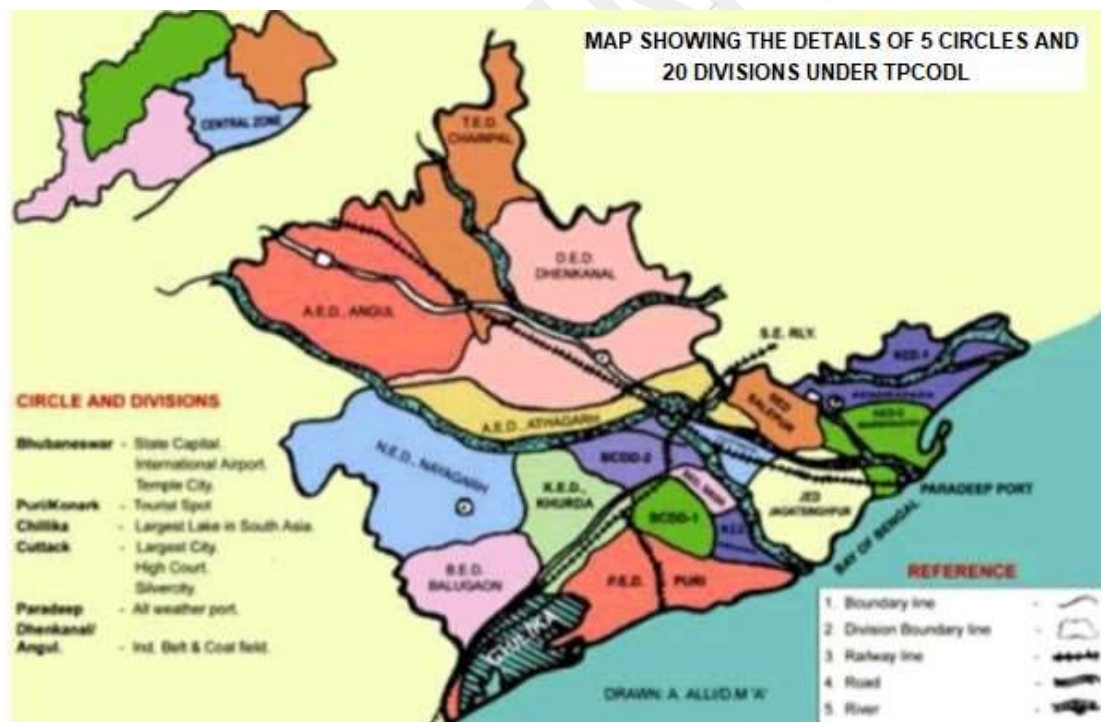
Tender Enquiry No.: TPCODL/P&S/2025-26/1000002493

Due Date for Bid Submission: 26-05-2025

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

PREAMBLE

TP Central Odisha Distribution Limited (TPCODL) is a joint venture between Tata Power and the Government of Odisha with the majority stake being held by Tata Power Company (51%). TPCODL is a state electricity distribution utility with sole rights to distribution of electricity in the Central Zone in Odisha covering the distribution circles of Bhubaneswar, Cuttack, Paradeep and Dhenkanal in accordance with the Electricity Act. Tata Power Company has successfully won the bid to own the license for the distribution and retail supply of electricity in Odisha's five circles constituting Central Electricity Supply Utility of Odisha (CESU). It came into operation with effect from 01.06.2020. TPCODL serves a population of 1.36 Crore with Customer Base of 26 Lakh and a vast Distribution Area of 29,354 Sq. Km. The primary business activity includes purchase of power from GRIDCO Ltd at BSP rate and distribute to consumers. The field structure has been presented below:



INFORMATION TO THE BIDDERS TO PARTICIPATE IN E-TENDER SYSTEM OF TPCODL**-: Steps for E-tender submission:-**

Bids are to be submitted only through online e-procurement platform, ARIBA. Any other form of bid submission will not be accepted. Online Link for submission of bid through ARIBA will be sent only after confirmation of payment of tender fee from bidder.

Step 1:

The bidder can get primary information about the tender from the Newspaper advertisement / TPCODL website <www.tpcentralodisha.com> and can download the tender document from the Vendor Zone above website.

Step 2:

Non-Refundable Tender Participation Fee, as indicated in tender document, to be submitted before last date of tender fee payment, in the form of direct deposit/NEFT/RTGS in the following bank account.

Account Name: TP Central Odisha Distribution Limited
Bank Name: State Bank of India,
IDCO Towers, Bhubaneswar
Bank Account No. : 10835304915
IFSC Code : SBIN0007891

Step 3:

Eligible and Interested bidder to send an email to TPCODL attaching duly signed and stamped letter on Bidder's letterhead, with following details, expressing their intend to bid against above tender:

SI No	Description	Bidder's Response
i)	Tender Enquiry No.	
ii)	Description of materials / Works Tendered	
iii)	Name and address of the bidding company	
iv)	Name of the authorized contact person	
v)	Contact No. authorized person	
vi)	E-mail Id of the where online ARIBA link to be mailed.	
vii)	Tender Fee details (Amount / NEFT-RTGS UTR No / Date), Ref	
viii)	GST No. of bidder	

E-mail has to be sent to package owner Arabinda Sahu <arabinda.sahu@tpcentralodisha.com> with copy to

Asish Karmakar <Asish.Karmakar@tpcentralodisha.com> before "Last date and time for payment of Tender Participation Fee".

Step 4:

On receipt of the document as mentioned in Step 3 above and after due verification of the same, ARIBA link for participation in the tender will be sent to bidder's mail address from ARIBA system.

Step 5:

In this mail there will be an online link as [Click Here](#) to participate in the tender.

Step 6: Click "[Click Here](#)" to access this event.

Step 7:

If bidder is bidding first time for TPCODL through ARIBA site then please "Sign UP" by creating User Name and password as mentioned in Sign Up page. Please follow the process, as mentioned in the Sign Up page, during creation of User Name and password. Also a simple one-page registration screen will open for first time user. All * mark mandatory field to be filled in.

Those who are already having User Name and password for accessing TPCODL events, they can LOGIN using same User Name and password.

If bidder has got User name and password for their other customer, same will not be applicable for TPCODL.

Step 8: You will be able to see the RFQ

Step 9: After review and downloading of all documents click on "[Review Pre-requisites](#)"

Step 10: Review and accept "**Bidder Agreement**".

Step 11: You can see attached pdf tender document against clause no 1.1.1 (Introduction).

Step 12: Vendor has to attach pdf version of technical bid in clause no. 2.1 and 2.2. In this field do not attach any price document.

Price schedule is attached in clause no.3.2. Same has to be downloaded and price and tax details to be filled in as per the format given, print to be taken in vendor's letter head and signature and seal to be made by authorised person. PDF version of this price bid to be attached in clause 3.2 For Price Bid put all the unit price and taxes and duties in provided field. Put "0" (ZERO) in not applicable field.

Step 13: After successfully putting Techno commercial offer and price part then click on "[Submit Entire Response](#)"

Step 13: In addition to above, Bidder shall have to mail to Package owner Arabinda Sahu <arabinda.sahu@tpcentralodisha.com> regarding items for which they have quoted their bid in the following table format before last date of bid submission.

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1.0 Event Information

1.1 Scope of work

Open Tenders are invited through the e-tender bidding process from interested Bidders for entering into Contract as defined below:

Sl. No.	Description of Tender	Tender estimated costs (Rs.)	EMD Amount (Rs.) *	Tender Fee incl. of GST (Rs.)**
	Strengthening of electrical infrastructure in elephant corridor & movement area (Phase-IV) in TPCODL on Turnkey basis	13.35 Cr.	13 Lakh	5,000/-
* 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 VIII". • Quotation in all BOQ items in Price Schedule is mandatory.				

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 22.04.2025 onwards
(b)	Date by which Interested and Eligible Bidder to pay Tender Fee and confirm participation as mentioned in "Procedure to Participate in Tender"	08.05.2025
(c)	Date & Time of Pre-Bid Meeting (If any)	13.05.2025 (In online mode) (Meeting Time & meeting link will be notified in advance)
(d)	Last Date and time of receipt of pre-bid queries, if any	15.05.2025
(e)	Last Date of Posting Consolidated replies to all the pre-bid queries as received	19.05.2025
(f)	Last date and time of submission of Bids through AIBA E-Tender Portal	26.05.2025; 22:00 Hours
(g)	Date & Time of opening technical bids	28.05.2025 (Meeting Time & meeting link will be notified in advance)
(h)	Date & Time of opening of Price of qualified bids	Will be notified to the successful bidders through e-mail.

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:

- 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')
- 1.4.9 Signed copy of this RFQ as an unconditional acceptance.

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

The bidder should meet the following criteria:

Technical Qualification:

This bid is open to any EPC / Turnkey Contractor domicile in India, who meets the following Technical qualifying requirement;

1. The bidder must have successfully **Constructed at least 40 Ckt. Kms of 33 kV / 11 kV/ LT Overhead line on EPC Contract / Turnkey Contract basis, in any utility/companies during Last Five Years** preceding to the date of NIT.

The Bidder must submit relevant Work Orders along with Handing Over and Taking Over Certificate or Client certified copies of Completion Certificate or Performance Certificates in proof of

successful execution of Works duly signed by the competent authority of the Client from any Utility / companies in India. The works experience schedule shall be as per pro forma given here under.

Work Experience Schedule

Work Order Ref.				Lines Installed, Erected & Commissioned		
Sl. No.	FY	Name of the Client	Work Order Ref (No. & Date)	Qty (Kms of Lines) Installed/ Erected	Date of Completion	Documents provided in proof of having completed the works and/or of successful operation as the case may be. (As Attachment)
			Total	KM		

Commercial Qualification:

- The bidder should have **Average Annual turnover of at least Rs. 14 Cr. in last 3 Financial Year (FY) (2021-22, 2022-23 & 2023-24)**. Qualification Requirement of Financial Turnover for MSME registered in the State of Odisha shall be reduced to 20% of the existing criteria. CA Audited Turn Over certificate, Audited Profit Loss Statement should be submitted in this regard.
- Bidder **should not be debarred / blacklisted** by TPCODL / Govt. Of Odisha/any other Distribution / Transmission / Generation Utility in India. Undertaking to be submitted on company's letterhead for the same.
- Bidder should have a **valid HT/ EHT Electrical license issued by Govt. of Odisha** for carrying out electrical works in Odisha Copy of license required.
- Bidder must have all statutory compliance like valid PAN, ESI registration, EPF registration and GSTN registration.

Others :

- ❖ The evaluation of contractor's safety capability with evaluation of safety bid is part of qualifying requirement. **So, Safety bid should as per TPCODL Safety code of conduct should be included in the Part-1 Bid.**
- ❖ Joint venture/ consortium among two or more like minded contractor(s) is not accepted in the tender.

1.8 Marketing Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the General Condition of Contracts. Bidders must agree to these rules prior to participating. In addition to other remedies available, TPCODL reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the General Condition of Contracts. A bidder who violates the market place rules or engages in behavior that disrupts the fair execution of the marketplace,

may result in restriction of a bidder from further participation in the marketplace for a length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

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

1.9 Supplier Confidentiality

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

2.0 Evaluation Criteria

- The bids will be evaluated technically on the compliance to tender terms and conditions.
- The bids will be evaluated commercially on **overall all-inclusive lowest cost for complete tender BOQ** as calculated in Schedule of Items [Annexure I] . TPCODL reserves the right to split the order line item wise and / or quantity wise, among more than one Bidder. Hence all bidders are advised to quote their most competitive rates.
- Bidder has to mandatorily quote as per schedule of line item[Annexure-I]. Failing to do so TPCODL may reject the bid. Bidder has to submit a unpriced bid with in part-1 technical bid document, for the each line item that he quote for.

NOTE: In case of a new bidder not registered, factory inspection and evaluation shall be carried out to ascertain bidder's manufacturing capability and quality procedures. However TPCODL reserves the right to carry out factory inspection and evaluation for any bidder prior to technical qualification. In case a bidder is found as Disqualified in the factory evaluation, their bid shall not be evaluated any further and shall be summarily rejected. The decision of TPCODL shall be final and binding on the bidder in this regard.

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

3.0 Submission of Bid Documents

3.1 Bid Submission

Bidders are requested to submit their offer in line with this Tender document 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 e-mail or 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 for the line item(s) shall be submitted. The EMD shall be valid for 210 days from the due date of bid submission in the form of NEFT/ RTGS /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.

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

Account Name: TP Central Odisha Distribution Limited

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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 e-mail or 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:

Package Owner- Contract Branch

Name: Mr. Arabinda Sahu
Designation: Executive Engineer – Contracts
Contact No: 94383-19343
E-Mail ID: arabinda.sahu@tpcentralodisha.com

Escalation Matrix

Name: Mr. Asish Karmakar
Designation: HOD -Contracts
Contact No: 87684-55566
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.

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 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

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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 denominated in any of the following form:

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

The EMD shall be forfeited in case 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 on TPCODL E-Tender system (Ariba portal) in presence of participated bidders (Online) at the date & time specified in tender document. The meeting link and schedule will be communicated in advance. Participating Bidders will 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/or 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 Technically and / or safety qualified Bidders shall be considered. The bids shall be opened on TPCODL E-Tender system (Ariba portal) in presence of qualified bidders (Online). The meeting link and schedule will be communicated in advance. Participating Bidders will get mail intimation from TPCODL E-Tender system (Ariba) when their 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.

4.6 Reverse Auctions

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

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

TPCODL reserves the right to revise above criteria without assigning any reason thereof.

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 rate contract / 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

7.1.1. Award of Contract:

After finalization of the tender, PO shall be issued to the successful bidder.

7.1.2. Price / Rates / Taxes:

The Contract price comprising of Supply, Installation, Testing and Commissioning shall remain **FIRM** during the entire Contract period except statutory variation in Taxes, which shall be to the account of TPCODL against Tax Invoice. However, the price shall **remain firmed until the completion of the Project**, even if contract period is extended due to any reason. There shall be no price variation during the Contract Period / Extended Contract Period.

7.1.3. Scope of Work:

The scope of work shall include providing engineering drawing, GTP, shop testing, joint field survey (with TPCODL and Forest department), loading, unloading, transportation, supply of all the materials & equipment and installation, erection, commissioning & dismantling (if any) to complete the works in all respect. The details scope of work is mentioned at schedule of items (Annexure-I) & Scope of Work (Annexure-II). The quantities mentioned in schedule of items may vary from either side. In case of any changes envisaged in scope of work, at any given point of time during the contract execution period, prior approval may be taken from the Engineer In Charge. Billing to done as per actual requirement.

7.1.4. Completion Period:

Time being the essence of the contract; the work shall be completed **within 8 Months form date of issue of PO** including supply of all the materials, erection, testing, dismantling, Electrical inspection & commissioning. The work shall be treated as complete item wise when one item shall be complete in all respects with all mountings, fixtures and standard accessories which are normally supplied even though not specifically detailed in the specification.

7.1.5. Performance Guarantee:

The BA/ Contractor shall guarantee that, the equipment/materials will be new, unused and in accordance with the Contract documents and free from defects in material and workmanship for a period of **2 Years commencing immediately after the satisfactory commissioning and handing over of the entire works under the PO**. The Contractor's liability shall be to the extent of repair/replacement of such defective equipment/material either arising from faulty design or defective equipment/materials and/or bad workmanship. Such defective equipment/materials shall be handed over to the Contractor for repair or replacement by a new one, unless otherwise repairable at site. The BA/ Contractor shall complete the repair/replacement work within the reasonable time frame intimated by the Order Manager.

7.1.6. Performance Bank Guarantee:

Business Associate (BA) shall submit applicable Performance Bank Guarantee within 30 days of issuance of PO. PBG applicable shall be **5% of PO Value** valid till end of the Guarantee Period of contract basing on the stipulated completion period plus additional 1 month claim period. The B.G validity period shall be extended from time to time as may be required under the contract.

7.1.7. Payment Terms:

(A) Due Date For Payments:

The payment shall be payable within **30 days** from the bill certification subject to fulfilment of all the conditions for release of such payment.

(B) Terms of Payment:

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Payment shall be made in the following stages,

A) **80% (Eighty Percent)** of contract price along with taxes and duties shall be paid progressively in monthly basis for each completed items of work against installation certified by the Order manager.

B) **Balance 20% (Twenty percent)** of contract price shall be paid after completion of all works, envisaged under this package including Handing over and Taking Over, return of dismantled materials, clearance of Electrical Inspection, compliance thereof, Forest Dept. and reconciliation etc and others documentations as required by the Order manager.

7.1.8. Liquidated Damages:

If the BA fails to complete the works by the scheduled completion period or any extension granted thereby, with respect to successful completion of work including testing and commissioning, the BA shall be liable for payment of liquidated damage amounting to **0.5 % of the contract price per week of delay of un-finished works subject to the maximum of 5 % of the total un-finished work-out contract price.**

Any request of LD waiver shall be submitted within **60 days** of deducting LD from final bill. Request submitted beyond the timeline shall not be entertained.

7.1.9. Submittals Required After Award Of Contract :

The BA shall provide documents to the EIC i.e. Outline program of survey, production, inspection, testing, delivery, erection, pre-commissioning and commissioning in chart form to the Order Manager. The Drawings and Guaranteed Technical particulars (GTP), Type test report, QAP of all bought out material of specified in the tender shall be submitted prior to inspection. The time line to submit the GTP & drawing of materials should be within 15 days.

7.1.10. Inspection:

i) **PRE DISPATCH INSPECTION** – The BA shall give advance notice for testing of all bought out materials as per approved make. The required DI shall be issued after which the BA shall lift the materials. The contractor shall ensure that all the inspected materials along with intact seal at site and the same will be again cross checked and certified in the presence of Order manager.

ii) **POST DELIVERY & WORK INSPECTION** – The Order Manger will inspect all required materials delivered at work site and will inspect the execution of work from time to time up to final completion. The work shall be verified by the owner's representative and by DMU Gridco. However, the quality of the materials will be inspected by the Electrical Inspector regularly prior to installation.

iii) **INSPECTION OF COMPLETED WORK** – The work after due completion under the supervision of the Order manager shall be inspect with the competent authority of Electrical Inspectorate, Govt. of Odisha and by DMU Gridco. All arrangement for this inspection shall be the responsibility of the BA. The statutory fees (if any) regarding Electrical Inspection for entire scope of work shall be deposited by BA.

However, such Inspection and Testing shall not relieve Contractor of his obligation to execute the contract by letter of spirit. Any defects pointed out by the Electrical Inspector (if any), shall be corrected or attended by the BA at his own cost.

7.1.11. Storage & Insurance:

- i. The BA shall make his own arrangements for land for Stores and Workshops as required for storage of materials supplied and brought to site under the Contract at his own cost. The BA shall bring to Site all Construction equipment, tools and tackles for the purpose of the works.
- ii. The BA shall also employ necessary watch and ward establishment for the purpose.
- iii. All the equipment and materials including spares being supplied by the BA shall be kept completely insured by the BA at his cost from time of dispatch from the BA's works / Vender's works, up to the completion of erection, testing & commissioning and taking over of the entire works in accordance with the Contract. No compensation shall be made by the Owner for any damage or loss of materials during storing, transit transportation and at the time of erection.

7.1.12. Surplus Materials/Equipment:

1. Bidder shall plan & execute the Contract in a manner such that no surplus materials/Equipment is accumulated after completion of the Contract.
2. Surplus Materials/Equipment including construction surplus of the civil works arising out of the contract, if any, the same shall be taken back by the Contractor without any cost to TPCODL.

7.1.13. Right Of Way:

The responsibilities of acquiring Right of Way (ROW) lies with contractor at his risk and cost. However, TPCODL will facilitate process of securing the ROW. Similarly, responsibilities of getting clearance from Railway, NHAI, Forest, Water and other Statutory/Govt. bodies lie with the contractor at his risk and cost (**except payment of statutory fees**). However, TPCODL will facilitate the process for getting clearance and reimburse the Statutory Fee on production of receipts for such payment. The Reinstatement of Roads & other RoW compensation are to the account of the EPC Contractor, however statutory fees paid, if any will be reimbursed by TPCODL.

7.1.14. Electricity & Water:

The Contractor shall be entitled to use for the purpose of performing the Services such supplies of electricity and water as may be available on the Site and shall provide any apparatus necessary for such use. The Contractor shall pay at the applicable tariff plus the overheads, if any, for such use. Where such supplies are not available, the Contractor shall make his own arrangement for provision of any supplies he may require.

7.2 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.

7.3 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 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 tender.

9.0 General Condition of Contract

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

10.0 Safety

All jobs are this tender have to be executed strictly in compliance to the Safety terms and Conditions of Tata Power. Please refer attached Safety terms and conditions, Annexure-IX, for details. Violation of Safety norms will result in Penalty as mentioned in the above document. Safety Policy of Tata Power is also enclosed for reference. Any compensation due on account of any type of accident at site shall be to the contractor's account.

Safety related requirements as mentioned in our safety Manual is put in the Company's website and same shall be strictly followed.

<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.

ANNEXURE I**Schedule of Items****Attached****Note :**

- Price shall be quoted considering item description, technical specification and approved make as specified in the tender.
- The bidders are advised to quote prices strictly in the above format. Failing to do so, bids are liable for rejection.
- Bidder should quote as per the "Item description" column. No cutting/ overwriting in the prices is permissible.
- Mentioning "extra/inclusive" in any of the column may lead for rejection of the price bid.
- Unit price of the price bid shall be considered from the bidder quotation and other than unit price viz items description, unit, qty, etc shall be consider as per the tender price schedule format.
- The bids will be evaluated commercially on the overall all-inclusive price of tender BOQ as above.
- All materials shall be supplied and erected by the BA turnkey basis.
- The unit price should be inclusive of freight, insurance and other levies (if any) and exclusive of GST. GST to be mentioned separately. Total price shall be inclusive of all.
- There shall be no price variation during the Contract Period / Extended Contract Period.

ANNEXURE II
Technical Specifications & Scope of Work

ELEPHANT CORRIDOR - PHASE IV									
Bill of Quantities									
1	11KV Interposing Poles (in nos) including HT Stay, concreting /couping ,Spike etc								
	Name of the Forest Div-->	Dhenkanal		Angul		Deogarh	Satkosia	Athmalik	Total
	Name of the Elect. Div-->	TED, Chainpal	DED, Dhenkanal	TED, Chainpal	AnED, Angul	TED, Chainpal	AnED, Angul	AnED, Angul	
a	Costing of 11KV Interposing Poles with accessories	192	926	414	73	92	34		1731
b	Concreting & Coping of poles	192	926	414	73	92	34		1731
c	11KV Stay Set & Fixing	48	165	8		11			232
d	Extension Piece for Existing Poles		1852						1852
e	Spike & Barbed wire Fencing for existing poles	134	926	77	28	12	13		1190
f	Concreting & Couping for Existing 11KV Poles	96	1852	7		14			1969
2	11KV Cut Point Poles (in nos)								
	Name of the Forest Div-->	Dhenkanal		Angul		Deogarh	Satkosia	Athmalik	Total
	Name of the Elect. Div-->	TED, Chainpal	DED, Dhenkanal	TED, Chainpal	AnED, Angul	TED, Chainpal	AnED, Angul	AnED, Angul	
		50	60	3	4	10			127
3	11KV line using 70/99mm2 Covered Conductor (in Ckm)								
	Name of the Forest Div-->	Dhenkanal		Angul		Deogarh	Satkosia	Athmalik	Total
	Name of the Elect. Div-->	TED, Chainpal	DED, Dhenkanal	TED, Chainpal	AnED, Angul	TED, Chainpal	AnED, Angul	AnED, Angul	
a	11KV Covered Condcutor & Jointing Kit- 70 mm2 Covered Conductor	4.95	36.1	4.5	9.1	7.6	11.6		73.85
b	11KV Covered Condcutor & Jointing Kit- 99 mm2 Covered Conductor				4.5				4.5

4 DT Fencing (in nos)									
Name of the Forest Div-->	Dhenkanal		Angul		Deogarh	Satkosia	Athmalik	Total	
Name of the Elect. Div-->	TED, Chainpal	DED, Dhenkanal	TED, Chainpal	AnED, Angul	TED, Chainpal	AnED, Angul	AnED, Angul		
	30	100	144	24	13		136	447	

Bill of Quantities Per Interposing 11 KV Pole			
Sl. No.	Description of Materials	Unit	Requirement Per Pole
	11KV Interposing Poles with accessories		
1	9 Mtr. long 300 Kg. PSC Pole -Interposing Poles	No	1
2	11 KV V cross Arm (10.2 K.g. each) (GI)	No	1
3	Top bracket 100x50X6 mm GI channel (2kg each)	No	1
4	Back Clamp for 11 KV V cross Arm (GI) 0.85 kg each	Kg	0.85
5	11 KV pin insulator polymer, 3 Nos. required for each support	No	3
6	Danger Plate, 1 no's. for each pole	No	1
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510) (GI)	Kg	0.3009
8	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	3
9	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510) (GI)	Kg	1.2036
10	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	No	2
11	Non Metallic Ties 11KV (For covered conductor)	No	3
12	Earthing of Support (Coil Type)	No	1
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	Kg	0.262
14	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point and 9Kg/Cut Point)	Kg	1.45

15	Black Paint	Ltr	1
16	Yellow Colour Paint for Background	Ltr	2

Bill of Quantities per 11KV Stay Set			
Sl. No.	Description of Materials	Unit	Requirement Per stay
1	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair) (GI)	Pair	1
2	H.T. Stay set (Complete)	Set	1
3	H.T. Stay Insulator Type-C	No	2
4	7/10 SWG Stay Wire 10kg /stay	Kg	10
5	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvaton including excvaton, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No	1

Extension Piece for Existing Poles			
Sl. No.	Description of Materials	Unit	Requirement Per Pole
1	Extension Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 1.5 mtr.,(1x9.56x1.5 =14.34Kg.) (GI)	Kg	14.34

Spike & Barbed wire Fencing for existing poles			
Sl. No.	Description of Materials	Unit	Requirement Per Pole
1	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	3
2	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510) (GI)	Kg	1.2036
3	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	No	2

Concreting & Couping for Interposing & Existing 11KV Poles			
Sl. No.	Description of Materials	Unit	Requirement Per Pole
1	Concreting of Pole : Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	0.45
2	Cooping of Pole : Cooping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	0.1125

Costing of 11KV Cut Point Poles with accessories			
Sl. No.	Description of Materials	Unit	Requirement Per Pole
1	9 Mtr. long 300 Kg. PSC Pole –Cut point Poles	No	1
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2) (GI)	Kg	22.944
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	Kg	5.2864
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306) (GI)	Kg	5.85072
5	Danger Plate, 1 no's	No	1
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510) (GI)	Kg	0.3009
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	3
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510) (GI)	Kg	1.2036
9	Earthing of Support (Coil Type)	No	1
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	Kg	0.262
11	11 KV pin insulator polymer	No	3
12	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (2 Nos of spike per Set in each Pole)	No	2
13	Non Metallic Ties 11KV (For covered conductor)	No	3

14	IPC for 70 /99 sq.mm AAA conductor (For covered conductor)	No	6
15	H W fitting(B&S) 70KN,3 Bolt (For covered conductor)	No	6
16	Disc insulator (B&S) 70 KN polymer (For covered conductor)	No	6
17	GI Nut, Bolt & Washer of different sizes (4.879 Kg each Cut point)	Kg	4.879
18	Black Paint	Ltr	1
19	Yellow Colour Paint for Background	Ltr	2

Costing of 11KV Covered Condcutor & Jointing Kit- 70 mm2 Covered Conductor			
Sl. No.	Description of Materials	Unit	Requirement Per Ckt Km
1	70 sq.mm 11kV XLPE Covered Conductor	Km	3.09
2	Crimping type Midspan Compression Joint for 70 sq.mm AAA conductor (For 11 KV covered conductor)	No	3
3	Non Metallic Ties 11KV (For covered conductor)	No	75

Costing of 11KV Covered Condcutor & Jointing Kit-99 mm2 Covered Conductor			
Sl. No.	Description of Materials	Unit	Requirement Per Ckt Km
1	99 sq.mm 11kV XLPE Covered Conductor	Km	3.09
2	Crimping type Midspan Compression Joint for 99sq.mm AAA conductor (For 11 KV covered conductor)	No	3
3	Non Metallic Ties 11KV (For covered conductor)	No	75

Location Details

Attached in Ariba site

ANNEXURE III**Schedule of Deviations**

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

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

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

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

Seal of the Bidder:

Signature:

Name:

ANNEXURE IV

Schedule of Commercial Specifications

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

S. No.	Particulars	Remarks
1.	Prices firm or subject to variation (If variable indicate the price variation clause with the ceiling if applicable)	Firm
1a.	If variable price variation on clause given	Not applicable
1b.	Ceiling	Not applicable
1c.	Inclusive of GST	Yes (18% rate)
1d.	Inclusive of transit insurance	Yes
2.	Delivery	As per Tender
3.	Guarantee clause acceptable	As per Tender
4.	Terms of payment acceptable	As per Tender
5.	Performance Bank Guarantee acceptable	As per Tender
6.	Liquidated damages clause acceptable	As per Tender
7.	Validity (180 days) (From the date of opening of technical bid)	Yes
8.	Inspection during stage of manufacture	Yes
9.	Rebate for increased quantity	No
10.	Change in price for reduced quantity	No
11.	Covered under Small Scale and Ancillary Industrial Undertaking Act 1992	Yes / No (If Yes, indicate, SSI Reg'n No.)

Signature & Seal of the Bidder

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/ organogram	
4	Signed copy of this RFQ as an unconditional acceptance	
4(i)	Unpriced bid for the line Item that quoted for(Annexure-I) schedule of Item (Un Price bid) (mention quoted/not quoted against the Line item)	
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	

Signature & Seal of the Bidder

Annexure VI**Acceptance Form for Participation In Reverse Auction Event**

(To be signed and stamped by the bidder)

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

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

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

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 IX

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

Annexure X

Tata Code of Conduct

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

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

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

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Annexure XI



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 Quality, Safety, Occupational Health & Environment



TP CENTRAL ODISHA
DISTRIBUTION LIMITED

(A Joint Venture of Tata Power and Government of Odisha)



Integrated Management System Policy

Quality, Safety, Occupational Health, Environment

We at TP Central Odisha Distribution Limited are committed to deliver world class service and reliable power through an energised workforce leading to ever increasing satisfaction of its customers, environmental protection and safe and healthy working condition.

This will be achieved by:

- Complying with all the requirements of ISO-9001, ISO-14001 and ISO-45001 management system standards through engaged workforce
- Complying with applicable Legal requirements
- Continually improving Quality, Environment and Occupational Health & Safety Performance
- Ensuring Environmental protection through Prevention of Pollution
- Conservation of Natural Resources
- Creating a work environment which encourages team work, safe work practices, learning and innovation
- Providing safe and healthy conditions that prevents work related injury and illness
- Eliminating hazards and reducing OH&S Risk
- Ensuring participation and consultation of workers

This policy will be made available to interested parties.

Date: 1st June, 2023

Arvind Singh
Chief Executive Officer

Annexure-XIII**UNDER TAKING**

Tender No:

Tender Subject:

This is to certify that

1. Apart from our bid in the name ofwe have not participated in this tender through any other name who is/are related firm (where owner, Partner, Director are same or holding stake in such firm).

2. In case such relation is found out between our firm and any other firm who has participated in this tender, TPCODL reserves right to disqualify bids from all such related firms or cancel Purchase Order placed on such firm/firms.

Signature and company seal of bidder

ANNEXURE I							
Schedule for Items (BOQ)							
Rate to be quoted as per BOQ given below:							
Strengthening of electrical infrastructure in elephant corridor & movement area under Chainpal, Angul & Dhenkanal Division							
Sl. No.	Item Description	Unit	Qty	Unit Rate (Excl. GST) (In Rs.)	GST on Unit Price (In Rs.)	Unit Rate (Incl. GST) (In Rs.)	Total Amount (In Rs.)
a	b	c	d	e	f	g= e+f	h= dxg
	Supply						
1	Supply of 9 Mtr. long 300 Kg PSC Pole	No	1858				
2	Supply of 11 KV V cross Arm (10.2 Kg each) (GI)	No	1731				
3	Supply of Top bracket 100x50X6 mm GI Channel (2 Kg each)	No	1731				
4	Supply of Back Clamp for 11 KV V Cross Arm (GI) 0.85 Kg each	Kg	1471.35				
5	Supply of 11 KV Pin Insulator Polymer, 3 Nos required for each support	No	5574				
6	Supply of Danger Plate, 1 no for each pole	No	1858				
7	Supply of Straight Cross Arm 100X50X6mm, 9.56 Kg/Mtr., each Channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2) (GI)	Kg	2913.88				
8	Supply of Fish Plate 50x6 mm., 2.36 Kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280) (GI)	Kg	671.32				
9	Supply of Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306) (GI)	Kg	742.95				
10	Supply of Back Clamp for Danger Plate 25X3 mm flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510) (GI)	Kg	557.4				
11	Supply of GI barbed wire anticlimbing device 3 Kg. Per support	Kg	9144				
12	Supply of Back Clamp for Anticlimbing Device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510 mtr length 4 no's = (4x0.59x0.510) (GI)	Kg	3668.57				
13	Supply of Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (1 No = 2 Half, 2 Nos of spike per Set in each Pole)	No	6096				
14	Supply of Non Metallic Ties 11KV (For covered conductor)	No	11451				
15	Supply of Earthing of Support (Coil Type)	No	1858				
16	Supply of No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	Kg	486.79				
17	Supply of GI Nut, Bolt & Washer of different sizes (1.45 Kg/ Pin point & 4.879 Kg per Cut point)	Kg	3129.58				

Sl. No.	Item Description	Unit	Qty	Unit Rate (Excl. GST) (In Rs.)	GST on Unit Price (In Rs.)	Unit Rate (Incl. GST) (In Rs.)	Total Amount (In Rs.)
18	Supply of Black Paint	Ltr	1858				
19	Supply of Yellow Colour Paint for Background	Ltr	3716				
20	Supply of H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair) (GI)	Pair	232				
21	Supply of H.T. Stay Set (Complete)	Set	232				
22	Supply of H.T. Stay Insulator Type-C	No	464				
23	Supply of 7/10 SWG Stay Wire 10kg /stay	Kg	2320				
24	Supply of Extension Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 1.5 mtr.,(1x9.56x1.5 =14.34Kg.) (GI)	Kg	26576.2				
25	Supply of IPC for 70 /99 sq.mm AAA conductor (For covered conductor)	No	762				
26	Supply of H W fitting (B&S) 70KN, 3 Bolt (For covered conductor)	No	1062				
27	Supply of Disc insulator (B&S) 70 KN polymer (For covered conductor)	No	1062				
28	Supply of 70 sq.mm 11kV XLPE Covered Conductor	Km	228.2				
29	Supply of Crimping type Midspan Compression Joint for 70 sq.mm AAA conductor (For 11 KV covered conductor)	No	222				
30	Supply of 99 sq.mm 11kV XLPE Covered Conductor	Km	13.91				
31	Supply of Crimping type Midspan Compression Joint for 99sq.mm AAA conductor (For 11 KV covered conductor)	No	14				
	Service / Erection						
1	Erection of 9 Mtr. long 300 Kg PSC Pole	No	1858				
2	Erection of 11 KV V cross Arm (10.2 Kg each) (GI)	No	1731				
3	Erection of Top bracket 100x50X6 mm GI channel (2 Kg each)	No	1731				
4	Erection of Back Clamp for 11 KV V cross Arm (GI) 0.85 Kg each	Kg	1471.35				
5	Erection of 11 KV Pin Insulator Polymer, 3 Nos required for each support	No	5574				
6	Erection of Danger Plate, 1 no for each pole	No	1858				
7	Erection of Straight Cross Arm 100X50X6mm, 9.56 Kg/Mtr., each Channel length 1.2 mtr., 2 no's channel required =(2x9.56x1.2) (GI)	Kg	2913.88				

Sl. No.	Item Description	Unit	Qty	Unit Rate (Excl. GST) (In Rs.)	GST on Unit Price (In Rs.)	Unit Rate (Incl. GST) (In Rs.)	Total Amount (In Rs.)
8	Erection of Fish Plate 50x6 mm., 2.36 Kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280) (GI)	Kg	671.32				
9	Erection of Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306) (GI)	Kg	742.95				
10	Erection of Back Clamp for Danger Plate 25X3 mm flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510) (GI)	Kg	557.4				
11	Erection of GI barbed wire anticlimbing device 3 Kg. Per support	Kg	9144				
12	Erection of Back Clamp for Anticlimbing Device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510 mtr length 4 no's = (4x0.59x0.510) (GI)	Kg	3668.57				
13	Erection of Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) (1 No = 2 Half, 2 Nos of spike per Set in each Pole) Two halves should be welded.	No	6096				
14	Erection of Non Metallic Ties 11KV (For covered conductor)	No	11451				
15	Erection of Earthing of Support (Coil Type)	No	1858				
16	Erection of No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr.- 2 Mtr. For connecting pole with Coil earthing	Kg	486.79				
17	Erection of GI Nut, Bolt & Washer of different sizes (1.45 Kg/ Pin point & 4.879 Kg per Cut point)	Kg	3129.58				
18	Erection of Black Paint	Ltr	1858				
19	Erection of Yellow Colour Paint for Background	Ltr	3716				
20	Erection of Extension Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 1.5 mtr.,(1x9.56x1.5 =14.34Kg.) (GI)	Kg	26576.2				
21	Erection of IPC for 70 /99 sq.mm AAA conductor (For covered conductor)	No	762				
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27	Erection of Crimping type Midspan Compression Joint for 99sq.mm AAA conductor (For 11 KV covered conductor)	No	14				

Sl. No.	Item Description	Unit	Qty	Unit Rate (Excl. GST) (In Rs.)	GST on Unit Price (In Rs.)	Unit Rate (Incl. GST) (In Rs.)	Total Amount (In Rs.)
28	Supply & Erection for DT fencing with GI barbed wire of size (3mtrx3mtrx1.5 mtr) with MS Grill Gate (1mtr(w) x 1.5 mtr (ht)) as per Drawing with concreting of RCC posts	EA	447				
29	Concreting of pole : Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr (M20 Grade)	Cum	1722.15				
30	Coping of pole : Concrete ratio 1:1.5:3 with dimension (500X500X 450)= 0.1125 Cu mtr (M20 Grade)	Cum	430.54				
31	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts. The BA will do the excavation including supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx 800mm) using 20mm BHG metal with all labour and material as per specification	No	232				
32	Dismantling of existing 11 KV overhead bare conductor and return to TPCODL Scrap store	Ckt Km	78.35				
	Total						
	Figures : RupeesOnly						
	• Price shall be quoted considering item description, technical specification and approved make as specified in the tender.						
	• The bidders are advised to quote prices strictly in the above format. Failing to do so, bids are liable for rejection.						
	• Bidder should quote as per the "Item description" column. No cutting/ overwriting in the prices is permissible.						
	• Mentioning "extra/inclusive" in any of the column may lead for rejection of the price bid.						
	• Unit price of the price bid shall be considered from the bidder quotation and other than unit price viz items description, unit, qty, etc shall be consider as per the tender price schedule format.						
	• The bids will be evaluated commercially on the overall all-inclusive price of tender BOQ as above.						
	• All materials shall be supplied and erected by the BA turnkey basis.						
	• The unit price should be inclusive of freight, insurance and other levies (if any) and exclusive of GST. GST to be mentioned separately. Total price shall be inclusive of all.						
	• There shall be no price variation during the Contract Period / Extended Contract Period.						

Signature & Seal of the Bidder

TECHNICAL SPECIFICATION FOR CONSTRUCTION OF

11KV LINES

1.0 NATURE OF WORK

The work covered by this Specification is for strengthening of electrical infrastructure 11 KV HT distribution lines by replacing the bare conductor covered conductor along with placing interposing pole in elephant movement area as specified herein and in the attached Schedules. The work is to be executed in forest areas/ village area, hence adequate safety measures to be taken while erection in close co-ordination with the local forest authorities.

1.1 GENERAL PARTICULARS OF THE SYSTEM

The following are the general particulars governing the design and working of the complete system of which the Works will form a part -

The system will be in continuous operation during the varying atmospheric and climatic conditions occurring at all seasons.

1.2 SCOPE-

(A) Construction of 11 KV Lines works.

Strengthening of 11 KV lines which include replacement of bare conductor by insulated cable as specified in the price schedule, erection of interposing pole with its accessories, fitting spike, pole extension (if required) etc. All items required for construction above work in complete shape shall be supplied by the contractor.

2.0 SURVEY (detail & check, estimating of quantities & spotting of Poles)

Walk over survey shall have to be carried out to establish the Route alignment by the contractor for 11 KV. If the line is passing in any Municipal/ NAC/Forest areas permission from local bodies has to be obtained prior to execution of work. Suitable distance from the side of the road has to be made towards placement of line poles.

2.0.2 GENERAL: Preliminary route alignment in respect of the proposed 11KV lines has been fixed by the employer subject to alteration of places due to way leave or other unavoidable constraints. The Right of way shall be solved by the contractor and all expenses there of shall be borne by him. However, TPCODL shall render all helps in co-ordination with law and order department for solving the same. Involvement of Forest land should be restricted as far as possible.

2.0.3 Provisional quantities/numbers of different types of tower structures/Joist poles/PSC poles have been estimated and indicated in the BOQ Schedule given. However final quantities for

work shall be as determined by the successful bidder, on completion of the detail survey, preparation of route profile drawing and designing of the different types of tower structures/Joist poles/PSC poles as elaborated in the specification and scope of work.

2.0.4 The contractor shall undertake detailed survey on the basis of the tentative alignment fixed by the employer. The said preliminary alignment may, however, change in the interest of economy to avoid forest and hazards in work. While surveying the alternative route the following points shall be taken care by the contractor.

- (a) The line is as near as possible to the available roads in the area.
- (b) The route is straight and short as far as possible.
- (c) Good farming areas, religious places, forest, civil and defense installations, aerodromes, public and private premises, ponds, tanks, lakes, gardens, and plantations are avoided as far as practicable.
- (d) The line should be far away from telecommunication lines as reasonably possible. Parallelism with these lines shall be avoided as far as practicable.
- (e) Crossing with permanent objects are minimum but where unavoidable preferably at right angles.
- (f) Difficult and unsafe approaches are avoided.
- (g) The survey shall be conducted along the approved alignment only.
- (h) For river crossing/ Crossing of Nallas : Taking levels at 25 meter interval on bank of river and at 50 meter interval at bed of river so far as to show the true profile of the ground and river bed railway/road bridge, road The levels shall be taken at least 100 m. on either side of the crossing alignment. Both longitudinal and cross sectional shall be drawn preferably to a scale of 1:2000 at horizontal and 1:200 vertical.

After completing the detailed survey, the contractor shall submit the final pole schedule (with no. of stay or struct) for final approval of the employer. To facilitate checking of the alignment, suitable reference marks shall be provided. For this purpose, concrete pillars of suitable sizes shall be planted at all angle locations and suitable wooden/iron pegs shall be driven firmly at the intermediate points. The contractor shall quote his rate covering these involved jobs.

2.0.5 (a) Optimization of Pole Location

I. Pole Spotting

To optimize the line length, the contractor shall spot the poles in such a way so that the line is as close as possible to the straight line drawn between the start & end point of the line.

II. Crossings

Road Crossings:- At all road crossings, the double tension HW fittings should be used. There should absolutely no joints in the conductors in all road, power line and all other major

crossing. The ground clearance from the road surfaces under maximum sag condition shall be not less than 8.5mtr over roads. In National High way the minimum height of guarding at the maximum sagging point should be less than 8.5 mts.

Railway Crossings- The railway crossing overhead or underground shall be carried out in the manner as approved & prescribed by the railway authorities from time to time.

The crossing shall normally be at right angle to the railway track. In case crossing is required to be done through underground cable, cost of the cable including laying and other accessories shall be in the scope of the contractor. During detailed engineering, the contractor shall submit his proposed arrangement for each railway crossing to the owner. The approval for crossing railway track shall be obtained by the owner from the Railway Authority.

Power Line Crossings--

Where the line is to cross over another line of the same voltage or lower voltage, provisions to prevent the possibility of their coming into contact with each shall be made in accordance with the Indian Electricity Rules.

III. Details En-route

After survey and finalization of route, the contractor shall submit detailed route map for each line. This would be including following details:

All poles on both sides of all the crossings shall be tension poles i.e. disc type insulators shall be used on these poles. At all the crossing described above the contractor shall use protective guarding as per REC Construction Standard A-1 to fulfill statutory requirements for 11 kV & 33 KV trunks & main spur line. 11kV & 33 KV branch spur line, being in the village, protective guarding shall be used wherever it will be required.

Clearance from Ground, Building, Trees etc. – Clearance from ground, buildings, trees and telephone lines shall be provided in conformity with the Indian Electricity Rules, 1956 as amended up to date. The vendor shall select the height of the poles in order to achieve the prescribed electrical clearances.

VII. Fittings Common to all Line

Pin Insulator Binding: The contractor shall use AL. Binding wire for binding shall be as per REC Construction Standards No. C-5 or better thereof.

Guy/Stay wire Clamp: The contractor shall supply & install Guy/Stay wire Clamp as per REC Construction Standard G-1 or better here of as specified..

VIII. Stay/Guy Sets

a) The Stay/Guys shall be used at the following pole locations;

At all the tapping points & dead end poles

Both side poles at all the crossing for road, nalla, railway crossings etc.

b) The arrangement and number of stay sets to be installed on different pole structures shall be as per REC Construction Standards no. A-23 to A-27, G-5 & G-8. However, this shall be decided finally during erection, as per the advice of Engineer.

c) The stay set to be installed complete in all respect and would broadly consist of following items:

7/10 SWG G.I. Stay wire for 11 kV lines and 7/12 SWG for LT line as per REC Specification No.46/1986 Stay Insulator type A for LT line and type C for 11 kV line as per REC Specification No. 21/1981, Turn Buckle. Anchor rod and plate (Hot Dipped galvanized). Thimbles and Guy Grip Complete stay set shall be as per REC Construction Standards no. G-1. The stay clamp is envisaged as GS structure along with other clamps brackets etc.

IX. Erection of stay sets

The contractor shall install the stay set complete in all respect. This includes excavation of pit in all kinds of soil with PCC as specified which shall be placed in the bottom of the pit.

The rest (upper half) of the pit shall be filled with excavated soil duly compacted layer by layer. An angle between 30 to 45 degrees shall be maintained between stay wire and the pole. The stay wire shall be used with a stay insulator at a height of 5 mts. above ground level with F.I. turn buckle.

X. Stringing and Installation of Line with insulated Conductors/ AB cable.

General

The scope of erection work shall include the cost of all labour, tools and plants such as tension stringing equipment and all other incidental expenses in connection with erection and stringing work. The Bidders shall indicate in the offer the sets of stringing equipment he would deploy exclusively for work under each package.

The stringing equipments shall be of sufficient capacity to string AAA conductor or ACSR insulated conductor.

The Contractor shall be responsible for transportation to site of all the materials to be provided by the Contractor as well as proper storage, insurance etc. at his own cost, till such time the erected line is taken over by the owner.

Contractor shall set up required number of stores along the line and the exact location of such stores shall be discussed and agreed upon with the owner.

Insulator Fixing

Pin insulators shall be used on all poles while strain insulators shall be used on all angle & dead end poles. Damaged insulators and fittings, if any, shall not be used. Prior to fixing, all insulators shall be cleaned in a manner that shall not spoil, injure or scratch the surface of the insulator, but in no case shall any oil be used for this purpose. Torque wrench shall be used

for fixing various line materials and components, such as suspension clamp for conductor, whenever recommended by the manufacturer of the same.

Running Out of the insulated Conductors/ AB cable

The contractor shall be entirely responsible for any damage to the pole or conductors during stringing. The conductors shall be run out of the drums from the top in order to avoid damage to conductor

A suitable braking device shall be provided to avoid damaging, loose running out and kinking of the conductors. Care shall be taken to ensure that the conductor does not touch and rub against the ground or objects, which could scratch or damage the strands.

The sequence of running out shall be from the top to down i.e. the top conductor shall be run out first, followed in succession by the side conductors. Unbalanced loads on poles shall be avoided as far as possible.

Wherever applicable, inner phase off-line conductors shall be strung before the stringing of the outer phases is taken up.

When lines being erected run parallel to existing energized power lines, the Contractor shall take adequate safety precautions to protect personnel from the potentially dangerous voltage build up due to electromagnetic and electrostatic coupling in the pulling wire, conductors and earth wire during stringing operations.

The Contractor shall also take adequate safety precautions to protect personnel from potentially dangerous voltage build up due to distant electrical storms or any other reason.

The Contractor shall be entirely responsible for any damage to the poles, insulators etc during stringing.

Stringing of insulated Conductor/ AB cable

The stringing of the insulated conductor/ AB cable shall be done by the standard stringing method.

Conductors shall not be allowed to hang in the stringing blocks for more than 96 hours before being pulled to the specified sag.

Derricks/ scaffoldings or other equivalent methods shall be used to ensure that normal services are not interrupted and any property is not damaged during stringing operations for roads, telecommunication lines, power lines and railway lines. However, shut-down shall be obtained when working at crossings of overhead power lines. The contractor shall make specific request for the same to the owner.

Jointing

When approaching the end of a drum length at least three coils shall be left in place when the stringing operations are stopped. These coils are to be removed carefully, and if another length

is required to be run out, a joint shall be made as per the recommendations of the accessories manufacturer.

Conductor splices shall not crack or otherwise be susceptible to damage during stringing operation. The Contractor shall use only such equipment/methods during conductor stringing which ensures complete compliance in this regard.

All the joints of on the HT insulated conductor shall be made through cut point pole in accordance with the recommendations of the manufacturer. Each part of the joint shall be cleaned by wire brush till it is free of rust or dirt, etc. This shall be properly greased with anti-corrosive compound if recommended by the manufacturer, before the final compression is carried out with the compressors.

All the joints or splices shall be made at least 30 meters away from the pole. No joints or splices shall be made in spans crossing over main roads, railway line and Small River spans. Not more than one joint per conductor per span shall be allowed. The compression type fittings shall be of the self centering type or care shall be taken to mark the conductors to indicate when the fitting is centered properly.

In case of ACSR conductors the filler compound should be used during compression. In case AAAC is used each press should overlap 25% of the previous press.

Tensioning and Sagging Operations:

The tensioning and sagging shall be done in accordance with the approved stringing charts or sag tables.

The sag shall be checked in the first and the last section span for sections up to eight spans and in one additional intermediate span for sections with more than eight spans. Tensioning and sagging operations shall be carried out in calm weather when rapid changes in temperature are not likely to occur.

Clipping In

Clipping of the conductors into position shall be done in accordance with the manufacturer's recommendations.

Jumpers at section and angle towers shall be formed to parabolic shape to ensure maximum clearance requirements. Pilot pin insulator shall be used, if found necessary, to restrict jumper swing & to ensure proper clearance to design values.

Fasteners in all fittings and accessories shall be secured in position. The security clip shall be properly opened and sprung into position.

Fixing of Conductors and Earth wire Accessories

Conductor and earth wire accessories supplied by the Contractor shall be installed by the Contractor as per the design requirements and manufacturer's instructions. While installing

the conductor and earth wire accessories, proper care shall be taken to ensure that the surfaces are clean and smooth and that no damage occurs to any part of the accessories or of the conductors.

Replacement:

If any replacements are to be effected after stringing and tensioning or during maintenance e.g. replacement of cross arms, the conductor shall be suitably tied to the pole at tension points or transferred to suitable roller pulleys at suspension points.

2.0.7 WAY-LEAVE AND TREE CUTTING

Way-leave permission which may be required by the contractor shall be arranged at his cost. While submitting final-survey report for approval, proposals for way-leave right of way shall be submitted by the contractor. Employer may extend help to get the permission within a reasonable time as mutually agreed upon for which due notice shall be given by the contractor in such a way so that obtaining permission from appropriate authority do not hinder the continued and smooth progress of the work.

The employer shall not be held responsible for any claim on account of damage done by the contractor or his personnel to trees, crops and other properties.

The contractor shall take necessary precaution to avoid damage to any ripe and partially grown crops and in the case of unavoidable damage, the employer shall be informed and necessary compensation shall be paid by the contractor.

All the documents required for application to the statutory authorities must be prepared by the contractor & submitted to the employer for submission of the application towards approval of Railway Crossing etc. However, the responsibilities lie with the contractor to get the clearance.

Trimming of tree branches or cutting of a few trees en-route during survey is within the scope of survey to be done by the contractor. Contractor shall arrange for necessary way-leave and compensation in this regard. During erection of the line, compensation for tree cutting, damage caused to crops, actual cutting and falling of the trees including way-leave permission for such route clearance shall be arranged by the contractor at his cost. The contractor will identify the number of trees and detail of obstructions to be removed for erection of the line and intimate the employer well in advance in case of any help. Other related works like construction of temporary approach roads, etc. as required, shall be done by the contractor and the same will lie within the scope of contractor's work and such cost shall be considered to be included in the rates quoted by

him.

5.0 CONSTRUCTION OF FOUNDATION FOR JOIST POLES AND PSC POLES

5.0.1 ERECTION OF POLE, CONCRETING OF POLES AND COMPACTION OF SOIL

Drawing for the excavation of pits, Foundation of both wet and Black cotton soil is enclosed which are to be adopted. If better design with less volume approved or tested by any other distribution agencies will also be acceptable.

5.0.2 Following arrangement shall be adopted for proper erection of poles wherever necessary and properly compacting of the soil around the base / foot of the poles, under this package.

- (a) Excavation has to be done as per the drawing to the required depth and size. After final excavation the pit should be dressed properly so that uneven portion and loose soil should be removed before concreting. The base footing of the pole concreting has to be done by proper alignment and verticality.
- (b) The verticality and leveling of pole/structure should be done by the help of plumbob or with theodolite and leveling instrument.

5.0.3 CEMENT CONCRETE (PLAIN OR REINFORCED), STUB SETTING GROUNDING AND BACK FILLING etc.

A) Materials

All materials whether to be consumed in the work or used temporarily shall conform to relevant IS specification, unless stated otherwise, and shall be of the best approved quality.

B) Cement

Cement to be used in the work under the contract shall generally conform to IS:269/455-1989. Cement bags shall be stored by the contractor in a water tight well ventilated store sheds on raised wooden platform (raised at least 150 mm above ground level) in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. Cements to be used within three months from the date of manufacture. Sub-standard or partly set cement shall not be used and shall be removed from the site by the contractor at his cost .

C) Coarse Aggregates i.e Stone chips or stone ballast. For M15 concrete (mix 1:2:4) the aggregate will be in the ranges from 12mm to 20mm.size and for M7.5 concrete (mix 1:4:8) these will be from 25mm to 40mm size.

D) Pole erection

1. **After proper alignment**, checking of verticality and leveling, the pole or structure should be properly tied before placing of base concrete of required height. Again the verticality and leveling should be checked.
2. **The RCC pedestal concrete** is to be done by providing good quality of shutters, so that there will no leakage of cement slurry during concreting. The cooping height should be **450 mm/750**

- mm above the existing ground level in urban area and in cultivated lands respectively. The top portion of the cooping should be made tapered.
3. **Above** the cooping 450 mm of pole or structure should be painted with double layer of Black Bituminous paints.
 4. **All the bolted joints** should be tightened properly by providing suitable size GI Bolt Nuts and Spring washers. After completion of erection works all the bolts should be spot welded in order to avoid theft of members.
 5. **The back filling** of locations should be done by using the excavated soil only in layers (each layer should not be more than 500 mm) by putting water and ramming by using wooden rammers. In no case stone of size more than 75mm used for back filling. Back-filling has to be done 75mm above ground level or as specified
 6. **Curing of concrete** should be done for 28 day continuously. Curing should not be done within 24 Hours of concreting.
 7. **All the excess** excavated materials and other unused materials from the concreting site should be disposed of to a suitable site by the contractor.
 - a) Mixer (Running time-2 min.)
 - b) **In case of** hand mixing, 10% extra cement has to be provided. Hand mixing should be done on GI sheet platform only.
 - c) **Poking rod** may be used for compacting in locations at PSC poles only
 - d) **Use of vibrator** for compacting is mandatory.
 - e) **Clean water** (free from saline and alkaline) should be used for concreting.
 - f) **Aggregates** (both coarse and fine) used should be free from foreign materials.
 - g) **Shutters** used should not be removed before 24hrs. of casting.
 - h) **In case of** black cotton soil borrowed earth (morum soil mixed with sand is preferable) may be used for back filling.
 - i) **Sufficient qty. of water** should be sprinkled over backfilled earth and chimney kept wet by using wet gunny bags.

5.0.4 All the persons working on tower shall wear safety helmet, safety belt and safety shoes, Similarly all the persons working on ground shall wear safety helmet and safety shoes.

5.0.4.1. If there is any LT/HT power line near the vicinity of tower erection, necessary shutdown of the power line shall be obtained in writing from the concerned Agency in order to avoid electrical hazards caused by accidental touching of stay/Guy ropes with power line.

5.0.4.2 Safety precaution Safety shall be given utmost importance during stringing. The following need to be ensured.

5.0.4.3 Safe working conditions shall be provided at the stringing site.

5.0.4.4 Full proof communication through walky- talkie / mobile phones shall be used in order to avoid any damage to workmen or public on ground.

TECHNICAL SPECIFICATIONS FOR SINGLE CORE 11

KV XLPE COVERED AAAC CONDUCTORS

1. SCOPE:

This specification covers details of All Aluminium Alloy Stranded Covered Conductors for use on 11kV (MVCC) distribution system. The conductor covered insulation shall mark EN50397-1:2006 by embossing/ printing on it at every meter through out the length. Covered conductor means a longitudinally water blocked conductor (Al Alloy) with triple extruded covering (1st semi conducting layer, 2nd XLPE insulation layer and final XLPE Outer layer with UV and Tracking resistance properties. The standard EN-50397-2/ relevant IS/ relevant IEC/ other (if any) are applicable for accessories required for erection of covered conductor and EN-50397-3 is applicable for erection of covered conductors.

2. SERVICE CONDITIONS:

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

- a) Maximum ambient temperature (DegreeC)----- 50
- b) Minimum temperature of air in shade (DegreeC) ----- 3.5
- c) Relative Humidity(%)----- 10 to 100
- d) Maximum Annual Rainfall(mm) ----- 1450
- e) Maximum Wind Pressure(kg/sq.m.) ----- 150
- f) Maximum altitude above mean sea level(meter) ----- 1000
- g) Isoceraunic level (days/year) ----- 50
- h) Seismic level (Horizontal acceleration) ----- 0.3g

3. CONDUCTOR SIZES:

- a) 7/ 3.57 mm (70 sq.mm)
- b) 7/4.25mm (99sq.mm)

4. APPLICABLE STANDARDS:

Unless otherwise stipulated in this specification , the conductor shall conform to the following Indian/International Standards (amended upto date)

SR. NO.	INDIAN/INTERNATIONAL STANDARDS	TITLE
1	IS : 398 (Part IV) / 1994	Specification for aluminium conductors for overhead transmission purpose
2	EN 50397-1:2006	Covered Conductor Specification for voltage 1KV to 33KV.
3	EN 50397-2:2006	Accessories for covered conductors -Tests and acceptance criteria

4	EN 50397-3:2006	Covered conductors for overhead lines and the related accessories for rated voltages above 1 kV a.c. and not exceeding 36 kV a.c.
5	IS : 10418	Reels and drums for bare conductors.

4. PROPERTIES OF CONDUCTOR:

The properties of stranded all aluminium alloy conductors of various sizes shall be as in Table -I.

TABLE-I ALUMINIUM ALLOY STRANDED CONDUCTOR

Actual Area	Stranding & wire dia.	Approx. overall dia.	Approx. mass	Calculated resistance at 20 d.c. (max.)	Approx. calculated Breaking Load	Short Circuit for 1 sec	Min. Current Rating
1	2	3	4	5	6	7	8
mm ²	mm	mm	Kg/km	Ohm/km	kN	KA	Amps
70	7/3.57	10.71	288	0.468	18.6	7.1	207
99	7/4.25	12.75	386	0.331	25.3	10.0	258

6 (a) PROPERTIES OF WIRES:

The properties of aluminium alloy wires to be used in the construction of the Stranded conductors shall be as per IS 398 part-IV.

6(b) TOLERANCE ON NOMINAL SIZES:

No negative tolerance shall be permitted on the nominal diameter aluminium wire used in the manufacture of AAAC COVERED. However, positive tolerance in this respect shall be as provided in IS: 398 (Part IV)/1994 (amended upto date).

7. FREEDOM FROM DEFECTS:

The wire shall be smooth and free from all imperfections such as spills, splits, slag inclusion, dia. marks scratches, fittings, blow holes, projections, looseness, overlapping of strands, chipping of aluminium layers etc. and all such other defects which may hamper the mechanical and electrical properties of the conductor. Special care should be taken to keep away dirt, grit etc. during stranding.

8. JOINTS. IN WIRES:

Conductors containing seven wires:-

There shall be no joint in any wire of a stranded conductor containing seven wires , except those made in the base rod or wire before final drawing.

9. STRANDING:-

The wires used in the construction of a stranded conductor shall, before stranding satisfy all the relevant requirements of this standard.

The lay ratio of the different layers shall be within the limits given in he Table-III.

TABLE - III : LAY RATIOS FOR ALUMINIUM ALLOY STRANDED CONDUCTORS

No. of wires in Conductors	6 - wire layer	
	Min.	Max.
7	10	14

- In all constructions, the successive layers shall have opposite directions of lay, the outer most layer being right handed. The wires in each layer shall be evenly and closely stranded. In aluminium alloy stranded conductors having multiple layers of wires, the lay ratio of any layer shall not be greater than the lay ratio of the layer immediately beneath it.

10 FILLING (WATERBLOCKING):

The Stranded Conductor shall be longitudinally water tight by means of a water blocking material incorporated during the extrusion process. The use of grease/water swellable tape / water swellable powder etc is not permitted. The water blocking material shall be stable at maximum operating conductor temperature of 90 Deg. Cent.

The water blocking compound shall be compatible with the conductor material as well as the semi conducting polymer screen layer above it and not adversely affect its electrical or mechanical properties.

11 INSULATION:

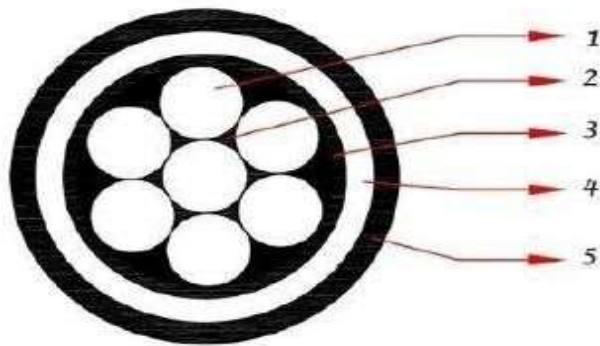
The Insulation should be dual layered with the Inner Layer being XLPE with a nominal thickness of 1.2 mm for Voltages up to 11 KV , and the Outer Layer being a suitable XLPE which is UV Resistant, Non Tracking and Erosion Resistant with a nominal wall thickness of 1.1 mm. The minimum combined Insulation Thickness of both Layers should be 2.3 mm minimum.

The conductor manufacturing and stranding process shall incorporate the Longitudinal water blocking also.

The Semi conducting compound screen, Inner insulation and outer insulation should be extruded in one step i.e. triple extrusion to ensure a good, permanent bond between the three layers and also with the conductors.

It shall be possible to remove the Semi conducting compound screen, inner & outer insulation layers without damage to the conductor.

Following figure shows the Cross Section of a AAAC COVERED Conductor.



Nos.	Description	Unit	Nominal Thickness		
			11 KV	22 KV	33 KV
1	Aluminium Alloy Wire	Sq.mm	AS PER REQUIREMENT		
2	Extruded Longitudinal Water Blocking Layer	mm	AS REQUIRED TO MAKE WATER BLOCKED ARRANGEMENT		
3	Extruded Semi conductive layer	mm	0.3	0.3	0.4
4	Inner Insulation of XLPE, without carbon black	mm	1.2	1.32	2.43
5	Outer Insulation with UV & Track Resistant XLPE	mm	1.1	1.1	1.2

12.TYPE TEST:

All the following type tests in accordance with EN 50397-1 : 2006 shall be performed on MVCC samples drawn by purchaser.

Electrical tests

- Conductor resistance
- High voltage test

For CC without conductor screen:

Test voltage (a.c.)	1U
Number of specimen	1
Length of specimen (minimum)	5m
Duration of immersion in water (minimum)	1 h
Temperature of water	(20 ± 5) deg C
Test duration	15 min (S) 1 h (T)

For CC with conductor screen or upon agreement between customer and producer:

Test voltage (a.c.)	1U
---------------------	----

Number of specimen	1
Length of specimen (minimum)	5m
Duration of immersion in water (minimum)	1 h
Temperature of water	(20 ± 5) deg C
Test duration	4 h (S) 48 h (T)

- Spark test on the covering test voltage: ac 0.7U to dc 1 U

Leakage current test voltage : ac 0.7 U

Tracking resistance

Construction and dimensions compliance with the designs requirements

Thickness of the covering

Construction and mechanical properties of the conductor rated tensile strength

Construction and dimension

12.4 Non-electrical tests on the covering

12.4.1 Mechanical Properties

a) before ageing of sample

b) after ageing of sample

12.4.2 Carbon black content

12.3.2 Resistance to UV rays

12.5 Teast of compatibility Ageing of complete product sample

12.6 Thermal properties of the covering

12.6.1 Shrinkage testDistance L between marks (200±5) mm

12.6.2 Hot-set test

12.6.3 Pressure test at high temperature (for PE cable)

12.7 Further tests on the covering

12.7.1 Water absorption

12.7.2 Shore D hardness

12.8 Test of the longitudinal water tightness

12.8.1 With heat cycle

Number of specimen	1
Length of specimen	3m
Test duration	24 h

Bending radius	20 D
----------------	------

12.8.2 Without heat cycle

Number of specimen	1
Length of specimen	1m
Test duration	1h

12.9 Marking

12.9.1 Content, legibility

12.9.2 Durability

12.10 Slipage test

The details of facility available in the manufacturer's works in this connection should be given in the bid.

14 ACCEPTANCE TESTS:

All Acceptance tests as per EN 50397-1 : 2006 as amended upto date including the optional And should offered Anti tracking testing on selective samples in manufacturer's work during acceptance test.

15 TESTING FACILITIES AND DETAILS OF EQUIPMENTS :

The supplier / tenderer shall clearly state as to what testing facilities are available in the works of manufacturer and whether the facilities are adequate to carry out type, routine and acceptance tests And Anti Tracking as mentioned in EN 50397-1 :

2006 on the MVCC. The facilities shall be provided by the bidder to purchaser's representative for witnessing the tests in the manufacturer's works. If any test cannot be carried out at manufacturer's works reason should be clearly stated in the tender.

13 END SEALING :-

Heat Shrinkable end caps with sealant shall be used for effectively sealing the end terminals of the covered conductor. The inner diameter range of cap shall be such that it shall tightly fit to the covered conductors to prevent moisture ingress.

13 PACKING AND MARKING :

The conductors shall be wound in reels or drums conforming to the latest versions of IS : 10418 (amended upto date), ' Specification for Drums for cables .

14. PACKING :

The normal length of various conductors shall be as given in the following table:

Conductor Size in sq.mm.	Normal Length in km
70 (7/ 3.57 mm)	1.5
99 (7/ 4.25 mm)	1.0

14.1.2.1 LENGTHS AND VARIATION IN LENGTHS :

The standard length of AAAC COVERED Covered shall be as per mentioned in clause. No 14.1.2 Tolerance of +/- 5%(plus or minus five percent)shall be permitted in this standard length. All the lengths outside these limits of tolerances shall be treated as random length.

Random length shall not be less than 80%(eighty percent) of the standard length specified as above and the total acceptable quantity of such random lengths shall be within 7%(seven percent) quantity of the allotted quantity to each consignee of the respective size of the conductor.

14.1.2.1 IDENTIFICATION MARKS ON COVERED CONDUCTOR:

The following particulars shall be properly legibleembossed/Printingon the coveredconductorattheintervalsofnotexceedingonemeterthroughoutthe

length of thecable. The covered conductor with poor andillegible embossing/ Printing shall be liable for rejection.

- a) Manufactures name and/or Tradename.
- b) Voltagegrade.
- c) Year ofmanufacture.
- d) TPCODL.
- e) SuccessiveLength.
- f) Size ofcable
- g) EN 50397-1 :2006

Also The following information be marked on each package :

Manufacturer'sname

- a) Trade mark ,ifany
- b) Drum or identificationnumber
- c) Size of conductor Number and lengths ofconductors
- d) Gross mass of thepackage
- g) Net mass ofconductor
- h) EN 50397-1 :2006.

15. INSPECTION :

All tests and inspection shall be made at the place of manufacturer unless otherwise especially agreed upon by the manufacturer and purchaser at the time of purchase. The manufacturer shall afford the inspector representing the purchaser all reasonable facilities

without charges, to satisfy him that the material is being furnished in accordance with this specification.

16. VERIFICATION OF LENGTH OF CONDUCTOR :

i) The Company shall ascertain the length of AAAC COVERED Conductor at supplier's works and at the receiving store centers by measuring the actual length by length measuring machine used for the purpose. The supplier should ensure that length measuring machine is available for measurement of the length by our inspecting officer.

ii) Both ends of the AAAC COVERED Conductor will be sealed by the supplier and seals will be contained in the drum and not exposed out of drum.

iii) The declared length will be measured between manufacturer's seals at both ends of AAAC COVERED Conductor.

iv) The weight of AAAC COVERED Conductor will also be checked for ensuring correct lay and length of the AAAC COVERED Conductor.

v) For the verification of the length of the conductor, 10 % of total lot (in Drums) should be selected at the works. The physical verification of the length of the conductor should be carried out for maximum up to 5 (five) drums. If there are anymore drums left for verification, then weight of each verified drum should be carried out and average weight may be calculated.

Then the weight of each of all the remaining selected drums may be taken and if these weights are matching with the average weight, then that particular lot may be accepted otherwise rejected.

vi) Verification of length of conductor will also be carried out at each stores center for two drums out of each lot. If the average length is found correct or more, the lot will be accepted. If the average length is found to be less than the declared, the percentage of such short length will be applied for reduction for the entire quantity supplied in the lot at respective stores for acceptance

vii) In case of dispute, joint inspection along with the representative of the supplier shall be carried out after giving 10 (ten) days notice to the supplier to remain present at stores center for the purpose. If the representative fails to attend on stipulated date for joint inspection, the decision of the consignee shall be final and binding.

17. REJECTION :

i) While measuring the length, the sample piece from each length shall be taken for carrying out the test as per IS: 398 (Part IV) / 1994 (amended upto date) & EN 50397-1 : 2006 . All the values of each sample should not exceed the value as per the relevant specification. In case of deviation, whole lot will be rejected at works.

ii) Specific resistivity of Aluminium Alloy wire used should not exceed 0.0328 ohm sq.mm./m at 20 degree centigrade as prescribed in IS: 398 (Part IV)/1994 (amended upto date). If the results are at variance , whole lot shall be rejected.

18. EN CERTIFICATION MARK:

The AAAC COVERED Conductor with EN 50397-1 marking only is required by the TPCODL against this tender specification and as such , only those tenderer who Make covered conductor as per EN 50397-1 for AAAC COVERED Conductor need quote against this invitation of tender.

19. SCHEDULES :

The tenderer shall fill in the following schedules which form part of the tender specification and offer.

6)GTP

Bidder shall confirm by signing with stamp on the GTP

Sl.No	Parameters	Unit	Specified Values for covered Conductor	Offered Values for covered Conductor
1	Name of the manufacture			
2	Applicable Standard		EN 50397-1:2006, IS 398-IV/1994	
3	Type of cable		AAAC Covered Conductor	
4	Voltage Grade	KV	11	
5	Nominal Cross-sectional area of conductor	mm ²	70 & 99	
6	Conductor			
a	Material		AAAC	
b	Shape		Stranded Circular and Watertight	
c	No / diameter of wire (before stranding)	No/mm	7x3.57 (For 70mm ²) 7x4.25 (For 99mm ²)	
d	Approx. conductor diameter	mm	10.71 (For 70mm ²) 12.75 (For 99mm ²)	
e	Max. D.C. Resistance at 20°C	Ω/Km	0.468 (For 70mm ²) 0.331 (For 99mm ²)	
f	Restiance Temperature co-efficient	/ °C	0.004	
g	Minimum Tensile strength of conductor	KN	18.6 (For 70mm ²) 25.3 (For 99mm ²)	
h	Aluminium Alloy		Al7/ ALMgSi	
7.0	Thickness and dimensions			
7.1	Conductor Screen			
a	Material		Extruded Semi-Conducting Compound	
b	Nominal Thickness	mm	0.3	
7.2	Insulation inner layer			
a	Material		XLPE	
b	Nominal thickness	mm	1.2	
7.3	Insulation outer layer			

a	Material		Track Resistant, UV Resistant and Erosion Resistance	
b	Nominal thickness		1.1	
7.4	Approx. Overall Diameter	mm		
8	Lightening impulse withstand strength of XLPE	KV	100	
9	Maximum continuous operating temperature	°C	90	
10	Max Load (IEC 287), cond. Temp 80 °C, air temp. 50 °C, wind speed 0.5m/s solar radiation 1200W/m2	A	 (For 70mm2) (For 99mm2)	
11	Max short circuit current, 1 sec	KA	7.1 (For 70mm2) 10 (For 99mm2)	
12	Approx. Weight	Kg/ Km	 (70mm2) (99 mm2)	
13	Standard Packing length	Km	 (70mm2) (99 mm2)	
14	Method of water tightness arrangement		Extruded, Longitudinal water blocking layer	
15	Maximum leakage current on surface of the covered conductor	mA	1.0	
16	Type of Curing		Dry Cured	
17	Embossing on Covered conductor		Voltage Grade, Year of manufacture, Name manufacture, Size of cable, TPCODL, Standard EN 50397-1:2006, IS 398-IV/1994	

The cable manufacturer should have **Type Test Certificate** of 11 KV, 99 mm2 & 70 mm2, Single Core, AAAC overhead XLPE Covered Conductor **from CPRI / ERDA only** conducted during **last 5 years**.

STANDARD TECHNICAL SPECIFICATION COVER SHEET

Specification No. : ENG-HV-2005

**Specification Name : ENG-ELC-071- SPECIFICATION FOR ACCESSORIES OF
11kV XLPE COVERED CONDUCTOR- R1**

JYOTIPRAKASH MOHANTY	SHANTAPRIYA JENA	SATYA PRASAD NAYAK	Ranjan Kumar Sahoo	VARUN BHATNAGAR	VARUN BHATNAGAR
Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
TPWODL	TPNODL	TPCODL	TPSODL	TPWODL	TPWODL
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Specification No: [ENG-HV-2005](#)

Specification Name:
SPECIFICATION FOR ACCESSORIES OF 11kV XLPE
COVERED CONDUCTOR

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1. SCOPE

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at site/store of Accessories for All Aluminum Alloy Stranded XLPE Covered Conductors for use on 11 kV Distribution System.

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
EN 50397-1:2006	Covered Conductor Specification- Up to 33 kV
EN 50397-2:2006	Covered Conductor Accessories Specification- up to 33 kV
EN 50397-2 (MARCH 2010)	Covered conductors for overhead lines and the related accessories for rated voltages above 1kV a.c. and not exceeding 36kV a.c. PART 2: Accessories for covered conductors: tests and acceptance criteria
IS 398:1996 (Part IV)	Specification for aluminum conductors for overhead distribution purpose
EN 61238-1: 2003	Compression and mechanical connectors for power cables for rated voltages up to 36 kV Test methods and requirements
ANSI C119.4 :2011	Electric Connectors - Connectors for Use Between Aluminum-To-Aluminum and Aluminum-To-Copper Conductors Designed for Normal Operation at Or Below 93 °C and Copper-To-Copper Conductors Designed for Normal Operation at Or Below 100 °C

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL.NO.	CONDITONS	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. Cm/W
12	Wind Pressure	126 kg/sq. m up to an elevation of 10 meter.
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.

Environmentally, some of the regions, where the work will take place includes hilly areas, subject to high relative humidity, which can give rise to condensation. Atmosphere is generally laden with mild acid and dust due to industrial activities. Some places are in heavily industrial polluted areas. On occasions, the combination of humid, acidic and dust condensation may create pollution conditions for outdoor equipment's. Therefore, outdoor materials and equipment's shall be designed and protected for use exposed, heavily polluted, acidic, corrosive, tropical and humid atmosphere.

4. GENERAL TECHNICAL REQUIREMENTS:

The Accessories of 11 kV XLPE Covered Conductor are specified below and shall consist of the following:

4.1 TENSION ASSEMBLY-WEDGE TYPE (TA)/ CRIMPING TYPE

Sl. No.	Technical Parameters	Desired Values
1	Name of the manufacturer	To be furnished by bidder
2	Applicable Standard	EN 50397-2
3	Range of Conductor size	50 Sq.mm to 240 Sq.mm/as per covered conductor size
4	Installation (with/without disassembly)	Ready-to-use (without disassembly)
5	Type & grade	Heat treated aluminium Alloy for Body and Weather resistant Thermoplastic for wedge/ crimping type
6	Operating/Rated voltage	11 kV/12kV

Sl. No.	Technical Parameters	Desired Values
7	Mechanical Strength	80% of the breaking load of the Conductor
8	Dimensions (mm)	To be furnished by bidder
9	Tension Load	To be furnished by bidder

4.2 NON-METALLIC ALIGNMENT TIES

Sl. No.	Technical Parameters	Desired Values
1	Name of the manufacturer	To be furnished by bidder
2	Applicable Standard	EN 50397-2
3	Range of Conductor size	50 Sq.mm to 240 Sq.mm /as per covered conductor size
4	Mounting	Can mount directly on cable without any accessories
5	Type	Top Tie/side tie/Helical tie
6	Material	UV Resistant Thermoplastic
7	Operating/Rated voltage	11 kV/12kV
8	Dimensions (mm)	To be furnished by bidder

4.3 MECHANICAL CONNECTOR WITH HEAT SHRINK SLEEVE

Sl. No.	Technical Parameters	Desired Values
1	Name of the manufacturer	To be furnished by bidder
2	Applicable Standard	IEC 61238-1
3	Range of Conductor size	For Phase conductor of diameter range 50-240 sq.mm/as per covered conductor size
4	Installation	Crimping by shear head bolt compression
5	Type of connection required	Connection by compression pressure
6	Is any metallic part carrying potential in operation exposed during installation	No
7	Material	Aluminium Alloy For mechanical connector UV resistant polymer for heat shrink sleeve
8	Connector ID	Ø 14 mm to Ø 33 mm

4.4 INSULATION PIERCING CONNECTOR

Sl. No.	Technical Parameters	Desired Values
1	Name of the manufacturer	To be furnished by bidder
2	Applicable Standard	EN 50397-2
3	Range of Conductor sizes accommodated for Main & Branch	Main : 50 - 240 sq.mm Tap : 50 - 240 sq.mm /as per covered conductor size
4	Operating/Rated voltage	11 kV/12kV
5	Type of connection required	Insulation Piercing Type (Covered to Covered)
6	Is any metallic part carrying potential in operation exposed during installation	No
7	Are end caps of branch cable a) Slide on type (b) Rigid	Slide on type
8	Are torque limiting shear heads provided to tightening bolts	Yes
9	Specified Torque	18±1.5 Nm
10	Torque for establishing connection between main and Tap (Nm)	Within 70% of Min. Torque specified

4.5 MID SPAN JOINTS

Sl. No.	Technical Parameters	Desired Values
1	Name of the manufacturer	To be furnished by bidder
2	Applicable Standard	EN 50483-4
3	Type No & Size Range	For Phase conductor of 50 Sq.mm to 240 sq.mm /as per covered conductor size
4	Operating/Rated voltage	11 kV/12kV
5	Type of connection required	Crimping type
6	Is any metallic part carrying potential in operation exposed during installation	No
7	Installation	Crimping by Hexagonal Compression

5. GENERAL CONSTRUCTIONS:

5.1 TENSION ASSEMBLY-WEDGE TYPE (TA)

For fitting onto a pole for tensioning at the beginning or end of a length of Covered Conductor, or for anchoring while a major change in direction. The Tension assembly consists of one wedge type Tension anchoring clamp and one Tracking protection IPC.

The following key criterion to be followed for the design of the same: -

- a) There shall be no losable part (except Tracking IPC) in the process of clamping arrangement.
- b) The clamp should consist of an Aluminum alloy corrosion resistant casted body and self-adjusting fully insulating type of mechanical and weather resisting thermoplastic wedges which shall anchor/hold the conductor.
- c) Locking mechanism should be wedge type self-locking. Wedges are to be made of high strength, climatic resistance Engineering Plastic with glass fiber.
- d) The fittings shall be able to withstand the specific minimum failure load (SMFL) and shall not damage the covering of cable. SMFL is the minimum failure load for clamp at which mechanical failure will not take place.
- e) No tools shall be needed for fitting the Covered Conductor into the clamp.
- f) The Anchoring clamp shall have an IPC to avoid tracking phenomenon by maintaining the metallic clamp as well as the cable passing through it at equipotential.

5.2 NON-METALLIC ALIGNMENT TIES:

For supporting and aligning Covered Conductor at an intermediate pole in a length, with small angle of deviation. The Tie hold the Covered Conductor in its position on top of the pin insulator. Tie consists of an "Insulated Plastic" Type for Lin Alignment. The ties shall be designed suitably to hold the Covered Conductor in its position on top of the insulator. The Tie shall be made of Insulating Plastic materials (UV Resistant Thermoplastic) to ensure tracking resistance and to avoid any insulation damage to covered conductor due to abrasion while mechanical or wind induced vibration. Plastic coated metallic ties are not allowed.

5.3 MECHANICAL CONNECTOR WITH HEAT SHRINK SLEEVE:

It is used for main (Bare) to main (Covered Conductor) networking Connection. This connector is to ensure the electrical characteristics with in the required limits, while ensuring necessary insulation protection against tracking and water penetration on Covered Conductor. The body as well as the shear head screws of the mechanical connector should be made of aluminum alloy. It should have a centered bore with tapered edges and a moisture block barrier in the center of the tube. Heat shrink sleeve shall be rated for up to 12kV

5.4 INSULATION PIERCING CONNECTOR:

Insulation Piercing Connectors (IPC) are used for making Tee / Tap-off/ connections to a Covered Conductor. Insulation Piercing Connectors are designed to make a connection between the uncut main conductor and a branch cable conductor without having to strip either cable to expose the conductor. Instead, the tightening action of the IPC will first pierce the Insulation, then make good electrical contact between the main and branch conductor while simultaneously insulating and sealing the connection. The connector bodies shall be made entirely of mechanical and weather resistant plastic insulation material made of weather & UV resistant reinforced polymer and no metallic part outside the housing is acceptable except for the tightening bolt or nuts.

Any metallic part that is exposed must be free from potential during or after connector installation.

Screws or nuts assigned for fitting with IPC (Insulating Piercing connector), must be fitted with torque limiting shear heads to prevent over tightening or under tightening.

The min & max torque values should not exceed 27 N mtr for IPC for main conductor < 95 sq mm, and 42 Nmtr for main conductor >95, but < 240 sq mm.

The contact teeth or blade of the connector is made of tinned copper with equivalent Cross Section with respect to % IACS to suit the max branch cable size declared. The shear bolt/nut shall be suitable for tightening with a hexagonal socket of 13 mm or 17mm.

The IPCs shall be water proof and the water tightness shall be ensured by appropriate elastomeric materials and not by grease, gel or paste alone. Grease can be applied to protect the contact blade alone and shall not be visible on the outer surface of the connector. Connector should not be dipped in grease.

Each IPC should be provided with a cap to seal the cut end of the Branch cable. It should be of a design that once the connector is installed, it should not be possible to remove the cap without dismantling the connector.

All the metallic parts of the connector should be corrosion resistant and there should not be any appreciable change in contact resistance & temperature after overloads & load cycling and should confirm to the long duration tests specified in this standard.

5.5 MID SPAN JOINTS:

Mid-span tension joints for jointing covered conductor over a span. The sleeves should be Pre-Insulated type. Sleeve should be made of Aluminum, insulated with an Anti-UV black thermoplastic tube hermetically sealed two ends with 2 flexible rings. Strip length, Hexagonal crimping die reference and size to be marked on the outer surface of plastic sleeve.

5.6 ARC PROTECTION DEVICES:

Arching Horn Assembly is an Arc protection device for power arc evacuation without insulator damage. The arching Horn Assembly protection device consists of:

- a) Two arcing horns with adjustable distance “L” directly mounted on the insulator terminals.
- b) A covered conductor with clamp on the horn side.



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- c) An insulation piercing connector on the main cable side.

6. MARKING:

The following particulars shall be properly legible embossed/Printing on the accessories.

- a) Name & Trade mark of the manufacturer
- b) Product Code
- c) Batch Number
- d) The minimum and maximum cross section of Conductor for which the unit is suitable
- e) Month and Year of Manufacturer
- f) "TPWODL/ TPCODL/ TPNODL/ TPSODL" Name

7. TESTS

A type test shall be performed on the accessories. All the Acceptance test, Type test and Routine test should be as per EN 50397-2 and latest amendment. The bidder shall be required to submit complete set of the following test reports along with the offer: -

7.1 ACCEPTANCE TESTS

i) Tension Assembly-Wedge Type (TA)

- a) Visual examination
- b) Dimension verification
- c) Tensile test at ambient temperature
- d) Check for permanent marking

ii) Non-Metallic Alignment Ties

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Failure Load Tests
- e) Slip Load Tests
- f) Lift / Side Load Tests

iii) Mechanical Connector with Heat Shrink Sleeve

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test
- e) Water Tightness test

iv) Insulation Piercing Connector

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test

v) Mid Span Joints

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test

vi) Arc Protection Devices

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Clamp Bolt Tightening Test
- e) Short Circuit test

7.2 ROUTINE TESTS**i) Tension Assembly-Wedge Type (TA)**

- a) Visual examination
- b) Dimension verification

ii) Non-Metallic Alignment Ties

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Failure Load Tests
- e) Slip Load Tests
- f) Lift / Side Load Tests

iii) Mechanical Connector with Heat Shrink Sleeve

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test

- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test

v) Mid Span Joints

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test

vi) Arc Protection Devices

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Clamp Bolt Tightening Test

7.3 TYPE TESTS

i) Tension Assembly-Wedge Type (TA)

- g) Visual examination
- h) Dimension verification
- i) Tensile test at ambient temperature
- j) Tensile test at low temperature
- k) Tensile test at high temperature
- l) Corrosion test
- m) Climate ageing test
- n) Check for permanent marking

ii) Non-Metallic Alignment Ties

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Failure Load Tests
- e) Slip Load Tests
- f) Lift / Side Load Tests
- g) Thermal Tests under load
- h) Corrosion test



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i) Climate ageing test

iii) Mechanical Connector with Heat Shrink Sleeve

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test
- e) Water Tightness test
- f) Climatic Ageing Test
- g) Corrosion Test
- h) Electrical Ageing Test

iv) Insulation Piercing Connector

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test
- e) Water Tightness test
- f) Climatic Ageing Test
- g) Corrosion Test
- h) Electrical Ageing Test

v) Mid Span Joints

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Mechanical Test
- e) Water Tightness test
- f) Climatic Ageing Test
- g) Corrosion Test

vi) Arc Protection Devices

- a) Visual examination
- b) Dimension verification
- c) Check for permanent marking
- d) Clamp Bolt Tightening Test
- e) Short Circuit test



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8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at CPRI / ERDA as per relevant IS/ IEC standard and as per CEA guidelines. Type tests should have been conducted in certified Test laboratories during the period not exceeding **7 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 TPWODL/ TPCODL/ TPNODL/ TPSODL.

9. PRE-DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPWODL/ TPCODL/ TPNODL/ TPSODL. 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 TPWODL/ TPCODL/ TPNODL/ TPSODL's representatives at all times when the work is in progress. Inspection by the TPWODL/ TPCODL/ TPNODL/ TPSODL 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 TPWODL/ TPCODL/ TPNODL/ TPSODL.

Following documents shall be sent along with material.

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

10. INSPECTION AFTER RECEIPT AT STORES:

The material received at TPWODL/ TPCODL/ TPNODL/ TPSODL, 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,

TPCDL
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TPNDL
TPSDL

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as an integrated product delivered under this contract. In the event any defect is found by the Company up to a period of 24 months from the date of commissioning or 30 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.

The bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of guarantee period for any 'latent defects' if noticed by the company.

The guarantee clause is applicable for all the items covered in this specification.

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.

13. TENDER SAMPLE:

Bidder shall submit the sample of material during submission of Bids.

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:

The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

18. DRAWINGS AND DOCUMENTS

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

- Completely filled in Schedule "A" Guaranteed Technical Particulars & Schedule "B" Deviations
- Work Experience details
- Type test certificates.
- Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

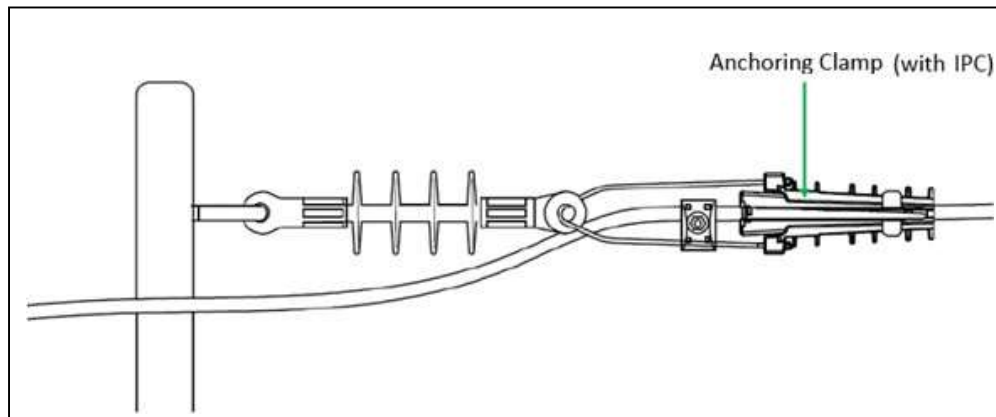


Fig.1: - Tension Assembly (TA) with Anchoring clamp and one Tracking protection IPC

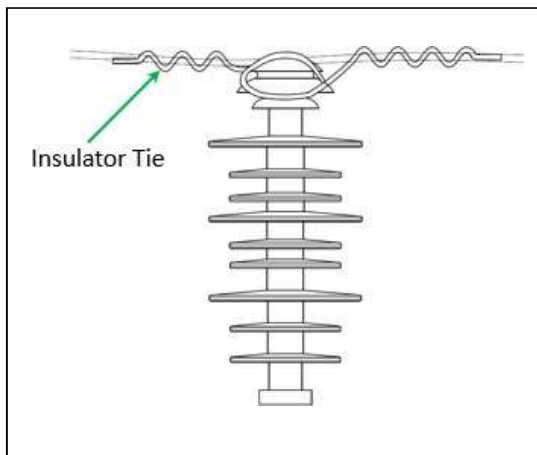


Fig.2: - Non-Metallic Alignment Tie

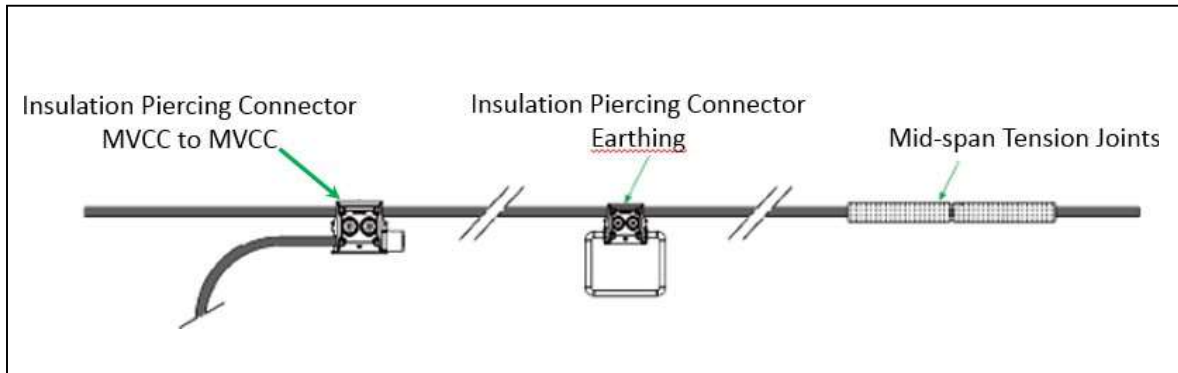


Fig.3: - Insulation Piercing Connector for Networking / Branching /Looping and MidspanJoints

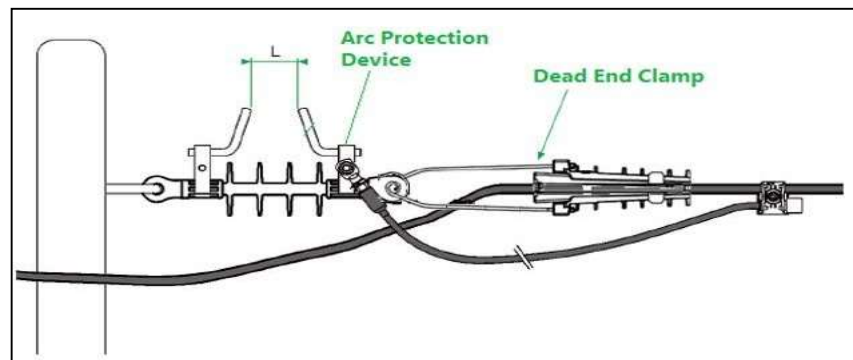


Fig.4:- Arc Protection Device

Note:- These are the Sample Drawing for tender purpose only.

19. SCHEDULE- “A” GUARANTEED TECHNICAL PARTICULARS

TENSION ASSEMBLY-WEDGE TYPE (TA)

Sl. No.	Technical Parameters	To Be Furnished By The Bidder
1	Name of the manufacturer	
2	Applicable Standard	
3	Range of Conductor size	
4	Installation (with/without disassembly)	
5	Type & grade	
6	Application	
7	Mechanical Strength	
8	Dimensions (mm)	
9	Tension Load	

NON-METALLIC ALIGNMENT TIES

Sl. No.	Technical Parameters	To Be Furnished By The Bidder
1	Name of the manufacturer	
2	Applicable Standard	
3	Range of Conductor size	
4	Mounting	
5	Type	
6	Material	
7	Application	
8	Dimensions (mm)	

MECHANICAL CONNECTOR WITH HEAT SHRINK SLEEVE

Sl. No.	Technical Parameters	To Be Furnished By The Bidder
1	Name of the manufacturer	
2	Applicable Standard	
3	Range of Conductor size	
4	Installation	
5	Type of connection required	
6	Is any metallic part carrying potential in operation exposed during installation	
7	Material	
8	Connector ID	

INSULATION PIERCING CONNECTOR

Sl. No.	Technical Parameters	To Be Furnished By The Bidder
1	Name of the manufacturer	
2	Applicable Standard	
3	Range of Conductor sizes accommodated for Main & Branch	
4	Application	
5	Type of connection required	
6	Is any metallic part carrying potential in operation exposed during installation	
7	Are end caps of branch cable a) Slide on type (b) Rigid	
8	Are torque limiting shear heads provided to tightening bolts	
9	Specified Torque	
10	Torque for establishing connection between main and Tap (Nm)	



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MID SPAN JOINTS

Sl. No.	Technical Parameters	To Be Furnished By The Bidder
1	Name of the manufacturer	
2	Applicable Standard	
3	Type No & Size Range	
4	Application	
5	Type of connection required	
6	Is any metallic part carrying potential in operation exposed during installation	
7	Installation	

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-GEN-4011

Specification Name : Specification for 9 Mtr 300 Kg PSC Pole

SANTOSH KUMAR PATRA	SATYA PRASAD NAYAK	SHANTAPRIYA JENA	Ranjan Kumar Sahoo	ANUP JAWASE	VARUN BHATNAGAR
Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
TPWODL	TPCODL	TPNODL	TPSODL	TPWODL	TPWODL
08-02-2023	09-02-2023	14-02-2023	14-02-2023	15-02-2023	17-02-2023

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TPWODL*

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1. SCOPE:

This specification covers the technical requirements of design, manufacturing, Testing, inspection before dispatch at manufacturer's works packing, Loading, forwarding and unloading at site/store PSC poles having length of 9 Meter working load of 300 Kg to ensure trouble free and efficient operation.

2. APPLICABLE STANDARDS:

The poles shall comply with relevant provisions made in the following Indian Standards:

IS: 1678/1998	Specification for Prestressed concrete poles for overhead Power traction and telecommunication lines
IS: 2905/1989	Method of test for concrete poles for Overhead Power and Telecommunication lines.
IS 6003:1983	For intended wire for prestress concrete
IS 8112:1989	For intended wire for prestress concrete
IS 383: 1970	Specification for coarse and fine aggregate from natural resources for concrete
IS 9103:1999	Concrete and mixture
IS 456: 2000	Plain and reinforced concrete code of practice
REC 15/1979	Prestressed cement concrete poles (FOS/2.5) for 11 KV and LT lines.
IS 8112	43 Grade Ordinary Port Land Cement.
IS 8041	Rapid Hardening Portland Cement
IS 1343	Pre-Stressed Concrete

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	150cm
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/ TPWODL/ TPSODL 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: (9 MTR. 300KG PSC POLE)

Sl. No.	Particulars	Unit	Requirements
1	Name of the Manufacturer & Address		To be specified
2	Type of pole		Pre- Stress Concrete
3	Factor of Safety		2.5
4	Overall Length of Pole Meters	Mtr.	9
5	Working Load Kg	Kg	300
6	Point of application of load		600 mm below from top
7	Depth of plantation	mm	1500
8	Overall Dimensions		
i)	Bottom Depth	mm	355
ii)	Top Depth	mm	185
iii)	Breadth	mm	100
9	Reinforcement Detail:		
i)	Diameter of Pre-stressing wire	mm	4
ii)	No. of Tensioned wires	Nos.	20
iv)	Length of each Pre-stressing wire	Mtr.	9
v)	Ultimate Tensile Strength	Kg/cm ²	17500
vi)	Steel Quantity	Kg/pole	22
vii)	Length of Earth Wire	Mtr	7.3
10	Concrete Detail		
i)	Cement Type		Ordinary Portland Cement
ii)	Grade		43/53 Grade
iii)	Type		M 42
ii)	Concrete mix strength	Kg/cm ²	a) 210 Kg/cm ² at time of transfer of prestress (min)
		Kg/cm ²	b) 420 Kg/cm ² at age of 28 days (min)
iii)	Concrete Quantity	Cubic meter/po	0.243 m ³
iv)	Concrete covering to wires	mm	22
11	GI earthing wire	SWG	6
12	Weight of PSC Pole	Kg	607
13	GI Earth Wire with top & bottom 200mm(min) projection outside.		250mm (from Top)
			1900 (from bottom)
14	18mm Holes at a distance from Top		100, 200,1000 mm
15	Standard confirming to:		
	Pole		IS: 1678 /2000
	Cement		IS: 8041
	Aggregates		IS: 383/1970
	Pre-stressing wire		IS: 6003/1983
	Concrete Mix		IS: 456/2000
16	Tolerances Dimensions		a) ±15 mm on overall length of pole
			b) ±5 mm on sectional dimension
			c)0.5% on the uprightness of pole

Sl. No.	Particulars	Unit	Requirements
17	Marking (embossed/engraved/painted)		“Property of TPCODL/TPNODL/TPWODL/TPSODL, Odisha”, material code and P.O. No. with date along with the following details: 1. Manufacturer’s name. 2. Month and Year of manufacture. 3. Serial number of the pole 4. Position of centre
18	Depth of planting (Red Colour Painted)		A strip of 20-30 mm shall be painted with oil paint of red colour, on all over of the pole at a planting depth.

5. GENERAL CONSTRUCTIONS/REQUIREMENTS:

- The pole shall be manufactured as per TPCODL/TPNODL/TPWODL/TPSODL tender drawing and specification such that strength in the direction of the line shall not be less than one quarter of the strength required in transverse direction. The ultimate transverse load shall be assumed to act at 600mm below the top of the pole.
- Mix design done earlier, not prior to one year may be considered adequate for work provided there is no change in source and the quality of the materials otherwise BA shall carry out Concrete Mix Design from TPCODL/TPNODL/TPWODL/TPSODL approved lab / agency and submit the same for approval prior to commencement of work. This activity shall be completed within 30 days of issuance of PO. TPCODL/TPNODL/TPWODL/TPSODL shall within seven days provide comments / approval for the same. OPC 43/53 grade shall only be used in concrete.
- Curing of poles shall commence after setting of the concrete. The pole shall be covered with well burlaps, gunny bag and kept continuously moist, until transfer of prestress (de- tensioning). After this the curing may be continued either by providing moist covers as before or by immersion of the poles in the curing vat.
- Pre-stressing shall be done using a dynamometer.
- All tendon shall be cut flushing the surface and shall not remail projected. End capping at both end of the pole shall be done preferably with sealing compound / applying three coats of anti-corrosive bituminous paint confirming to IS: 9862/1981 after grinding the exposed reinforcement.
- Cement - Dalmia, Ultratech, Lafarge, Birla, Ambuja, ACC, Shree, Nuvoco. 4mm steel tendon – TATA, Bajrang, SAIL, Jindal, RINL.

6. MARKING:

Every pole shall be embossed/engraved/painted with “Property of TPCODL/TPNODL/TPWODL/TPSODL, Odisha”, material code and P.O. No. with date along with the following details.

- Manufacturer’s name.
- Month and Year of manufacture.
- Serial number of the pole
- Position of centre
- Depth of planting (Red Colour Painted)

A strip of 20-30 mm shall be painted with oil paint of red colour, on all over of the pole at a planting depth.

7. TESTS CERTIFICATE:

The bidder shall be required to submit complete set of the following test reports along with the offer

1. Transverse Strength Test
2. Ultimate Transverse Strength Test
3. Cube test
4. Dimensional Check

Acceptance test:

1. Dimensional Check for overall length, cross sectional, dimensional & uprightness
2. Transverse Strength Test
3. Test for Cover
4. Concrete Mix M42
5. Marking above Planting depth

8. TESTS:

The bidder shall furnish test certificates as mentioned above. 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/TPWODL/TPSODL.

9. PRE DISPATCH INSPECTION:

Material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPWODL/TPSODL. Inspection may be made at any stage of manufacture at the option of the TPCODL/TPNODL/TPWODL/TPSODL and the equipment if found unsatisfactory as to workmanship or material is liable to rejection. Supplier shall grant free access to the places of manufacture to TPCODL/TPNODL/TPWODL/TPSODL representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications.

Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPCODL/TPNODL/TPWODL/TPSODL. Following documents shall be sent along with material

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL

- c) Invoice in duplicate
- d) Packing list
- e) Drawings
- f) Delivery Challan
- g) Guarantee / Warrantee card
- h) Other Documents (as applicable).

10. INSPECTION AFTER RECEIPT AT STORES:

The material received at TPCODL/TPNODL/TPWODL/TPSODL Store/Site 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 12 months from the date of supply, the bidder shall be liable to undertake to replace/rectify such defects at its own costs, within 45 day's time frame and to the entire satisfaction of TPCODL/TPNODL/TPWODL/TPSODL, failing which TPCODL/TPNODL/TPWODL/TPSODL will be at liberty to get it replaced/rectified at the bidder risks and cost and recover all such expenses plus the company's own charges (@20% of total expenses incurred) from the bidder or from the "Security from Performance Deposit" as the case may be.

12. PACKING:

The bidder shall ensure that all material covered under this specification shall be prepared for rail/road transport in a manner to protect the material from damage in transit.

13. TENDER SAMPLE:

Not Applicable.

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. TESTING FACILITIES:

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

16. MANUFACTURING ACTIVITIES:

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS:

The bidder shall make his own arrangement for all the tools, plants and machineries such as formwork, electrically /Mechanically operated Mixer, Vibrator, Submersible Pump, Testing Machine, Gauges, Chain Pulley block, Gantries, measuring instrument, tension test assembly etc. required for manufacturing, inspection and testing of PSC Poles.

18. DRAWINGS AND DOCUMENTS:

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

- a) Signed & Stamped Copy of clause wise compliance of technical specification & Schedule of Deviations.
- b) Work Experience details.
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.
- e) Signed & stamped copy of pre-bid queries.

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:

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-HV-2026

Specification Name : Technical Specification For V cross Arm 11 KV

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
BARSHA BANDITA	DEEPAK BADATYA	K GOVINDARAJ	Ranjan Kumar Sahoo	KHAJAN BHARDWAJ	POURUSH GARG
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
17-04-2023	02-05-2023	04-05-2023	09-05-2023	23-05-2023	22-06-2023

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   	Specification No: ENG-HV-2026 Specification Name: Technical Specification For V cross arm 11KV
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1. SCOPE:

This specification covers the design, manufacture, testing and supply of 11kV GI V Cross Arm to be used in Structures. Scope also includes transportation & unloading at store / site.

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:

IS 2062	Hot Rolled Medium and High Tensile Structural Steel
IS 1852	Rolling and Cutting Tolerances for Hot Rolled Steel products
IS 2633	Methods for testing uniformity of coating of zinc coated articles
IS 4759	Hot-dip zinc coatings on structural steel and other allied products
IS 6745	Method for determination of mass of zinc coating on zinc coated iron and steel articles

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL.NO.	CONDITONS	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

 	Specification No: ENG-HV-2026
 	Specification Name: Technical Specification For V cross arm 11KV

SL.NO.	CONDITONS	VALUES
12	Wind Pressure	126 kg/sq. m up to an elevation of 10 meter.
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/ TPWODL 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, dust in suspension during the dry months, and is subjected to fog in cold months.

4. GENERAL TECHNICAL REQUIREMENTS:

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Materials	75X40X4.8 mm Channel , 50X50X6 mm GI Plate
2	Galvanisation process	Hot-Dip Galvanized
3	Relevant Standard	IS: 2062, IS: 2633, IS: 2629, TPCO-OTH-010.
4	Make	SAIL, JINDAL, RINL & TATA (Billet with re rolling not allowed)
5	Weight of Cross Arm	10.5 KG (Approx.)
6	Grade of Steel	E 250 A
7	Minimum Tensile Strength	410 N/mm ²
8	Yield Stress	250 N/mm ²
9	Percentage Elongation (Min.) at Gauge Length	23%
10	Bend Test (Internal Dia)	Min-2t
11	Mass of Zinc Coating	Min 705 gm/m ²
12	Zinc Coating Thickness	Min 100 micron (6 Dip)
13	Chemical composition	Grade: E 250 A (As per IS: 2062)
14	Tolerances	As per IS 1852 latest amendments

5. GENERAL CONSTRUCTION:

The Chemical composition and Physical properties of the finished material shall be as per the equivalent standards. Chemical Composition and Physical Properties shall conforming to IS: 2062. The approved makes are SAIL, JINDAL, RINL & TATA (Billet with re rolling not allowed).

5.1 CHEMICAL COMPOSITION

Chemical composition for 250 A Grade

- a) C - 0.23% Max
- b) Mn - 1.5% Max
- c) S - 0.045% Max
- d) P - 0.045% Max
- e) SI - 0.40% Max
- f) CE (Carbon Equivalent) - 0.42%

5.2 Galvanization:

All 11kV V Cross Arms shall be hot dip galvanized, are as following:

- a) All galvanizing shall be carried out by the hot dip process, in accordance with Specification IS 2629.
- b) The zinc coating (Min 705 gms per sq.mt / 100Micron, 6 Dips) shall be smooth, continuous and uniform. It shall be free from acid spot and shall not scale, blister or be removable by handling or packing.
- c) There shall be no impurities in the zinc or additives to the galvanic bath which could have a detrimental effect on the durability of the zinc coating. Purity of zinc shall be Zn 99.95% or better.
- d) In the event of damage to the galvanizing the method used for repair shall be subject to the approval of the Engineer in Charge or that of his representative. Repair of galvanization at site will not be permitted in any situation.
- e) Partial immersion of the work shall not be permitted and the galvanizing tank must therefore be sufficiently large to permit galvanizing to be carried out by one immersion.
- f) After galvanizing no drilling or welding shall be performed on the galvanized parts. To avoid the formation of white rust galvanized materials 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. The galvanized steel shall be subjected to test as per IS-2633.
- g) Quality of Hot Dip Galvanization should comply with IS 2629, ISO 1461 & should be guaranteed for any type of damage due to harsh climatic condition for 5 Years. These V Cross Arms are to be used in coastal areas of Odisha where climate is hot, humid & saline. These areas are prone to flood & frequent rainfall.

6. MARKING:

Following distinct non-erasable embossing is to be made on each Channel and Angles to be supplied to TPCODL/TPWODL/TPNODL/TPSODL under this Tender.

a) Manufacturer Name/ Trade Mark

Engraved Marking (Punching before galvanization)

a) "TPCODL/TPWODL/TPNODL/TPSODL"

b) Year of manufacturing

c) PO Number

7. TESTS:

The bidder shall be required to submit complete set of the following test reports along with the offer:

7.1 ACCEPTANCE TESTS

- i) Chemical Composition
- ii) Mechanical Properties
- iii) Dimension Test & Weight (kg/M) Visual Examination,
- iv) Test in respect of Hot Dip Galvanization i.e. Thickness of zinc coating in microns

7.2 ROUTINE TESTS

Same as Acceptance Test

7.3 TYPE TESTS

- i) Chemical Composition
- ii) Mechanical Properties
- iii) Test in respect of Hot Dip Galvanization i.e. thickness of zinc coating in microns

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI/ERDA/ Other Govt. Lab** as per relevant IS. However, TPCODL/ TPWODL/ TPNODL/ TPSODL. TATA-POWER reserves the right to allow any other NABL accredited/ Govt. lab report under exceptional circumstances after due diligence/ scrutiny by DISCOM. Type tests should have been conducted 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/ TPWODL/ TPNODL/ TPSODL.

9. PRE-DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPWODL/TPNODL/TPSODL. 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/TPWODL/TPNODL/TPSODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPWODL/TPNODL/TPSODL 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/TPWODL/TPNODL/TPSODL. Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/TPWODL/TPNODL/TPSODL
- c) TPCODL/TPWODL/TPNODL/TPSODL 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 STORE:

The material received at TPCODL/TPWODL/TPNODL/TPSODL, 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 12 months from the date of commissioning or 24 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.

Galvanization Guarantee- Quality of Hot Dip Galvanization should be guaranteed for any type of

damage due to harsh climatic condition for 5 Years.

12. PACKING:

Supplier shall ensure that all material covered by 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. The bidder shall provide instructions regarding handling and storage precautions to be taken at site.

13. TENDER SAMPLE:

The Bidder shall provide 1 no. sample of the product. The product will be accepted only if it meets all specifications as defined in the document.

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. TESTING FACILITIES:

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

16. MANUFACTURING FACILITIES:

The bidder shall get the approved drawing and GTP before start of manufacturing activity. The successful bidder will have to submit details of the offered design & components for approval as per specification. CAT-A/CAT-B is mandatory to start manufacturing.

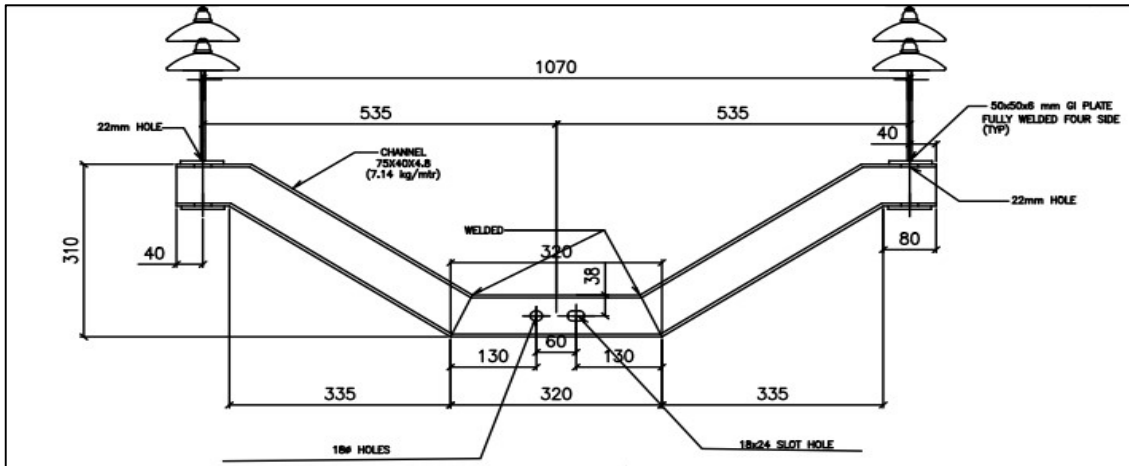
17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

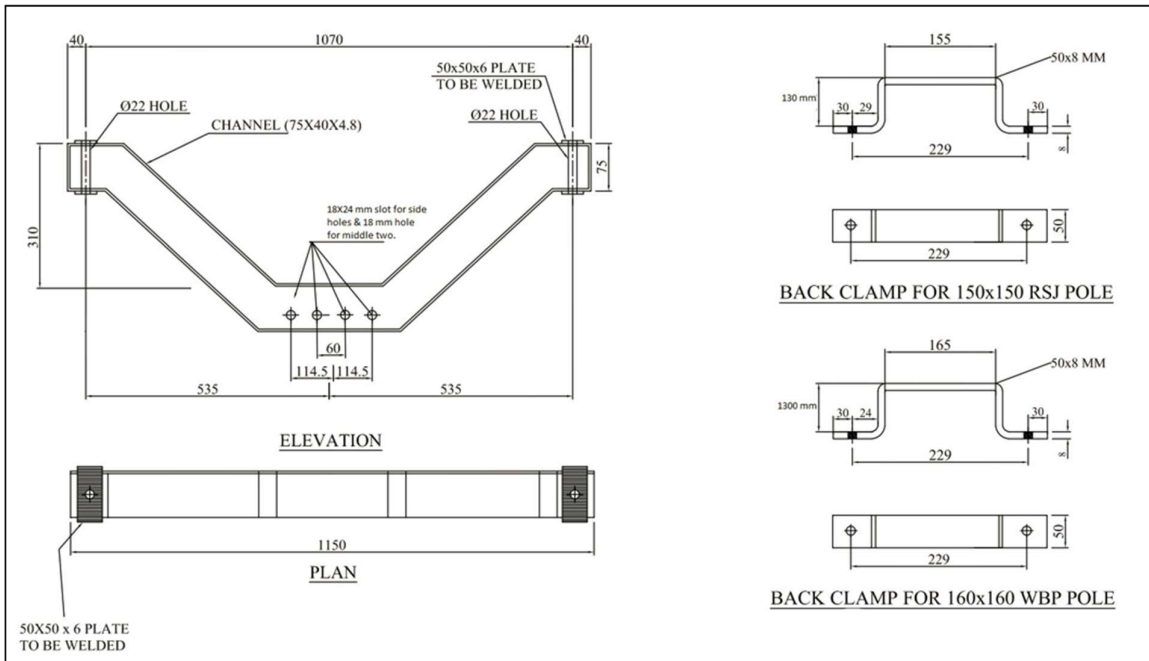
18. DRAWINGS AND DOCUMENTS:

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

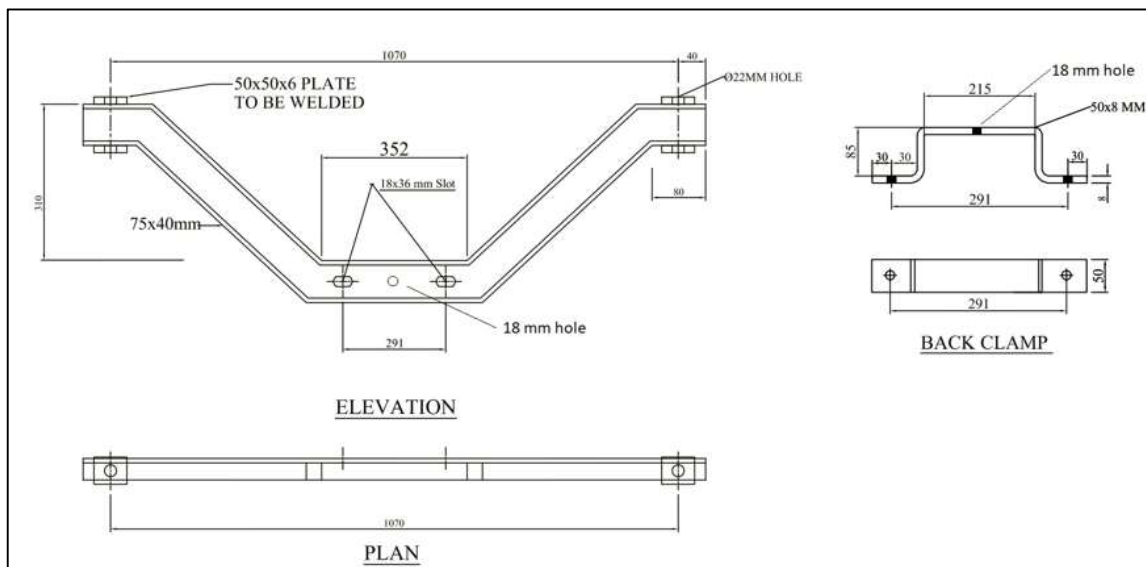
- a) Completely filled-in clause wise compliance of the specification
- b) Schedule "B" Deviations
- c) Work Experience details
- d) Type test certificates.
- e) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.



OPTION1:- Arrangement in WPB Pole



OPTION2:- Arrangement in WPB and RSJ Pole



OPTION3:- Arrangement in 9 Mtr. PSC Pole

Note:- The drawing is for tender purpose only and indicative in nature & will be finalized during detailed engineering.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:

Bidder to submit completely clause wise compliance of this specification

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-GEN-4027

Specification Name : Technical Specification For GI Channel & Angle, GI Top Bracket

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
BARSHA BANDITA	ANUP SAMAL	TANISA PRAHARAJ	Jyoti Ranjan Sahu	KHAJAN BHARDWAJ	POURUSH GARG
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
28-02-2023	03-03-2023	03-03-2023	09-03-2023	18-03-2023	18-03-2023

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	Specification No: ENG-GEN-4027 Specification Name: Technical Specification For GI Channel & Angle, GI Top Bracket
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20. SCHEDULE "B" DEVIATIONS

   	Specification No: ENG-GEN-4027 Specification Name: Technical Specification For GI Channel & Angle, GI Top Bracket
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1. SCOPE:

This specification covers the design, manufacture, testing and supply of GI Structural Items includes Channel, Angles and Top brackets to be used in Structures. Scope also includes transportation & unloading at store / site.

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:

IS 2062	Hot Rolled Medium and High Tensile Structural Steel
IS 1852	Rolling and Cutting Tolerances for Hot Rolled Steel products
IS 2633	Methods for testing uniformity of coating of zinc coated articles
IS 4759	Hot-dip zinc coatings on structural steel and other allied products
IS 6745	Method for determination of mass of zinc coating on zinc coated iron and steel articles

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL. NO.	CONDITONS	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

 	 	Specification No: ENG-GEN-4027 Specification Name: Technical Specification For GI Channel & Angle, GI Top Bracket
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SL. NO.	CONDITIONS	VALUES
12	Wind Pressure	126 kg/sq. m up to an elevation of 10 meter.
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.

Environmentally, some of the regions, where the work will take place include coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas. Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere.

The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months. The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.

4. GENERAL TECHNICAL REQUIREMENTS:

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE			
		100X50X5 mm	75X40x4.8 mm	65X65X6 mm	50X50X6 mm
1	Material	Hot-Dip Galvanized Channel	Hot-Dip Galvanized Channel	Hot-Dip Galvanized Angle	Hot-Dip Galvanized Angle
2	Relevant Standard	IS: 2062, IS: 2633, IS: 2629, IS: 4759	IS: 2062, IS: 2633, IS: 2629, IS: 4759	IS: 2062, IS: 2633, IS: 2629, IS: 4759	IS: 2062, IS: 2633, IS: 2629, IS: 4759
3	Make	SAIL, JINDAL, RINL & TATA (Billet with re rolling not allowed)			
4	Grade of Steel	E 250 A	E 250 A	E 250 A	E 250 A
5	Minimum Tensile Strength in Mpa	410	410	410	410
6	Yield Stress in Mpa	250	250	250	250
7	Percentage Elongation (Min.) at Gauge Length	23%	23%	23%	23%

 	 	Specification No: ENG-GEN-4027 Specification Name: Technical Specification For GI Channel & Angle, GI Top Bracket
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SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE			
		100X50X5 mm	75X40x4.8 mm	65X65X6 mm	50X50X6 mm
8	Bend Test (Internal Dia)	Min-2t	Min-2t	Min-2t	Min-2t
9	Mass of Zinc Coating	Min 705 gm/m ²	Min 705 gm/m ²	Min 705 gm/m ²	Min 705 gm/m ²
10	Zinc Coating Thickness & No of Dips	Min. 100 Micron at every point with 6 Dips	Min. 100 Micron at every point with 6 Dips	Min. 100 Micron at every point with 6 Dips	Min. 100 Micron at every point with 6 Dips
11	Chemical composition	Grade: E 250 A (As per IS: 2062)	Grade: E 250 A (As per IS: 2062)	Grade: E 250 A (As per IS: 2062)	Grade: E 250 A (As per IS: 2062)
12	Standard length of supply For Channel and Angles only	6 Metre Long			
13	Tolerances	As per IS 1852 latest Amendment			

5. GENERAL CONSTRUCTION:

The Chemical composition and Physical properties of the finished material shall be as per the equivalent standards. Chemical Composition and Physical Properties shall conforming to IS: 2062. The approved makes are SAIL, JINDAL, RINL & TATA (Billet with re rolling not allowed). Mass of the Channel and Angles are as follows:-

- 100x50x5 mm:- 9.56kg/m
- 75x40x4.8 mm:- 7.14kg/m
- 65x65x6 mm:- 5.8kg/m
- 50x50x6 mm:-4.5kg/m

5.1 CHEMICAL COMPOSITION

Chemical composition for E 250 A Grade

- C - 0.23% Max
- Mn - 1.5% Max
- S - 0.045% Max
- P - 0.045%Max
- SI - 0.40% Max
- CE (Carbon Equivalent)- 0.42%

	Specification No: ENG-GEN-4027 Specification Name: Technical Specification For GI Channel & Angle, GI Top Bracket
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5.2 Galvanization:

All the channels and angles shall be hot dip galvanized, are as following:

- a) All galvanizing shall be carried out by the hot dip process, in accordance with Specification IS 2629.
- b) The zinc coating (Min 705 gms per sq.mt / Min. 100 Micron at every point with 6 Dips) shall be smooth, continuous and uniform. It shall be free from acid spot and shall not scale, blister or be removable by handling or packing.
- c) There shall be no impurities in the zinc or additives to the galvanic bath which could have a detrimental effect on the durability of the zinc coating. Purity of zinc shall be Zn 99.95% or better.
- d) In the event of damage to the galvanizing the method used for repair shall be subject to the approval of the Engineer in Charge or that of his representative. Repair of galvanization at site will not be permitted in any situation.
- e) Partial immersion of the work shall not be permitted and the galvanizing tank must therefore be sufficiently large to permit galvanizing to be carried out by one immersion.
- f) After galvanizing no drilling or welding shall be performed on the galvanized parts. To avoid the formation of white rust galvanized materials 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. The galvanized steel shall be subjected to test as per IS-2633.
- g) Quality of Hot Dip Galvanization should comply with IS 2629, ISO 1461 & should be guaranteed for any type of damage due to harsh climatic condition for 5 Years. These channels and angles are to be used in coastal areas of Odisha where climate is hot, humid & saline. These areas are prone to flood & frequent rainfall.

6. MARKING:

Following distinct non-erasable embossing is to be made on each Channel and Angles and top Bracket to be supplied to TPCODL/TPNODL/TPWODL/TPSODL under this Tender.

- a) Manufacturer Name/ Trade Mark
- b) E-250 A

Engraved Marking (Punching before galvanization)

- a) "TPCODL/TPNODL/TPWODL/TPSODL"
- b) Year of manufacturing
- c) PO Number

7. TESTS:

The bidder shall be required to submit complete set of the following test reports along with the offer:

7.1 ACCEPTANCE TESTS

- i) Chemical Composition
- ii) Mechanical Properties
- iii) Dimension Test & Weight (kg/M) Visual Examination,
- iv) Test in respect of Hot Dip Galvanization i.e. Thickness of zinc coating in microns
- v) Mass of Zinc Test

7.2 ROUTINE TESTS

Same as Acceptance Test

7.3 TYPE TESTS

- i) Chemical Composition
- ii) Mechanical Properties
- iii) Test in respect of Hot Dip Galvanization i.e. thickness of zinc coating in microns

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI/ERDA** as per relevant IS. However, TPCODL/ TPWODL/ TPNODL/ TPSODL. TATA-POWER reserves the right to allow any other NABL accredited/ Govt. lab report under exceptional circumstances after due diligence/ scrutiny by DISCOM. Type tests should have been conducted 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/ TPWODL/ TPNODL/ TPSODL.

9. PRE-DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPWODL/TPSODL. 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/TPWODL/TPSODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL 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/TPWODL/TPSODL.

Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL
- c) TPCODL/TPNODL/TPWODL/TPSODL 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 STORE:

The material received at TPCODL/TPNODL/TPWODL/TPSODL, 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 54 months from the date of commissioning or 60 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.

Galvanization Guarantee- Quality of Hot Dip Galvanization should be guaranteed for any type of damage due to harsh climatic condition for 5 Years.

12. PACKING:

Supplier shall ensure that all material covered by 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. The bidder shall provide instructions regarding handling and storage precautions to be

taken at site.

13. TENDER SAMPLE:

The Bidder shall provide 1 no. sample of the product. The product will be accepted only if it meets all specifications as defined in the document.

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. TESTING FACILITIES:

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

16. MANUFACTURING FACILITIES:

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

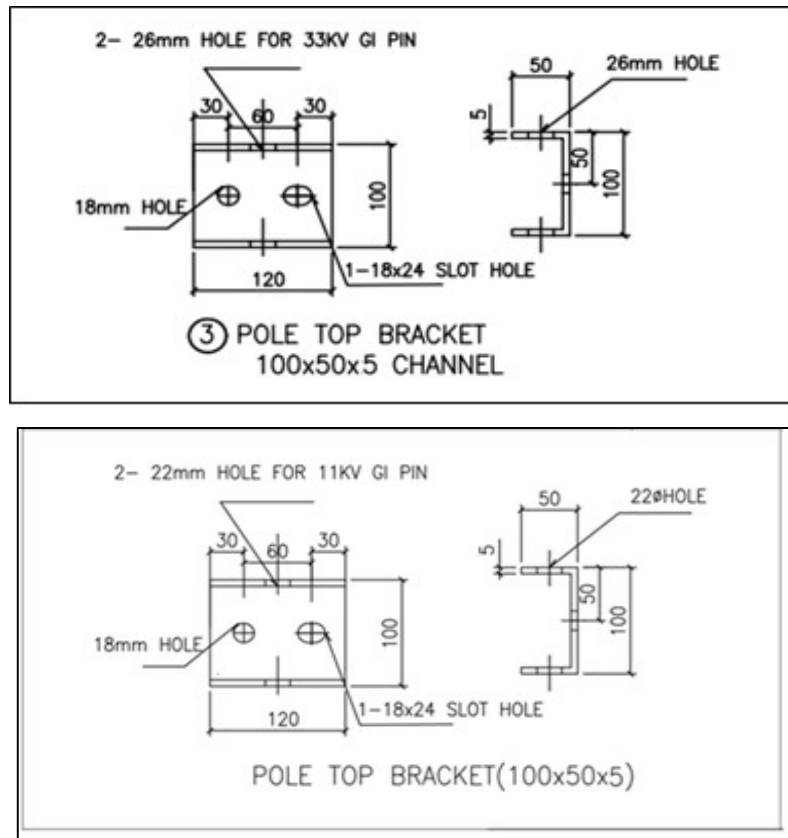
18. DRAWINGS AND DOCUMENTS:

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

- a) Completely filled in Schedule "A" Guaranteed Technical Particulars & Schedule "B" Deviations
- b) Work Experience details
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

Specification Name:

Technical Specification For GI Channel & Angle,
GI Top Bracket



Note:- The Drawing is for Tender Purpose Only.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:

SL. NO.	TECHNICAL PARTICULARS	To Be Furnished By The Bidder			
		100X50X5 mm	75X40x4.8 mm	65X65X6 mm	50X50X6 mm
1	Material				
2	Relevant Standard				
4	Make				
5	Grade of Steel				
6	Minimum Tensile Strength in Mpa				
7	Yield Stress in Mpa				
8	Percentage Elongation (Min.) at Gauge Length				
9	Bend Test (Internal Dia)				
10	Mass of Zinc Coating				

SL. NO.	TECHNICAL PARTICULARS	To Be Furnished By The Bidder			
		100X50X5 mm	75X40x4.8 mm	65X65X6 mm	50X50X6 mm
11	Zinc Coating Thickness & No of Dips				
12	Standard length of supply for channel and angles only				
13	Tolerances				

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

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2. APPLICABLE STANDARDS
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20. SCHEDULE "B" DEVIATIONS

1. SCOPE

The Specification covers the technical requirements of design, manufacture, test at manufacturer's works, packing & forwarding, supply and unloading at store/ site of 11 kV Pin polymer insulator 5 KN used in 11 kV Overhead Transmission lines.

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: 61109	Definition, test methods and acceptance criteria for composite insulators for A.C. overhead lines above 1000V
IEC: 61952	Insulators for overhead lines – Composite line post insulators for alternative current systems with a nominal voltage greater than 1 000 V
IS: 2071/ IEC: 60060-1	Methods of High Voltage Testing
IS: 2486	Specification for Insulator fittings for Overhead power Lines with a nominal voltage greater than 1000V
IS: 13134/ IEC: 60815	Guide for the selection of insulators in respect of polluted condition
IS 8263/IEC: 60437	Methods of RI Test of HV insulators.
IS: 4759	Hot dip zinc coatings on structural steel & other allied products
IS: 2629	Recommended Practice for Hot, Dip Galvanization for iron and steel
IS: 2633	Testing of Uniformity of Coating of zinc coated articles
IS:6745	Method for determination of mass of zinc coating on zinc coated iron and steel articles
STRI Guide 1.92/1	Hydrophobicity Classification Guide
ASTM D 578-05	Standard specification for glass fiber strands

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL.NO.	CONDITONS	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 an elevation of 10 meter.
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.

Environmentally, some of the regions, where the work will take place include coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas. Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere.

The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months. The design of equipment and accessories shall be suitable to withstand

 	 	Specification No: ENG-HV-2027 Specification Name: Technical Specification For 11kV Polymeric Pin Insulator (5KN)
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seismic forces corresponding to an acceleration of 0.1 g.

4. GENERAL TECHNICAL REQUIREMENTS:

- i) The Composite insulators will be used on lines on which the conductor will be ACSR/AAAC of size up to 100 Sq.mm. The insulators should withstand the conductor tension, the reversible wind load as well as the high frequency vibrations due to wind.
- ii) Insulator shall be suitable for 3 Phase, 50 Hz effectively earthed 11KV Overhead Distribution System in a moderately/heavily polluted atmosphere.
- iii) **Bidder must be indigenous manufacturer and supplier of Composite insulator of rating 11kV** or above or must have developed proven in house technology and manufacturing process for composite insulators of above rating or possess technical collaboration/association with the manufacturer of composite insulators of rating 11kV or above. The Bidder shall furnish necessary evidence in support of the above along with the bid which can be in the form of certification from Utilities concerned, or any other documents to the satisfaction of the Owner.
- iv) Insulators shall have sheds with good self-cleaning properties. Insulator shed profile, spacing, projection etc. and selection in respect of polluted conditions shall be generally in accordance with the commendation of IEC- 60815/ IS: 13134.
- v) The tolerances on all dimensions e.g. diameter, length and creepage distance shall be allowed as follows in line with-IEC 61109:

$\pm (0.04d + 1.5) \text{ mm when } d \leq 300 \text{ mm}$
 $\pm (0.025d+6) \text{ mm when } d > 300 \text{ mm}$

Where, d being the dimensions in millimetres for diameter, length or creepage distance as the case may be. **However, no negative tolerance shall be applicable to creepage distance.**
- vi) The composite insulators including the end fitting connection shall be standard design suitable for use with the hardware fittings of any make conforming to relevant IEC/IS standards.
- vii) All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under the operating conditions.

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Type of insulator	11 kV Polymeric composite Pin Insulator
2	Reference Standard	IEC 61109
3	Material of FRP Rod	Borron free ECR
4	Material of sheds	High voltage grade Silicone rubber Wacker-Germany, Dow Corning-USA
5	Material of End Fittings	SGCI /MCI/FORGED STEEL
6	Material of sealing compound	RTV Silicon
7	Colour of sheds	Grey
8	Rated system voltage	11 KV
9	Highest system voltage	12 KV
10	Dry Power Frequency Withstand voltage	70 KV
11	Wet Power Frequency Withstand voltage	35 KV
12	Dry Power Frequency Flashover Voltage	75kV
13	Wet Power Frequency Flashover Voltage	45kV
14	Dry Lightning Impulse withstand voltage	Positive: 75 KV Negative: 75 KV
15	Dry Lightning Impulse Flashover voltage	Positive: 95 KV Negative: 95 KV
16	RIV at 1 MHz when energized at 10 KV / 30 KV (rms) under dry condition	< 50 microvolt
17	Creepage distance (min)	320 mm
18	Min Failing load/ SCL (Specified cantilever Load)	5 KN
19	Dia of FRP Rod	24 mm
20	Length of FRP Rod (min)	200 mm
21	Dia of weather sheds	≥90 mm
22	Thickness of housing	3 mm
23	Dry arc distance(min)	165 mm
24	Method of fixing sheds to housing	Injection moulding
25	Visible Discharge Voltage	9 kV
26	Type of sheds	Aerodynamic
27	Dia of bottom end fitting	20 mm
28	Thread length of bottom end fitting	150 mm (Min)
29	Conductor groove	18 mm
30	Neck diameter	To be furnished by Bidder
31	Height of the insulator	To be furnished by Bidder

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
32	FRP rod leakage current at 175 V/mm	<0.05 mA
33	Weight of the insulator	0.8 +/- 0.1 kg

5. GENERAL CONSTRUCTIONS:

Polymeric Insulators shall consist of THREE parts, at least two of which are insulating parts:

- (a) Core- the internal insulating part
- (b) Housing- the external insulating part
- (c) Metal end fittings.

5.1 CORE

It shall be a glass-fibre reinforced epoxy resin rod of high strength (FRP rod). Glass fibres and resin shall be optimized in the FRP rod. Glass fibres shall be Boron free electrically corrosion resistant (ECR) glass fibre and shall exhibit both high electrical integrity and high resistance to acid corrosion. The matrix of the FRP rod shall be Hydrolysis resistant. The FRP rod shall be manufactured through Pultrusion process. The FRP rod shall be void free. Electrically Corrosion Resistant (ECR) grade fibre glass reinforced plastic (FRP) rod having at least 80% fibres by weight.

5.2 POLYMER HOUSING:

The FRP rod shall be covered by a seamless sheath of high voltage grade Silicone rubber housing of thickness 3mm minimum. It shall be one- piece housing using only Injection Moulding process to cover the core. The housing shall be designed to provide the necessary creepage distance and protection against environmental influences, external pollution and humidity. Housing shall conform to the requirements of IEC 60815 with latest amendments. All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under the operating condition. It shall be extruded or directly moulded on core and shall have chemical bonding with the FRP rod. The strength of the bond shall be greater than the tearing strength of the polymer. Sheath material in the bulk as well as in the sealing / bonding area shall be free from voids.

5.3 WEATHERSHEDS

The composite polymer weather sheds made of high voltage grade Silicone rubber polymer shall be moulded as part of the sheath and shall be free from imperfections. It should

protect the FRP rod against environmental influences, external pollution and humidity. The weather sheds should have **silicon content of minimum 40% by weight**. The strength of the weather shed to sheath interface shall be greater than the tearing strength of the polymer. The interface, if any, between sheds and sheath (housing) shall be free from voids. Housing and weather sheds material shall have tensile strength of 3 Mpa with 400% elongation minimum and tear strength of 16 N/mm.

5.4 HARDWARE FITTINGS:

End fitting transmit the mechanical load to the core. They shall be made of spheroidal graphite cast iron, malleable cast iron or forged steel or aluminium alloy. Metal end fitting shall be suitable for pin type hardware support of respective specified mechanical load and shall be hot dip galvanized in accordance with IS 2629. They shall be connected to the rod by means of a controlled compression technique. The outer of end fittings should be machined to make the surface uniform round to ensure effective sealing when housing is moulded over it. The material used in fittings shall be corrosion resistant. As the main duty of the end fittings is the transfer of mechanical loads to the core the fittings should be properly attached to the core by a coaxial or hexagonal compression process & should not damage the individual fibres or crack the core. The gap between fittings and sheath shall be sealed by flexible silicone elastomeric compound or silicone alloy compound sealant, system of attached of end fitting to the rod shall provide superior sealing performance between housing, i.e. seamless sheath and metal connection. The sealing must be moisture proof. The dimensions of end fittings of insulators shall be in accordance with the standard dimensions stated in IS: 2486 - Part-II. Outer portion of Pin should be Zinc sleeved with minimum 99.95% purity of Electrolytic high grade zinc. Bottom end fitting should be single unit without any joints. Nuts as per IS 1363 (P-III) and spring washer shall be as per IS 3063 with Latest amendments if any, Nuts and spring washer shall be hot dip galvanized. The design of the insulator shall be such that stresses due to expansion and contraction in any part of the insulator shall not lead to deterioration. The pin insulator shall not engage directly with hard metal.

6. MARKING:

Each insulator shall be legibly and indelibly marked (embossing/engraved) to show the following:

- a) Name & Trade mark of the manufacturer
- b) Voltage Grade

- c) Year of manufacture
- d) Minimum failing load in KN
- e) "TPCODL/TPNODL/TPWODL/TPSODL" Name should be mentioned on each insulator

7. TESTS

The bidder shall be required to submit complete set of the following test reports along with the offer: -

7.1 ACCEPTANCE TESTS

- i) Verification of dimensions
- ii) End Sealing test (FRP rod and Silicone rubber housing)
- iii) Visual examination (Free from voids, cavity, foreign particle and scratch/nick spot)
- iv) Verification of the locking system or the tightness of the interface between end fitting and insulator housing
- v) Galvanizing Test
- vi) Verification of the specified mechanical load
- vii) Bending Load Test
- viii) Dry Power Frequency Withstand Voltage Test
- ix) Wet Power Frequency Withstand Voltage Test
- x) Analysis of material properties of housing material
- xi) Analysis of material properties of Core material

7.2 ROUTINE TESTS

- i) Visual examination (Free from voids, cavity, foreign particle and scratch/nick spot)
- ii) Mechanical Load Test (bending/cantilever)

7.3 TYPE TESTS

A) For Insulators

- i) Dry Power Frequency Withstand Voltage Test
- ii) Dry Power Frequency Voltage Flashover Test
- iii) Dry lightning impulse withstand voltage test.
- iv) Wet Power Frequency Withstand Voltage Test
- v) Wet Power Frequency Voltage Flashover Test
- vi) Mechanical failing load test.
- vii) Salt fog test: On insulators for 1000 hr as per IEC
- viii) Galvanization test

ix) Radio interference test.

B) For Silicon rubber

- i) Tensile Strength
- ii) Elongation
- iii) Tear Strength
- iv) Inclined plane Tracking & Erosion resistance test
- v) Volume Resistivity
- vi) Dielectric constant
- vii) Dielectric Strength
- viii) Density
- ix) Hardness
- x) Arc Resistance
- xi) Silicone Content
- xii) Flammability
- xiii) Limiting oxygen index test
- xiv) Resistance to weathering & UV.
- xv) Specific gravity

C) For FRP rods

- i) Verification of dimensions
- ii) Specific Gravity
- iii) Glass Content
- iv) Water Diffusion Test
- v) Hardness
- vi) Dye Penetration Test
- vii) Flexural Strength
- viii) Brittle fracture resistance test.

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates of the for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI/ERDA** as per the relevant IS/IEC. For **High voltage Silicone rubber material used for Polymer housing** the test are conducted at **CIPET/CPRI** as per the relevant standards. TPCODL/ TPWODL/ TPNODL/ TPSODL. TATA-POWER reserves the right to allow any other NABL accredited/ Govt. lab

report under exceptional circumstances after due diligence/ scrutiny by DISCOM. Type tests should have been conducted 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/ TPWODL/ TPSODL.

9. PRE DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPWODL/TPSODL. 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/TPWODL/TPSODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL 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/ TPWODL/ TPSODL.

Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL
- 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/TPWODL/TPSODL, 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 18 months from the date of commissioning or 24 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.

The bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of guarantee period for any 'latent defects' if noticed by the company.

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. All insulators shall be packed in strong corrugated box of min. 7 ply duly palette or wooden crates. The gross weight of the crates along with the material shall not normally exceed 100 Kg to avoid handling problem. The crates shall be suitable for outdoor storage under wet climate during rainy season. Each wooden case / crate / corrugated box shall have all the markings stencilled on it in indelible ink. The bidder shall provide instructions regarding handling and storage precautions to be taken at site.

13. TENDER SAMPLE:

Bidder shall submit the sample of material during submission of Bids.

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:

	Specification No: ENG-HV-2027 Specification Name: Technical Specification For 11kV Polymeric Pin Insulator (5KN)
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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 bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

18. DRAWINGS AND DOCUMENTS

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

- a) Completely filled in Schedule "A" Guaranteed Technical Particulars & Schedule "B" Deviations
- b) Work Experience details
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS

Bidder to submit completely clause wise compliance of this specification.

 	 	Specification No: ENG-HV-2027 Specification Name: Technical Specification For 11kV Polymeric Pin Insulator (5KN)
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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-HV-2028

Specification Name : Technical Specification for 11KV Polymeric Disc Insulator (70KN)

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
BARSHA BANDITA	ASMITA JENA	JYOTIPRAKASH MOHANTY	Vijender Goyal	KHAJAN BHARDWAJ	POURUSH GARG
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
13-03-2023	21-03-2023	29-03-2023	29-03-2023	06-04-2023	26-04-2023

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1. SCOPE

This specification covers the technical requirements of design, manufacture, performance, testing at manufacturer's works, packing & forwarding, supply and unloading at store/ site, performance of 11 kV Ball and Socket Disc Polymer Insulator complete with all the accessories for trouble free and efficient performance.

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/IEC	Description
IEC:61109	Definition, test methods and acceptance criteria for composite insulators for A.C. overhead lines above 1000V.
IS:2071/ IEC:60060-1	Methods of High Voltage Testing.
IS:2486/ IEC:60120/ IEC:60372	Specification for Insulator fittings for Overhead Power Lines with a nominal voltage greater than 1000V. Ball and socket couplings of string insulator units –Dimensions Locking devices for ball and socket couplings of string insulator units - Dimensions and tests
IEC:60575	Thermal-mechanical performance test and mechanical performance test on string insulator units.
IS: 13134/ IEC: 60815	Guide for the selection of insulators in respect of polluted condition.
IEC: 60433	Insulators for overhead lines with a nominal voltage above 1000 V - Ceramic insulators for AC systems - Characteristics of insulator units of the long rod type.
STRI guide 1.92/1	Hydrophobicity Classification Guide.
IS:8263/ IEC:60437	Methods of RI Test of HV Insulators.
IS:4759	Hot dip zinc coatings on structural steel & other allied products.
IS:2629	Recommended practice for Hot Dip galvanization for iron and steel
IS:6745	Method for determination of mass of zinc coating on zinc coated iron and steel articles.
IS:3203	Methods of testing of local thickness of electroplated coatings.

Ref. IS/IEC	Description
IS:2633	Testing of Uniformity of coating of zinc coated articles.
ASTM D 578-05	Standard specification for glass fiber standards.
IS:4699	Refined secondary zinc

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL.NO.	CONDITONS	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 an elevation of 10 meter.
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/ TPWODL 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, dust in suspension during the dry months, and is subjected to fog in cold months.

4. GENERAL TECHNICAL REQUIREMENTS:

- i) The Composite insulators will be used on 11kV lines on which the conductor will be ACSR/AAAC of sizes 100 Sq.mm. The insulators should withstand the conductor tension, the reversible wind load as well as the high frequency vibrations due to wind. Insulator shall be suitable for moderately to heavily polluted, Humid & High saline atmosphere.
- ii) Bidder must be indigenous manufacturer and supplier of Composite insulator of rating 11kV or above or must have developed proven in house technology and manufacturing process for composite insulators of above rating or possess technical collaboration/association with the manufacturer of composite insulators of rating 11kV or above. The Bidder shall furnish necessary evidence in support of the above along with the bid which can be in the form of certification from Utilities concerned, or any other documents to the satisfaction of the Owner.
- iii) Insulators shall be suitable for Strain type of load and shall be of B&S type. The diameter of Composite Insulator shall be as per technical specification.
- iv) Insulators shall have sheds with good self-cleaning properties. Insulator shed profile, spacing, projection etc. and selection in respect of polluted conditions shall be generally in accordance with the commendation of IEC- 60815/ IS: 13134.
- v) The tolerances on all dimensions e.g. diameter, length and creepage distance shall be allowed as follows in line with-IEC 61109:

$$\pm (0.04d + 1.5) \text{ mm when } d \leq 300 \text{ mm}$$

$$\pm (0.025d+6) \text{ mm when } d > 300 \text{ mm}$$

Where, d being the dimensions in millimetres for diameter, length or creepage distance as the case may be. **However, no negative tolerance shall be applicable to creepage distance.**

- vi) The composite insulators including the end fitting connection shall be standard design suitable for use with the hardware fittings of any make conforming to relevant IEC/IS standards.
- vii) All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under the operating conditions.
- viii) The composite insulators offered shall be suitable for use of hotline maintenance technique so that usual hot line operation can be carried out with ease, speed and safety.

SL. No.	TECHNICAL PARTICULARS	DESIRED VALUE
		Min. requirement for 11 kV 70 KN
1	Type of Insulator	Polymeric B&S
2	Standard according to which the insulators manufactured and tested.	IEC 61109
3	Name of material used in manufacture of the insulator with class/grade)	High voltage grade Silicone rubber Wacker-Germany, Dow Corning-USA
(a)	Material of core (FRP rod) (I) E-glass of ECR-glass.	ECR or BORRON FREE
(b)	Material of housing weather sheds (silicon content)	Silicon content of minimum 40% by weight
(c)	Material of end fittings	SGI/MCI/Forged Steel
(d)	Sealing compound for end fittings	RTV SILICON
4	Colour	GREY
5	Electrical characteristics	
(a)	Nominal system voltage	11 kV
(b)	Highest system voltage	12 kV
(c)	Dry Power frequency withstand voltage	70 kV
(d)	Wet Power frequency withstand voltage	35 kV
(e)	Dry flashover voltage	75 kV
(f)	Wet flash over voltage	40 kV
(g)	Dry lighting impulse withstand voltage	
	(a) Positive	75 kVp
	(b) Negative	75 kVp
(h)	Dry lighting impulse flashover voltage	
	a) Positive	80kVp
	b) Negative	80kVp
(i)	FRP rod leakage current at 175 V/mm	< 0.05 mA
(j)	RIV at 1 MHz when energized at 10 kV/30kV (rms) under dry condition.	< 50 microvolt
(k)	Creepage distance (Min.)	320 MM
6	Minimum failing load.	70 KN
7	Dimensions of insulator	
(i)	Weight (Approx.)	1.2 kg
(ii)	Dia of FRP rod	16 mm
(iii)	Length of FRP rod	240 mm
(iv)	Dia of weather sheds	≥90 mm
(v)	Thickness of housing	3 mm
(vi)	Dry arc distance Dimensioned drawings of insulator (including weight with tolerances in weight)	175 mm

   	Specification No: ENG-HV-2028 Specification Name: Technical Specification For 11kV Polymeric Disc Insulator (70KN)
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SL. No.	TECHNICAL PARTICULARS	DESIRED VALUE
		Min. requirement for 11 kV 70 KN
8	Method of fixing of sheds to housing (specify). Single mould or Modular construction (injection moulding/compression)	Injection Moulding
9	Type of sheds	Aerodynamic

5. GENERAL CONSTRUCTIONS:

Composite Insulators shall be designed to meet the light quality, safety and reliability and are capable of withstanding a wide range of environmental conditions. Polymeric Insulators shall consist of THREE parts, at least two of which are insulating parts:

- (a) Core- the internal insulating part
- (b) Housing- the external insulating part
- (c) Metal end fittings.

5.1 CORE

It shall be a glass-fiber reinforced epoxy resin rod of high strength (FRP rod). Glass fibers and resin shall be optimized in the FRP rod. Glass fibers shall be Boron free electrically corrosion resistant (ECR) glass fiber and shall exhibit both high electrical integrity and high resistance to acid corrosion. The matrix of the FRP rod shall be Hydrolysis resistant. The FRP rod shall be manufactured through Pultrusion process. The FRP rod shall be void free. Electrically Corrosion Resistant (ECR) grade fiber glass reinforced plastic (FRP) rod having at least 80% fibres by weight.

5.2 POLYMER HOUSING:

The FRP rod shall be covered by a seamless sheath of high voltage grade Silicone rubber housing of thickness 3mm minimum. It shall be one- piece housing using only Injection Moulding process to cover the core. The housing shall be designed to provide the necessary creepage distance and protection against environmental influences, external pollution and humidity. Housing shall conform to the requirements of IEC 60815 with latest amendments. All surfaces shall be clean, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The insulator and metal parts shall be so designed and manufactured that it shall avoid local corona formation and not generate any radio interference beyond specified limit under the operating condition. It shall be extruded or directly moulded on core and shall have chemical bonding with the FRP rod. The strength of the bond shall be greater than the tearing strength of the polymer.

Sheath material in the bulk as well as in the sealing / bonding area shall be free from voids.

5.3 WEATHERSHEDS

The composite polymer weathersheds made of high voltage grade Silicone rubber polymer shall be moulded as part of the sheath and shall be free from imperfections. It should protect the FRP rod against environmental influences, external pollution and humidity. The weathersheds should have **silicon content of minimum 40% by weight**. The strength of the weather shed to sheath interface shall be greater than the tearing strength of the polymer. The interface, if any, between sheds and sheath (housing) shall be free from voids. Housing and weathersheds material shall have tensile strength of 3 Mpa with 400% elongation minimum and tear strength of 16 N/mm.

5.4 HARDWARE FITTINGS:

- a) End fitting transmit the mechanical load to the core. They shall be made of spheroidal graphite cast iron, malleable cast iron or forged steel or aluminium alloy. Metal end fitting shall be suitable for Ball and socket type hardware of respective specified mechanical load and shall be hot dip galvanized in accordance with IS 2629.
- b) They shall be connected to the rod by means of a controlled compression technique. The material used in fittings shall be corrosion resistant. As the main duty of the end fittings is the transfer of mechanical loads to the core the fittings should be properly attached to the core by a coaxial or hexagonal compression process & should not damage the individual fibers or crack the core.
- c) The gap between fittings and sheath shall be sealed by flexible silicone elastomeric compound or silicone alloy compound sealant, system of attached of end fitting to the rod shall provide superior sealing performance between housing, i.e. seamless sheath and metal connection. The sealing must be moisture proof.
- d) The dimensions of end fittings of insulators shall be in accordance with the standard dimensions stated in IEC: 60120/IS: 2486 - Part-II.
- e) Outer portion of ball or socket should be Zinc sleeved with minimum 99.95% purity of Electrolytic high grade zinc.
- f) **Ball pin and socket couplings:** Ball pin and socket shall be of forged steel and dimensions are as specified in IS 2486 (Part-2). Insulator metal caps shall be made of malleable cast iron conforming to IS 14329.
- g) **Locking device of the coupling:** The security clips to be used as a locking device for ball and socket coupling shall be 'R' shaped hump type or 'W' type as per IS 2486. The locking device shall be resilient, corrosion resistant, and of suitable mechanical strength. Material to be used for 'W' locking clip is phosphor bronze and for 'R' type locking clip is stainless

steel. The hardness and temper of material are important for their satisfactory operation. The locking devices shall retain their ability after being operated from the locking to the coupling position at least twenty times at normal temperature. They should be effective at the lowest temperature likely to be encountered in service. Socket for use with W-clips have the lower edge of the rectangular slot at the level of bottom of the socket. The slot is so shaped that it will accept the W-clip and retain it in two distinct positions when operated for coupling and locking. The shape of the W-clip is such that complete withdrawal when moving from the locking to the coupling position prevented.

- h) All ferrous parts shall be hot dip galvanized to give a minimum average coating of zinc equivalent to 705 gm/Sq.m, or 100mm min. thickness and shall be in accordance with the requirement of IS: 4759, The zinc used for galvanizing shall be of purity 99.5% as per IS: 4699. The zinc coating shall be uniform, adherent, smooth, reasonably bright continuous and free from imperfections such as flux, ash rust stains, bulky white deposits and blisters. Before ball fittings and galvanized, all die flashing on the shank and on the bearing surface of the ball shall be carefully removed without reducing the design dimensional requirements.

6. MARKING:

Each insulator shall be legibly and indelibly marked (embossing/engraved) to show the following:

- Name & Trade mark of the manufacturer
- Voltage Grade
- Year of manufacturing
- Minimum failing load in KN
- “TPC~~ODL~~/TPN~~ODL~~/TPW~~ODL~~/TPS~~ODL~~” Name should be mentioned on each insulator

7. TESTS

The bidder shall be required to submit complete set of the following test reports along with the offer: -

7.1 ACCEPTANCE TESTS

- Verification of dimensions
- End Sealing test (FRP rod and Silicone rubber housing)
- Visual examination (Free from voids, cavity, foreign particle and scratch/nick spot)
- Mechanical performance Test
- Galvanizing Test

- vi) Mechanical Failing Load Test
- vii) Dry Power Frequency Withstand Voltage Test
- viii) Wet Power Frequency Withstand Voltage Test
- ix) Verification of the locking system or the tightness of the interface between end fitting and insulator housing

7.2 ROUTINE TESTS

- i) Visual examination (Free from voids, cavity, foreign particle and scratch/nick spot)
- ii) Mechanical Load test
- iii) Electrical routine test

7.3 TYPE TESTS

A) For Insulators

- i) Dry Power Frequency Withstand Voltage Test
- ii) Dry Power Frequency Voltage Flashover Test
- iii) Dry lightning impulse withstand voltage test.
- iv) Wet Power Frequency Withstand Voltage Test
- v) Wet Power Frequency Voltage Flashover Test
- vi) Mechanical failing load test.
- vii) Salt fog test: On insulators for 1000 hr as per IEC
- viii) Galvanization test
- ix) Damaged Limit Proof Test
- x) Radio interference test.

B) For Silicon rubber

- i) Tensile Strength
- ii) Elongation
- iii) Tear Strength
- iv) Inclined plane Tracking & Erosion resistance test
- v) Volume Resistivity
- vi) Dielectric constant
- vii) Dielectric Strength
- viii) Density
- ix) Hardness
- x) Arc Resistance
- xi) Silicone Content
- xii) Flammability

- xiii) Limiting oxygen index test
- xiv) Resistance to weathering & UV.
- xv) Specific gravity

C) For FRP rods

- i) Verification of dimensions
- ii) Specific Gravity
- iii) Glass Content
- iv) Water Diffusion Test
- v) Hardness
- vi) Dye Penetration Test
- vii) Flexural Strength
- viii) Brittle fracture resistance test.
- ix) Water Diffusion Test

D) For End Fittings

- i) Thickness of Zinc coating
- ii) Uniformity of Zinc Coating

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates of the for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI/ERDA/Other Govt. Lab** as per the relevant IS/IEC. For **High voltage Silicone rubber material used for Polymer housing** the test are conducted at **CIPET/CPRI** as per the relevant standards. TPCODL/TPWODL/TPNODL/TPSODL. TATA-POWER reserves the right to allow any other NABL accredited/ Govt. lab report under exceptional circumstances after due diligence/ scrutiny by DISCOM. 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/TPWODL/TPSODL.

9. PRE DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPWODL/TPSODL. 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/TPWODL/TPSODL's representatives at all

times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL 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/ TPWODL/ TPSODL.

Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL
- 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/TPWODL/TPSODL, 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 18 months from the date of commissioning or 24 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.

The bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of guarantee period for any 'latent defects' if noticed by the company.

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. All insulators shall be packed in strong corrugated box of min. 7 ply duly palette or wooden crates. The gross weight of the crates along with the material shall not normally exceed 100 Kg to avoid handling problem. The crates shall be suitable for outdoor storage under wet climate during rainy season. Each wooden case / crate / corrugated box shall have all the markings stencilled on it in indelible ink. The bidder shall provide instructions regarding handling and storage precautions to be taken at site.

13. TENDER SAMPLE:

Bidder shall submit the sample of material during submission of Bids.

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:

The bidder shall get the approved drawing and GTP before start of manufacturing activity. The successful bidder will have to submit details of the offered design & components for approval as per specification. CAT-A/CAT-B is mandatory to start manufacturing.

17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

18. DRAWINGS AND DOCUMENTS

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

- a) Completely filled-in clause wise compliance of the specification

- b) Schedule "B" Deviations
- c) Work Experience details
- d) Type test certificates.
- e) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS

Bidder to submit completely clause wise compliance of this specification

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-HV-2024

Specification Name : Technical Specification For HT Stay set including Clamp

SAYANTANI DAS	MILAN MAITY	SANTOSH KUMAR PATRA	Susavan Biswas	KHAJAN BHARDWAJ	POURUSH GARG
Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
16-02-2023	16-02-2023	21-02-2023	21-02-2023	22-02-2023	23-02-2023

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TPWODL*

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19. SCHEDULE "A" GUARANTEED TECHNICAL PARTICULARS
20. SCHEDULE "B" DEVIATIONS

1. SCOPE:

This specification covers the technical requirements of design, manufacture, test at manufacturer's works, packing & forwarding, supply and unloading at stores/ site and performance of HT Stay Set.

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
IS 4759	Hot Dip Galvanizing For Fabrication
IS 1852	Tolerance For Raw Material
IS 2062	Manufactured from raw material as per IS 2062 grade E-250 quality 'A'

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	150cm
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)

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:

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Manufacturer Name & Address	To be specified by Bidder
2	Referred IS	IS: 2062, IS: 2633, IS: 2629
3	Dimensions	
4	Anchor Rod (20mm Dia): 1 No.	
a)	Dia of Rod	20mm (+ 5%, - 3%)
b)	Overall length of Anchor rod	1800mm (+ 0.5%)
c)	Inside Dia of Rounded Eye	40mm (+ 3%)
d)	Length of threaded portion	40mm (+ 11%, - 5%)
e)	Size of MS Nut & Bolt, Square MS Washers confirming to IS 1387 (1967) and IS 1363 (1967)	20mm Sq. Washer 50X 50 X 1.6mm (2No.s)
5	Anchor Plate: 1 No.	
a)	Size of the MS Anchor plate	300x300x8 mm
b)	Dia of the hole made at the centre of the plate	22mm
6. (A)	Turn Buckle	
(i)	Dia of the eye bolt	20mm (+ 3%, - 2%)
(ii)	Length of the eye bolt	450mm
(iii)	Length of the threaded portion of the bolt	300mm
(vi)	Inner dia of the circular eye made at other end of the bolt.	40mm
(B)	Bow with welded Channel	
(i)	Dia of the MS Rod used for bow	20mm dia
(ii)	Overall length and height of the bow	995mm 450mm
(iii)	Magnitude of the angle in radians by which bow is bended at the top	10 R
(iv)	Length and size of the GI Channel welded at the order end of the bow	200mm & 100x50x5 mm Channel
(v)	Number of holes made in the GI Channel	3
(vi)	Dia of the holes	22mm (3Nos.)
7	Thimble: 1 No.	
a)	Thickness of the MS Sheet used for thimble	1.5mm
b)	Size of thimble	75x22x40mm

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
8	Minimum strength of the welding provides on various components of Guy/Stay Sets (IS:823/1964)	4900Kg.
9	Average weight of finished stay set	14.523 kg (min) / 15.569 kg (Max)
10	Surface Finish of stay set	Hot Dip Galvanized
11	All Tolerance of the dimensions/weight	± 5%
12	Hot-Dip Galvanized, Flat (50X8) GI Flat for Stay Clamp	
1	Relevant Standard	IS: 2062, IS: 2633, IS: 2629
2	Grade of Steel	E 250 A
3	Minimum Tensile Strength	410 N/mm ²
4	Yield Stress	250 N/mm ²
5	Percentage Elongation (Min.) at Gauge Length	23%
6	Bend Test (Internal Dia)	Min-2t
7	Mass of Zinc Coating	705 gm/m ²
8	Zinc Coating Thickness	100 micron (6 Dip)
9	Chemical composition	Grade: E 250 (As per IS: 2062)
10	Markings/Embossing	TPCODL/ TPNODL/ TPSODL/ TPWODL, Manufacture's trademark.

5. GENERAL CONSTRUCTION:

5.1 ANCHOR ROD WITH MS CHANNEL

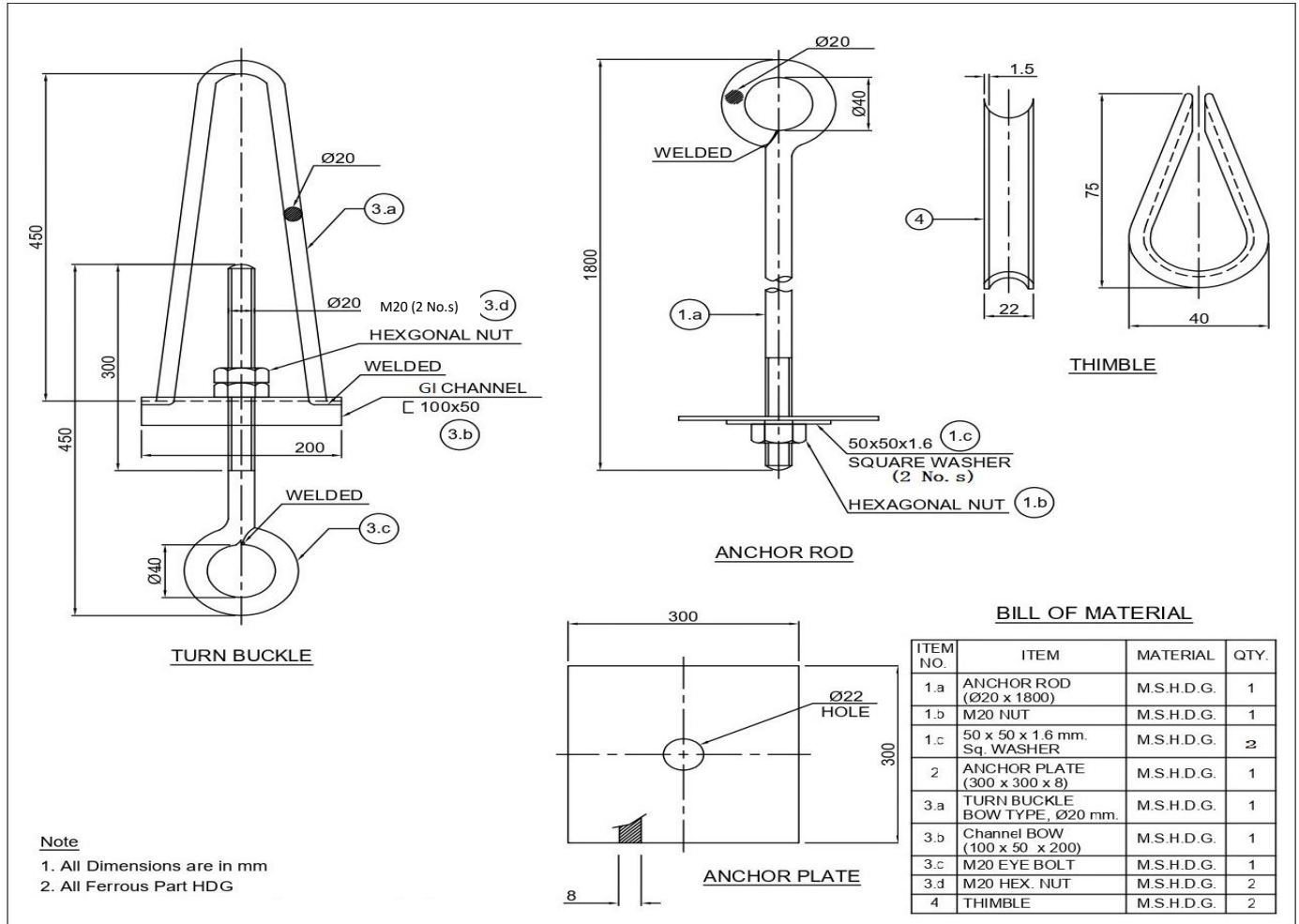
Overall length of rod should be 1800 mm made out of 20 mm diameter MS rod. One end of rod to be made into a round eye having an inner diameter of 40 mm. Other end fitted with MS channel 100 x 50 x 5 mm; 200 mm long. Hot Dip galvanized as per IS 4759-1996.

5.2 EYE BOLT

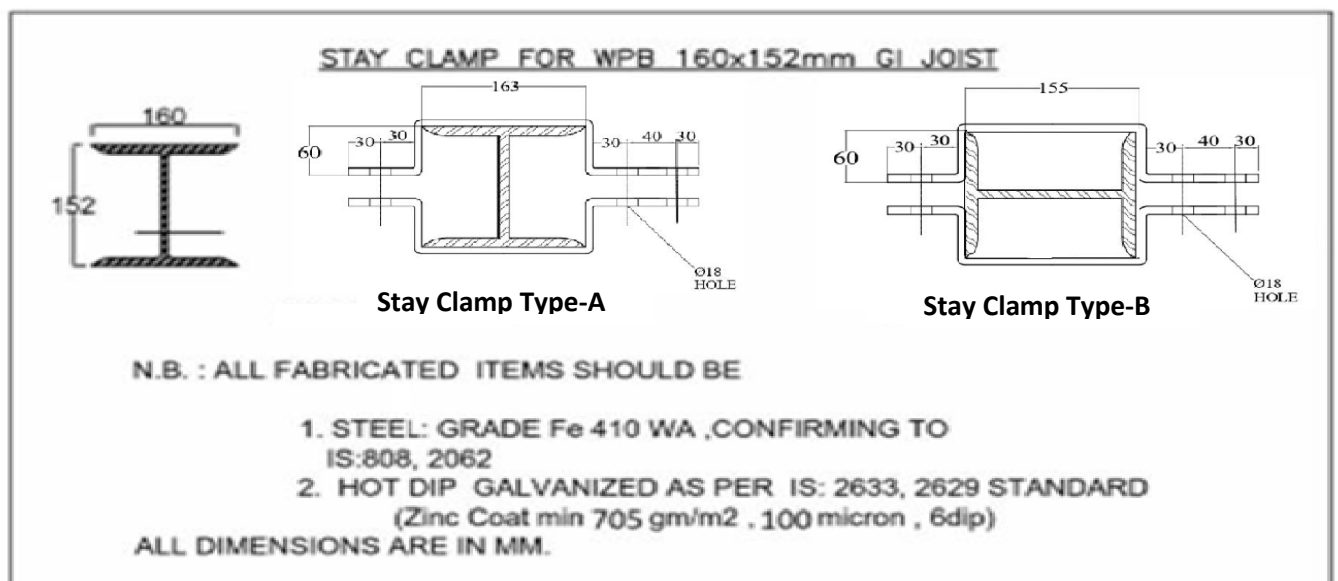
Eye bolt to be made of 20 mm dia MS Rod having an overall length of 450 mm. One end of the rod to be threaded up to 300 mm length. The other end of the rod shall be rounded into a circular eye of 40 mm inner dia with proper and good quality welding. Eye Bolt being a threaded fastener be hot dip galvanized as per relevant IS : 1367 (part 13) – 1983.

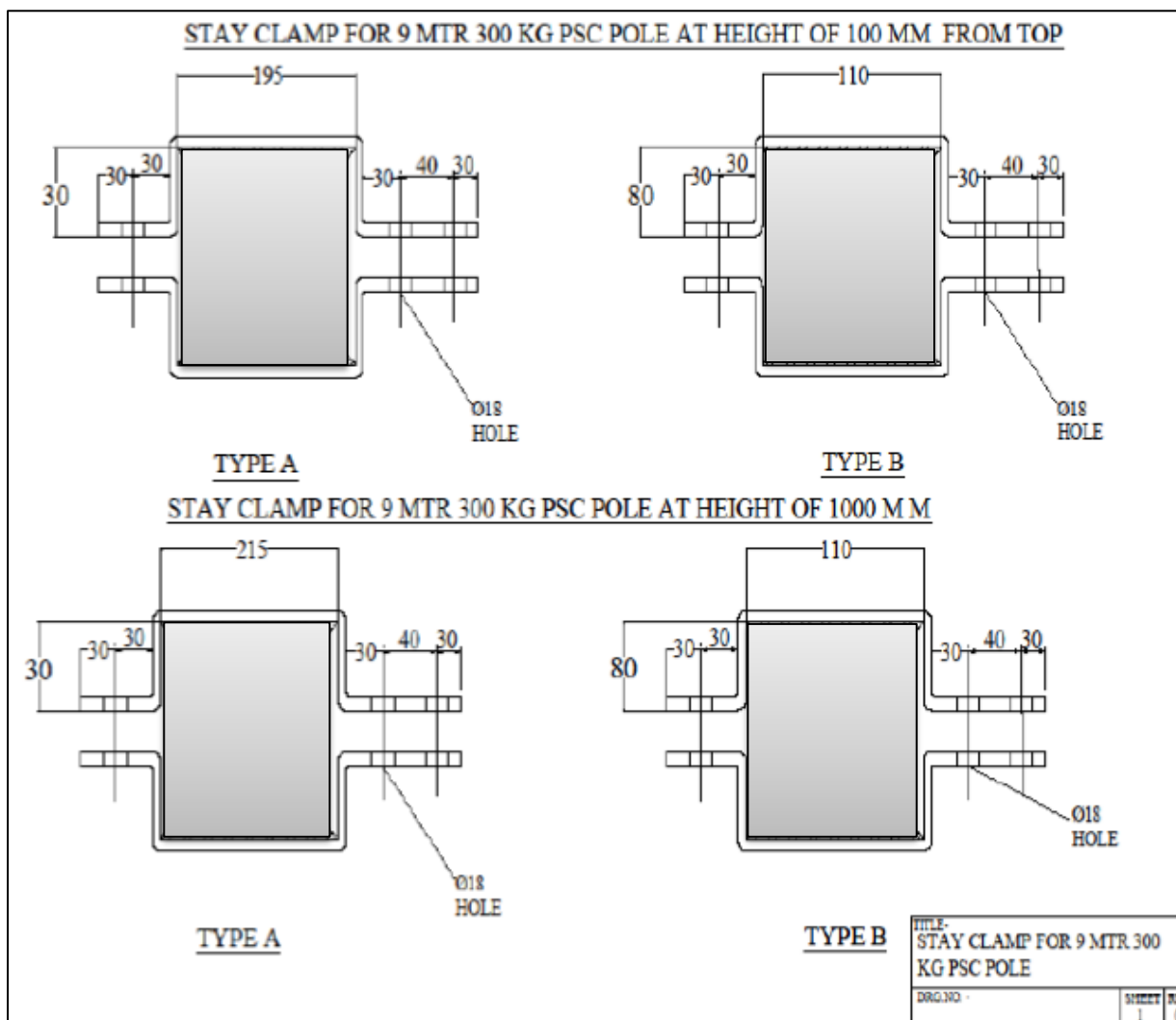
DRAWINGS

HT Stay Set :



HT Stay Clamp for WPB Pole (50x8 mm):





Specific requirements as per Tender, are to be fulfilled at the time of detailed engineering.

6. MARKING:

Following distinct non-erasable embossing to be made on each HT Stay Set and clamp Supplied to TPCODL/ TPNODL/ TPSODL/ TPWODL under this Tender.

- a) Manufacturer Name/ Trade Mark
- b) Engraved Marking (Punching before galvanization)
- c) "TPCODL/ TPNODL/ TPSODL/ TPWODL"
- d) Year of manufacturing, Country of manufacturing

7. TESTS:

The bidder shall be required to submit complete set of the following test reports along with the offer:

7.1 ACCEPTANCE TESTS

- i) Visual examination, Verification of dimension and marking test.
- ii) Tensile Strength.
- iii) Galvanization (Uniformity) test.

7.2 ROUTINE TESTS

Same as Acceptance Test

7.3 TYPE TESTS

- i) Chemical Composition
- ii) Mechanical Properties
- iii) Test in respect of Hot Dip Galvanization i.e. thickness of zinc coating in microns

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI / ERDA / Other Government Labs** as per relevant IS. Type tests should have been conducted in certified 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) TPCODL/ TPNODL/ TPSODL/ TPWODL 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 STORE:

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 12 months from the date of commissioning or 24 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.

Galvanization Guarantee- Quality of Hot Dip Galvanization should be guaranteed for any type of damage due to harsh climatic condition for 5 Years.

12. PACKING:

Supplier shall ensure that all material covered by 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. The bidder shall provide instructions regarding handling and storage precautions to be taken at site.

13. TENDER SAMPLE:

Not Applicable

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. TESTING FACILITIES:

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

16. MANUFACTURING FACILITIES:

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

18. DRAWINGS AND DOCUMENTS:

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

- a) Completely filled in Schedule "A" Guaranteed Technical Particulars & Schedule "B" Deviations
- b) Work Experience details
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:

SL. NO.	TECHNICAL PARTICULARS	TO BE FURNISHED BY THE BIDDER
1	Manufacturer Name & Address	
2	Referred IS	
3	Dimensions	
4	Anchor Rod (20mm Dia): 1 No.	
a)	Dia of Rod	
b)	Overall length of Anchor rod	
c)	Inside Dia of Rounded Eye	
d)	Length of threaded portion	
e)	Size of MS Nut & Bolt, Square MS Washers confirming to IS 1387 (1967) and IS 1363 (1967)	
5	Anchor Plate: 1 No.	
a)	Size of the MS Anchor plate	

SL. NO.	TECHNICAL PARTICULARS	TO BE FURNISHED BY THE BIDDER
b)	Dia of the hole made at the centre of the plate	
6. (A)	Turn Buckle	
(i)	Dia of the eye bolt	
(ii)	Length of the eye bolt	
(iii)	Length of the threaded portion of the bolt	
(vi)	Inner dia of the circular eye made at other end of the bolt.	
(B)	Bow with welded Channel	
(i)	Dia of the MS Rod used for bow	
(ii)	Overall length and height of the bow	
(iii)	Magnitude of the angle in radians by which bow is bended at the top	
(iv)	Length and size of the GI channel welded at the order end of the bow	
(v)	Number of holes made in the GI Channel	
(vi)	Dia of the holes	
7	Thimble: 1 No.	
a)	Thickness of the MS Sheet used for thimble	
b)	Size of thimble	
8	Minimum strength of the welding provides on various components of Guy/Stay Sets (IS:823/1964)	
9	Average weight of finished stay set	
10	Surface Finish of stay set	
11	All Tolerance of the dimensions/weight	
12	Hot-Dip Galvanized, Flat (50X8) GI Flat for Stay Clamp	
1	Relevant Standard	
2	Grade of Steel	
3	Minimum Tensile Strength	
4	Yield Stress	
5	Percentage Elongation (Min.) at Gauge Length	
6	Bend Test (Internal Dia)	
7	Mass of Zinc Coating	
8	Zinc Coating Thickness	

   	Specification No: ENG-HV-2024 Specification Name: Technical Specification of HT Stay Set including Clamps
--	--

SL. NO.	TECHNICAL PARTICULARS	TO BE FURNISHED BY THE BIDDER
9	Chemical composition	
10	Markings/Embossing	

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-HV-2023

Specification Name : Technical Specification For HT stay (Guy) insulator

SAYANTANI DAS	MILAN MAITY	SANTOSH KUMAR PATRA	Susavan Biswas	KHAJAN BHARDWAJ	POURUSH GARG
Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
24-01-2023	25-01-2023	25-01-2023	27-01-2023	30-01-2023	31-01-2023

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TPWODL*

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1. SCOPE:

This specification covers the design, manufacture, testing and supply of porcelain HT Guy Strain Insulators for use in Distribution system. Scope also includes transportation & unloading at store / site.

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
IS 5300	Porcelain Guy Strain Insulators

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	150cm
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/ TPWODL/ TPSODL 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:

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Manufacturer's Name	To be specified by Bidder
2	Type of insulator	Designation C
3	Standard Specification to which the material shall confirm	As per IS: 5300
4	ELECTRICAL CHARACTERISTICS	
(a)	Dry one minute power frequency Flashover voltage	32 kV
(b)	Wet one minute power frequency Flashover voltage	15 kV
(c)	Dry one minute power frequency Withstand voltage	27 kV
(d)	Wet one minute power frequency Withstand voltage	13 kV
5	Minimum Failing Load	88 KN
6	DIMENSIONS	
(a)	Length	140 mm
(b)	Width	85 mm
(c)	Cable Hole Dia	25 mm (+/- 1.5 mm)
7	Creepage Distance	57 mm
8	Type of Glaze	Brown / Dark Brown
9	Weight per piece	1.1 Kg approx.

5. GENERAL CONSTRUCTION:

- The porcelain shall be sound, free from defects, thoroughly vitrified and smoothly glazed.
- The design of the insulators shall be such that the stresses due to expansion and contraction in any part of the insulator shall not lead to its deterioration.
- The glaze shall be brown in color for insulators. The glaze shall cover the entire porcelain surface parts except those areas that serve as supports during firing.
- The standard guy strain insulators shall be of designation, 'C' as per IS: 5300 or its latest revision. The recommended type of guy strain insulators for use on guy wires of HT overhead line is Type-C.

6. MARKING:

Following distinct non-erasable embossing is to be made on each Insulator to be supplied to TPCODL/ TPNODL/ TPWODL/ TPSODL under this Tender.

- "TPCODL/ TPNODL/ TPWODL/ TPSODL"
- Failing Load in KN
- Manufacturer Name/ Trade Mark
- Year of manufacturing, Country of Manufacturing

7. TESTS:

The bidder shall be required to submit complete set of the following test reports along with the offer: -

7.1 ACCEPTANCE TESTS

- i) Verification of Dimensions.
- ii) Temperature cycle test
- iii) Mechanical strength test
- iv) Porosity test

7.2 ROUTINE TESTS

- i) Visual examination

7.3 TYPE TESTS

- i) Visual examination
- ii) Verification of dimensions
- iii) Temperature cycle test
- iv) Dry one-minute power frequency withstand test
- v) Wet one-minute power frequency withstand test
- vi) Mechanical strength test
- vii) Porosity test

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All tests shall be conducted at **CPRI / ERDA / Other Government Labs** as per relevant IS. Type tests should have been conducted 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/TPWODL/TPSODL.

9. PRE-DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPWODL/TPSODL. 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/TPWODL/TPSODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL 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/ TPWODL/ TPSODL.

Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/ TPNODL/ TPWODL/ TPSODL
- c) TPCODL/ TPNODL/ TPWODL/ TPSODL 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 STORE:

The material received at TPCODL/ TPNODL/ TPWODL/ TPSODL, 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 54 months from the date of commissioning or 60 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 material covered by 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. The materials are to be packed in crates or boxes for rough handling. Packing shall be marked with the strength and voltage ratings. The bidder shall provide instructions regarding handling and storage precautions to be taken at site.

13. TENDER SAMPLE:

Bidder shall submit the sample of material during submission of Bids.

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. TESTING FACILITIES:

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

16. MANUFACTURING FACILITIES:

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

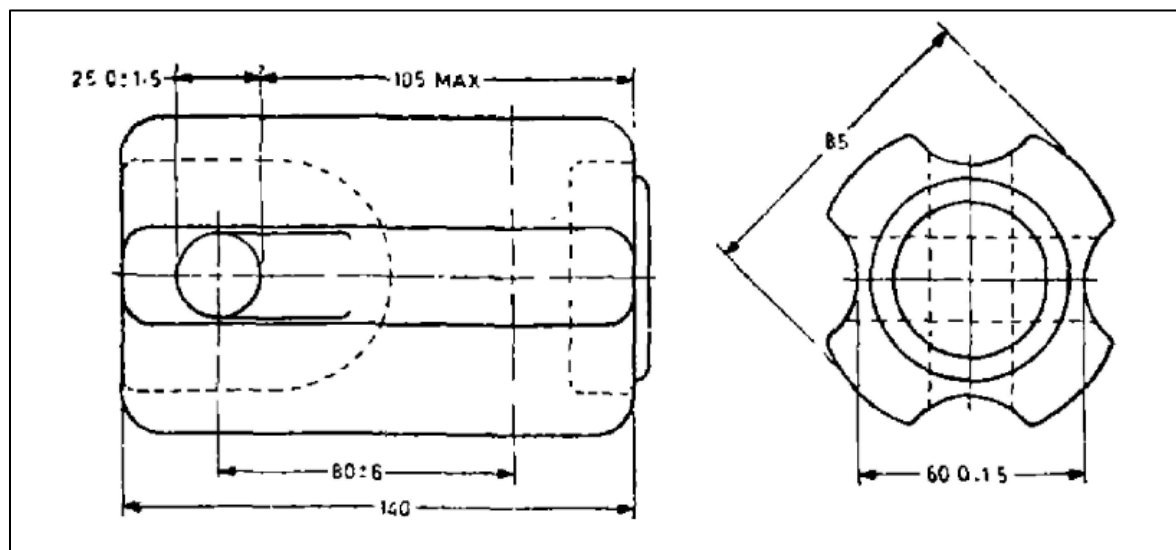
17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

18. DRAWINGS AND DOCUMENTS:

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

- a) Completely filled in Schedule "A" Guaranteed Technical Particulars.
- b) Work Experience details
- c) Type test certificates.
- d) Drawing (3 sets) of Guy Insulator containing complete information about manufacturing & fabrication etc.



Note: -All Dimensions are in mm unless noted otherwise specified. This is an indicative drawing of Guy Insulator used for tender purpose only.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:

SL. NO.	TECHNICAL PARTICULARS	To be furnished by Bidder
1	Manufacturer's Name	
2	Type of insulator	
3	Standard Specification to which the material shall confirm	
4	ELECTRICAL CHARACTERISTICS	
(a)	Dry one minute power frequency Flashover voltage	
(b)	Wet one minute power frequency Flashover voltage	
(c)	Dry one minute power frequency Withstand voltage	
(d)	Wet one minute power frequency Withstand voltage	
5	Minimum Failing Load	
6	Power Frequency Punctured withstand voltage	
7	DIMENSIONS	
(a)	Length	
(b)	Width	
(c)	Cable Hole Dia	
8	Creepage Distance	
9	Type of Glaze	
10	Weight per piece	

20. SCHEDULE "B" DEVIATIONS:

(TO BE ENCLOSED WITH TECHNICAL BID)



Specification No: ENG-HV-2023

Specification Name: Technical Specification of
HT Stay (Guy) Insulator

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-GEN-4039

Specification Name : Specification for GT stay wires

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
SANTOSH KUMAR PATRA	Vijender Goyal	SHANTAPRIYA JENA	SATYA PRASAD NAYAK	VARUN BHATNAGAR	VARUN BHATNAGAR
TPWODL	TPSODL	TPNODL	TPCODL	TPWODL	TPWODL
30-05-2023	31-05-2023	03-06-2023	03-06-2023	02-07-2023	05-08-2023

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- 20. SCHEDULE OF DEVIATIONS**

 	Specification No: ENG-GEN-4039 Specification Name: Technical Specification for GI Stay Wires
---	---

1. SCOPE:

This specification covers the technical requirements of design, manufacturing, Testing, inspection before dispatch at manufacturer's works packing, Loading, forwarding and unloading of GI Stay Wires at site/store.

GI Stay Wires (7/8 SWG GI Stay Wire, 7/10 SWG GI Stay Wire, 7/12 SWG GI Stay Wire)

2. APPLICABLE STANDARDS:

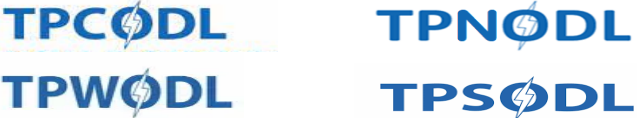
The poles shall comply with relevant provisions made in the following Indian Standards:

IS: 2141	Specification for Hot Dip Galvanized Stay Strand
IS: 4826	Specification for hot-dipped galvanized coatings on round steel wires.
IS: 2633	Methods for testing uniformity of coating on zinc coated articles.
IS: 280	Mild steel wire for general engineering purposes.
IS: 7887	Mild steel wire rods for general engineering purposes.
IS: 6745	Methods for determination of mass of zinc coating on zinc coated iron and steel articles

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	150cm
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.

	Specification No: ENG-GEN-4039 Specification Name: Technical Specification for GI Stay Wires
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4. GENERAL TECHNICAL REQUIREMENTS:

Sl. No	TECHNICAL PARTICULARS	DESIRED VALUE		
		7/8 SWG	7/10 SWG	7/12SWG
1	Nominal Diameter	4.00 mm	3.15 mm	2.5mm
2	Sectional Area in sq. mm	87.92(for stranded wire)	54.52(for stranded wire)	34.35(for stranded wire)
3	Tolerance in diameter	+0.06 mm to -0.03 mm	+0.06 mm to -0.03 mm	+0.06 mm to -0.03 mm
4	Minimum Tensile strength	1100(N/mm2)	1100(N/mm2)	1100(N/mm2)
5	Minimum breaking Load (KN)	13.85 (for single wire) 86.2 (for stranded wire)	8.58 (for single wire) 53.5 (for stranded wire)	5.40 (for single wire) 33.7 (for stranded wire)
6	Type of coating Heavy/Medium/Light	Heavy	Heavy	Heavy
7	Variety Hard/Soft	Hard	Hard	Hard
8	Weight of Zn Coating (gm/mtr.2) (Afterstranding)	275	250	230
9	No of dips the coating is able to withstand at 18±2°C in CuSO4 Solution	3x1 Min, 1x1/2 Min	3x1 Min	2x1 Min, 1x1/2 Min
10	Adhesion Test			
a)	Min. Complete turn of wrap	10	10	10
b)	Diameter of mandrel on which wrapped	6xNominal Diameter	4xNominal Diameter	4xNominal Diameter
11	Minimum Percentage of Elongation (%)	4	4	4
12	Freedom from defects	The wire shall be circular and free from scale, irregularities, imperfections, flaws, splits, and other defects, which may affect the quality of wire.		
13	Chemical composition of the MS Wire used shall not exceed (IS:2141/1992)			
a)	Sulphur (Max)	0.060%	0.060%	0.060%
b)	Phosphorous (Max)	0.060%	0.060%	0.060%
14	Standard	IS: 2141,4826,6594	IS: 2141,4826,6594	IS: 2141,4826,6594
15	Wt. of Each Coil (Kg)	70-100	70-100	70-100
16	Marking	Coil attached with a metallic tag containing:		
		Manufacturers make or Trademark, ISI Mark		
		Coil no, Size, TPCODL/ /TPNODL/TPWODL/TPSODL -marking		
		Mass of coil, Length, Manufacturing month & year		

5. GENERAL CONSTRUCTIONS/REQUIREMENTS:

The wires shall be cold drawn from steel made by open hearth basic oxygen or electric furnace process and of such quality that when drawn to the size of wire specified and coated with zinc, the finished strand and the individual wire shall be of uniform quality of zinc coating. The wire shall not contain Sulphur and phosphorus exceeding 0.060 percent each. All material shall be as per IS: 2141. The wires shall be so stranded together that when an evenly distributed pull is applied at the end of the completed strand, each wire shall take an equal share of pull. Uniformity of zinc coating shall be determined according to IS: 2633. The wire shall be circular and free from scale, irregularities, imperfections, flaws, splits, and other defects, which may affect the quality of wire. The stay wire is hard and the zinc coating of wire shall be heavily coated as conform to IS 4826. All finished wires shall be well and cleanly drawn to the dimensions specified.

6. MARKING:

Coil attached with a metallic tag containing:

- a. Manufacturer make & Trade mark, ISI Mark.
- b. Coil no, Size, TPCODL/ /TPNODL/TPWODL/TPSODL -marking
- c. Mass of coil, Length, Manufacturing month & year

7. TESTS:

All routine, acceptance and type tests of GI Stay Wire shall be carried out in accordance with the relevant IS 2141 standards. All routine/acceptance tests shall be witnessed by the Purchaser/his authorized representative. Following tests shall be necessarily conducted on the GI Stay wire as specified in IS standards.

A. TYPE TESTS:

- a) Diameter of the wire.
- b) Breaking load of Single Wire.
- c) Breaking load of complete strand.
- d) Lay Ratio.
- e) Ductility Test
- f) Mass of zinc coating.
- g) Uniformity of zinc coating.
- h) Adhesion of zinc coating.
- i) Elongation test

B. ROUTINE & ACCEPTANCE TESTS:

- a) Visual Inspection.
- b) Diameter of the wire.
- c) Breaking load of Single Wire.
- d) Breaking load of complete strand.
- e) Lay Length & Lay Ratio.
- f) Ductility Test
- g) Mass of zinc coating.
- h) Uniformity of zinc coating.
- i) Adhesion of zinc coating.
- j) Elongation test

8. TYPE TEST CERTIFICATE:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at CPRI/ERDA/ Other Govt. Lab as per relevant IS. However, TPCODL/ TPWODL/ TPNODL/ TPSODL. TATA-POWER reserves the right to allow any other NABL accredited/ Govt. lab report under exceptional circumstances after due diligence/ scrutiny by DISCOM. Type tests should have been conducted 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/ TPWODL/ TPNODL/ TPSODL.

9. PRE DISPATCH INSPECTION:

Material shall be subject to inspection by a duly authorized representative of the TPCODL/ /TPNODL/TPWODL/TPSODL. Inspection may be made at any stage of manufacture at the option of the TPCODL/TPNODL/TPWODL/TPSODL and the equipment if found unsatisfactory as to workmanship or material is liable to rejection. Supplier shall grant free access to the places of manufacture to TPCODL/TPNODL/TPWODL/TPSODL representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications.

Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPCODL/TPNODL/TPWODL/TPSODL. Following documents shall be sent along with material

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

10. INSPECTION AFTER RECEIPT AT STORES:

The material received at TPCODL/TPNODL/TPWODL/TPSODL Store/Site 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 12 months from the date of supply, the bidder shall be liable to undertake to replace/rectify such defects at its own costs, within 45 day's time frame and to the entire satisfaction of TPCODL/TPNODL/TPWODL/TPSODL, falling which TPCODL/TPNODL/TPWODL/TPSODL will be at liberty to get it replaced/rectified at the bidder risks and cost and recover all such expenses plus the company's own charges (@20% of total expenses incurred) from the bidder or from the "Security from Performance Deposit" as the case may be.

12. PACKING:

Each coil of Stay wire shall be suitably bound and fastened compactly. Each coil shall be packed by suitable wrapping. The galvanized steel stay strand protected with paper/polythene/HDPE and outside wooden lagging on drum/reel. The bidder shall ensure that all the Stay Wire shall be adequately protected and specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit

13. TENDER SAMPLE:

Not Applicable.

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. MINIMUM TESTING FACILITIES:

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

16. MANUFACTURING ACTIVITIES:

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS:

Not Applicable

18. DRAWINGS AND DOCUMENTS:

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

- a) Signed & Stamped Copy of clause wise compliance of technical specification & Schedule of Deviations.
- b) Work Experience details.
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.
- e) Signed & stamped copy of pre-bid queries.

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:

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-GEN-4038

Specification Name : Specification for GI wires of various sizes

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
SANTOSH KUMAR PATRA	Vijender Goyal	SHANTAPRIYA JENA	SATYA PRASAD NAYAK	VARUN BHATNAGAR	VARUN BHATNAGAR
TPWODL	TPSODL	TPNODL	TPCODL	TPWODL	TPWODL
31-05-2023	31-05-2023	03-06-2023	03-06-2023	02-07-2023	05-08-2023

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1. SCOPE:

This specification covers the technical requirements of design, manufacturing, Testing, inspection before dispatch at manufacturer's works packing, Loading, forwarding and unloading of GI Wires at site/store.

GI Wires (4SWG, 6SWG, 8SWG & 10SWG)

2. APPLICABLE STANDARDS:

The poles shall comply with relevant provisions made in the following Indian Standards:

IS: 280	Mild steel wire for general engineering purposes.
IS: 4826	Specification for hot-dipped galvanized coatings on round steel wires.
IS: 7887	Mild steel wire rods for general engineering purposes.
IS: 2629	Recommended practice for hot dip galvanizing of iron and steel
IS: 1521	Method for tensile testing for steel wires
IS: 1755	Method for wrapping testing for wire
IS: 6745	Methods for determination of mass of zinc coating on zinc coated iron and steel articles

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	150cm
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.

   	Specification No: ENG-GEN-4038 Specification Name: Technical Specification for GI Wires
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4. GENERAL TECHNICAL REQUIREMENTS:

SI No.	Technical Particulars	DESIRED VALUE	
		GI Wire 4 SWG	GI Wire 6 SWG
1	Nominal Diameter of Wire	5.6 mm	5 mm
2	Sectional Area in sq. mm	24.630	19.634
3	Tolerance	± 2.5%	± 2.5%
4	Tensile Strength	550-900(N/mm ²)	550-900(N/mm ²)
5	Type of Coating (Heavy/Medium/Light)	Heavy	Heavy
6	Variety (Hard/Soft)	Hard	Hard
7	Weight of Zn Coating(gm/mtr.2)	290	290
8	No of dips the coating is able to withstand at 18±2°C in CuSO4 Solution	3x1 Min, 1x1/2 Min	3x1 Min, 1x1/2 Min
9	Adhesion Test		
a)	Min. Complete turn of wrap	10	10
b)	Diameter of mandrel on which wrapped	6 x Nominal Diameter	6 x Nominal Diameter
		GI Wire 8 SWG	GI Wire 10 SWG
1	Nominal Diameter of Wire	4 mm	3.15 mm
2	Sectional Area in sq. mm	12.566	7.793
3	Tolerance	± 2.5%	± 2.5%
4	Tensile Strength	550-900(N/mm ²)	550-900(N/mm ²)
5	Type of Coating (Heavy/Medium/Light)	Heavy	Heavy
6	Variety (Hard/Soft)	Hard	Hard
7	Weight of Zn Coating(gm/mtr.2)	275	250
8	No of dips the coating is able to withstand at 18±2°C in CuSO4 Solution	3x1 Min, 1x1/2 Min	3x1 Min
9	Adhesion Test		
a)	Min. Complete turn of wrap	10	10
b)	Diameter of mandrel on which wrapped	6 x Nominal Diameter	4 x Nominal Diameter
10	Freedom from defects	All finished wires shall be well and cleanly drawn to the dimensions specified. The wire shall be sound, free from splits, surface flaws, rough jagged and imperfect edges - and other harmful surface defects.	
11	Chemical composition of the MS Wire used shall not exceed (IS:7887/1992) Gr. 5		
a)	Sulphur (Max)	0.050%	
b)	Phosphorous (Max)	0.050%	
c)	Carbon	0.10 to 0.15%	
d)	Manganese	0.30 to 0.60%	

   	Specification No: ENG-GEN-4038 Specification Name: Technical Specification for GI Wires
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12	Standard	IS: 280/1978, 7887/1992,4826/1979
13	Weight of Each Coil (Kg)	40-60
14	Marking	Coil attached with a metallic tag containing:
		Manufacturer make & Trademark, Coil no
		Size, Mass of coil
		Length, Manufacturing Date

5. GENERAL CONSTRUCTIONS/REQUIREMENTS:

All material shall be as per IS: 280:1978. The wire shall be drawn from the wire rods conforming to IS 7887. The process of zinc coating should be as per IS 2629. Zinc coating on hot dip galvanized wire should be uniform. All finished wires shall be well and cleanly drawn to the dimensions specified. The wire shall be sound, free from splits, surface flaws, rough jagged and imperfect edges and other harmful surface defects.

6. MARKING:

Coil attached with a metallic tag containing:

- A) Manufacturer make & Trade mark, Coil no
- B) Size, Mass of coil
- C) Length, Manufacturing Date

7. TESTS:

All routine, acceptance and type tests of GI Wire shall be carried out in accordance with the relevant IS 280 standards. All routine/acceptance tests shall be witnessed by the Purchaser/his authorized representative. Following tests shall be necessarily conducted on the GI wire as specified in IS standards.

A. TYPE TESTS:

- a) Diameter of the individual wire.
- b) Tensile Strength.
- c) Wrapping test of the wire.
- d) Bend test (Applicable for wire of 5mm diameter and above).
- e) Mass of zinc coating.
- f) Uniformity of zinc coating.
- g) Adhesion of zinc coating.
- h) Chemical Composition.

B. ROUTINE & ACCEPTANCE TEST:

- a) Diameter of the individual wire.
- b) Tensile Strength.
- c) Wrapping test of the wire.
- d) Mass of zinc coating.
- e) Uniformity of zinc coating.
- f) Adhesion of zinc coating
- f) Bend test (Applicable for wire of 5mm diameter and above).
- g) Chemical Composition

8. TYPE TEST CERTIFICATE:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at CPRI/ERDA/ Other Govt. Lab as per relevant IS. However, TPCODL/ TPWODL/ TPNODL/ TPSODL. TATA-POWER reserves the right to allow any other NABL accredited/ Govt. lab report under exceptional circumstances after due diligence/ scrutiny by DISCOM. Type tests should have been conducted 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/ TPWODL/ TPNODL/ TPSODL.

9. PRE DISPATCH INSPECTION:

Material shall be subject to inspection by a duly authorized representative of the TPCODL/ /TPNODL/TPWODL/TPSODL. Inspection may be made at any stage of manufacture at the option of the TPCODL/TPNODL/TPWODL/TPSODL and the equipment if found unsatisfactory as to workmanship or material is liable to rejection. Supplier shall grant free access to the places of manufacture to TPCODL/TPNODL/TPWODL/TPSODL representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications.

Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPCODL/TPNODL/TPWODL/TPSODL. Following documents shall be sent along with material

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL

- c) Invoice in duplicate
- d) Packing list
- e) Drawings
- f) Delivery Challan
- g) Guarantee / Warrantee card
- h) Other Documents (as applicable).

10. INSPECTION AFTER RECEIPT AT STORES:

The material received at TPCODL/TPNODL/TPWODL/TPSODL Store/Site 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 12 months from the date of supply, the bidder shall be liable to undertake to replace/rectify such defects at its own costs, within 45 day's time frame and to the entire satisfaction of TPCODL/TPNODL/TPWODL/TPSODL, failing which TPCODL/TPNODL/TPWODL/TPSODL will be at liberty to get it replaced/rectified at the bidder risks and cost and recover all such expenses plus the company's own charges (@20% of total expenses incurred) from the bidder or from the "Security from Performance Deposit" as the case may be.

12. PACKING:

The bidder shall ensure that all material covered under this specification shall be prepared for rail/road transport in a manner to protect the material from damage in transit.

13. TENDER SAMPLE:

Not Applicable.

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. TESTING FACILITIES:

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

16. MANUFACTURING ACTIVITIES:

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS:

Not Applicable

18. DRAWINGS AND DOCUMENTS:

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

- a) Signed & Stamped Copy of clause wise compliance of technical specification & Schedule of Deviations.
- b) Work Experience details.
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.
- e) Signed & stamped copy of pre-bid queries.

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:

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-GEN-4028

Specification Name : Technical Specification for Disc Insulator Hardware Fittings (70KN, 90KN & 120KN)

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
BARSHA BANDITA	ANUP SAMAL	TANISA PRAHARAJ	Jyoti Ranjan Sahu	KHAJAN BHARDWAJ	POURUSH GARG
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
13-03-2023	13-03-2023	18-03-2023	20-03-2023	21-03-2023	21-03-2023

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Specification Name:

Technical Specification For Disc Insulator
Hardware Fittings (70KN, 90KN &120KN)

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19. SCHEDULE "A" GUARANTEED TECHNICAL PARTICULARS
20. SCHEDULE "B" DEVIATIONS

1. SCOPE

The Specification covers the design, manufacture, testing preferably at manufacturer's works before supply and delivery of combined unit of hardware fittings for string insulators suitable for use in 33kV and 11kV overhead power lines.

The combined units offered shall be complete with all components which are necessary (excepting disc insulator) or usual for their effective performance and easy maintenance and inter changeability at site. Such parts shall be deemed to be within the scope of contract.

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
IS 2486 (Part 1) IS 2486 (Part 2) IS 2486 (Part 3)	Specification for metal fittings of insulators for overhead power lines with nominal voltage greater than 1000 V. Specification for Insulator fittings for overhead power lines with nominal voltage greater than 1000V. (dimensional requirements) Specification for Insulator fittings for overhead power lines with nominal voltage greater than 1000 V. (locking devices)
IS 4759	Specification for hot-dip zinc coatings on structural steel and other allied products.
IS : 6745	Determination of mass of zinc coating on zinc coated iron and steel articles.
IS : 2633	Method for testing uniformity of coating on zinc coated.
IS 6603	Stainless Steel Bars and Flats
IS 2016	Plain washers
IS:1573	Specification for electroplated coatings of zinc on iron and steel.
IS 209	Specification of Zinc
IS 6639, BS:916	Specification for Hexagonal bolts and nuts

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL.NO.	CONDITIONS	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 an elevation of 10 meter.
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/ TPWODL 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, dust in suspension during the dry months, and is subjected to fog in cold months.

4. GENERAL TECHNICAL REQUIREMENTS:

- i) All ferrous parts including fasteners shall be hot dip galvanized, after all machining has been completed. Nuts may however be tapped (threaded) after galvanizing and the threads oiled. Spring washers shall be electro-galvanized. The bolt threads shall be undercut to take care of the increase in diameter due to galvanizing. Galvanizing shall be done in accordance with IS-2629-1985 and shall satisfy the tests mentioned in IS: 2633-1986. Fasteners shall

withstand four dips while spring washers shall withstand three dips of one-minute duration in the standard Preece test. Other galvanized materials shall be guaranteed to withstand at least six successive dips each lasting one minute under the Standard Preece test for galvanizing.

- ii) The zinc coating shall be perfectly adherent of uniform thickness, smooth, reasonably bright, continuous and free from imperfections such as flux, ash, rust stains, bulky white deposits and blisters. The zinc used for galvanizing shall be of grade Zn 99.95 as per IS 209.

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE		
1	Type	B&S type		
2	Ultimate Strength	70 KN (3 Bolted)	90 KN (4 Bolted)	120 KN (4 Bolted)
3	Suitable for conductor Size	AAAC-80 Sq mm, 100 Sq mm	AAAC-148 Sq mm	AAAC-232 Sq mm
4	Slip strength of tension clamp	95% of UTS	95% of UTS	95% of UTS
5	Referred IS Standard	IS 2486	IS 2486	IS 2486
6	Material Used			
a)	Cross Arm Strap	Mild Steel (HDG)	Mild Steel (HDG)	Mild Steel (HDG)
b)	Ball Eye	16mm Forged Steel	20mm Forged Steel	20mm Forged Steel
c)	Socket Eye	16 mm Forged Steel	20mm Forged Steel	20mm Forged Steel
d)	Bolted Type Tension Clamp and Keeper	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy
e)	Security Clip	Stainless steel	Stainless steel	Stainless steel
f)	Split Pin	Stainless steel	Stainless steel	Stainless steel
g)	Cotter Pin and Bolt	Mild Steel (HDG)	Mild Steel (HDG)	Mild Steel (HDG)
h)	Nuts	Mild Steel (HDG)	Mild Steel (HDG)	Mild Steel (HDG)
i)	Spring Washer	Electro- galvanized	Electro- galvanized	Electro- galvanized
j)	Plain Washer	Mild Steel (HDG)	Mild Steel (HDG)	Mild Steel (HDG)
k)	Zn confirming to grade	IS 209	IS 209	IS 209
m)	Size of U Bolt	M16	M16	M16
7	Galvanizing	Min 705 g/sq meter/100 microns 6 dips	Min 705 g/sq meter/100 microns 6 dips	Min 705 g/sq meter/100 microns 6 dips
8	Tolerance	+/-5%	+/-5%	+/-5%

5. GENERAL CONSTRUCTIONS:

5.1 Fittings for Strain Insulators with clamp

- i) Cross arm strap confirming to IS 2486 (Part 2). Forged Steel ball eye for attaching the socket end of the Disc insulator to the cross arm strap. Dimensions shall be in accordance with IS: 2486 (Part-2) unless otherwise specified.
- ii) Cross-arm straps shall be manufactured from MS Flat hot dip galvanized and to connect the cross-arm/bracket of the structure at one end and the Ball Clevis at the other end.
- iii) It should be complete with hexagonal bolts, nuts, spring washers and Cotter pin at the threaded end to lock the unit. Minimum Threaded portion of the bolt shall be 30mm.
- iv) Aluminum alloy thimble socket made of permanent high strength aluminum alloy for attaching the disc insulator at one end and for accommodating the loop of conductor at the other end. The thimble socket shall be attached to the disc insulator with the help of locking pin as per the dimensions given in IS:2486 (Part 2).
- v) The tension hardware with three bolts and four bolts strain hardware shall have minimum slip strength not less than 95% of the strength of respective conductor.
- vi) All forgings & castings shall be of good finish and free from flaws or any other defects which may cause decrement of efficiency while in operation. The edges on the outside of the fittings such as at the ball socket & holes and the grooves shall be smooth & rounded. Sharp radius of curvature, ridges etc. which may lead to localized pressure or cause damage to the conductors in service shall be avoided. The clamp shall permit the conductor to slip before the failure of conductor occurs.
- vii) All parts of different fittings which provide for interconnection shall be made such that sufficient clearance is provided at the connection point to ensure free movement. All ball and socket connections shall be free in this manner, but care shall be taken that too much clearance between ball and socket is avoided.
- viii) All ferrous fittings and the parts other than those of stainless steel, shall be galvanized. Small fittings like spring washers, nuts, etc. should be electro-galvanized-Coating thickness as per IS: 1573.
- ix) The nominal dimensions of the ball and sockets, ball eye and cross-arm straps are as per the IS:2486 (Part 2).

5.2 FASTENERS: Bolts, Nuts & Washers:

- i) All bolts and nuts shall conform to IS-6639. U bolt, Hexagonal Bolt, Nut, Plain Washer and all other ferrous parts shall be Hot dip Galvanized. In case of Hot Dip Galvanization, minimum Value of Mass of zinc coating should be 705 g/m². All bolts and nuts shall have

hexagonal heads, the heads being truly concentric, and square with the shank, which must be perfectly straight.

- ii) Flat washers and spring washers shall be provided wherever necessary and shall be of positive lock type. Spring washers shall be electro-galvanized. The thickness of washers shall conform to IS-2016.
- iii) The split pin to be used on the cotter pin shall be of Humpback type & shall be made of Stainless Steel conforming to IS: 6603 with a minimum hardness of 160 HV.
- iv) Locking devices (R Type) for ball and socket lockers shall be of Stainless Steel conforming to IS: 6603 with minimum hardness of 160 HV. The dimension shall conform to IS: 2486.

6. MARKING:

Each Hardware fittings shall be legibly and indelibly marked (embossing/engraved) to show the following:

- a) Name & Trade mark of the manufacturer
- b) Year of manufacturing
- c) Minimum failing load in KN
- d) "TPCODL/TPNODL/TPWODL/TPSODL"

7. TESTS

The bidder shall be required to submit complete set of the following test reports along with the offer: -

7.1 ACCEPTANCE TESTS

For Clamps

- i) Visual Examination Test
- ii) Chemical Composition Test
- iii) Verification of dimensions
- iv) Mechanical Test
- v) Ultimate Strength Test
- vi) Galvanizing Test
- vii) Electrical resistance test

On Insulator string fittings

- i) Visual Examination
- ii) Chemical Composition Test
- iii) Verification of dimensions
- iv) Ultimate Strength Test
- v) Galvanizing Test

7.2 ROUTINE TESTS

- i) Visual Examination Test
- ii) Mechanical Routine Test

7.3 TYPE TESTS

For Clamps

- i) Visual Examination
- ii) Verification of dimensions
- iii) Slip strength tests
- iv) Ultimate Strength test
- v) Electrical resistance test
- vi) Heating Cycle test
- vii) Galvanizing/ Electroplating Test

On Insulator string fittings except Clamps

- i) Visual Examination
- ii) Verification of dimensions
- iii) Mechanical Test
- iv) Galvanizing Test
- v) Chemical Composition Test

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates of the for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI/ERDA/Other Government Labs** as per the relevant IS/IEC. TPCODL/ TPWODL/ TPNODL/ TPSODL. TATA-POWER reserves the right to allow any other NABL accredited/ Govt. lab report under exceptional circumstances after due diligence/ scrutiny by DISCOM. Type tests should have been conducted 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/TPWODL/TPSODL.

9. PRE DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPWODL/TPSODL. 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/TPWODL/TPSODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPWODL/TPSODL 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/ TPWODL/ TPSODL.

Following documents shall be sent along with material.

<<<

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL
- 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/TPWODL/TPSODL, 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 18 months from the date of commissioning or 24 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.

The bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of guarantee period for any 'latent defects' if noticed by the company.

12. PACKING:

Supplier shall ensure that all the material 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. Fittings for different sizes of conductors shall be packed in different boxes/gunny bags and shall be complete with their minor accessories fitted in place and colour codes on tags/fittings shall be marked to identify suitability for different sizes. The bidder shall provide instructions regarding handling and storage precautions to be taken at site.

13. TENDER SAMPLE:

Bidder shall submit the sample of material during submission of Bids.

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:

The bidder shall get the approved drawing and GTP before start of manufacturing activity. The successful bidder will have to submit details of the offered design & components for approval as per specification. CAT-A/CAT-B is mandatory to start manufacturing.

17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

18. DRAWINGS AND DOCUMENTS

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

- a) Completely filled in Schedule "A" Guaranteed Technical Particulars & Schedule "B" Deviations

   	Specification No: ENG-GEN-4028 Specification Name: Technical Specification For Disc Insulator Hardware Fittings (70KN, 90KN &120KN)
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- b) Work Experience details
- c) Type test certificates.
- d) Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

19. SCHEDULE- “A” GUARANTEED TECHNICAL PARTICULARS

Bidder to submit completely clause wise compliance of this specification.

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-HV-2036

Specification Name : Specification for GI Coil Earthing

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
Syed Mohammed Yousuf Raja	SATYA PRASAD NAYAK	JYOTIPRAKASH MOHANTY	SHANTAPRIYA JENA	Shailendra Kumar Jaiswal	SHIRISH SHARAD DIKAY
TPSODL	TPCODL	TPWODL	TPNODL	TPSODL	TPSODL
03-03-2023	17-03-2023	27-03-2023	28-03-2023	29-03-2023	29-03-2023

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Initiator		HOG (Plant Engineering)	
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1.0 SCOPE

The scope of this document is to give design & constructional features, inspection, supply and transportation guidelines for GI Coil Earthing for TPCODL/TPNODL/TPWODL/TPSODL.

2.0 APPLICABLE STANDARDS

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

- a) IS: 280 - Mild steel wire for general engineering purposes.
- b) IS: 4826 - Specification for hot-dipped galvanized coatings on round steel wires.
- c) IS: 7887 - Mild steel wire rods for general engineering purposes.
- d) IS: 2629 - Recommended practice for hot-dip galvanizing of iron and steel
- e) IS: 1521 - Method for tensile testing for steel wires
- f) IS: 1755 - Method for wrapping testing for wire
- g) IS: 6745 - Methods for determination of mass of zinc coating on zinc coated iron and steel

3.0 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 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.

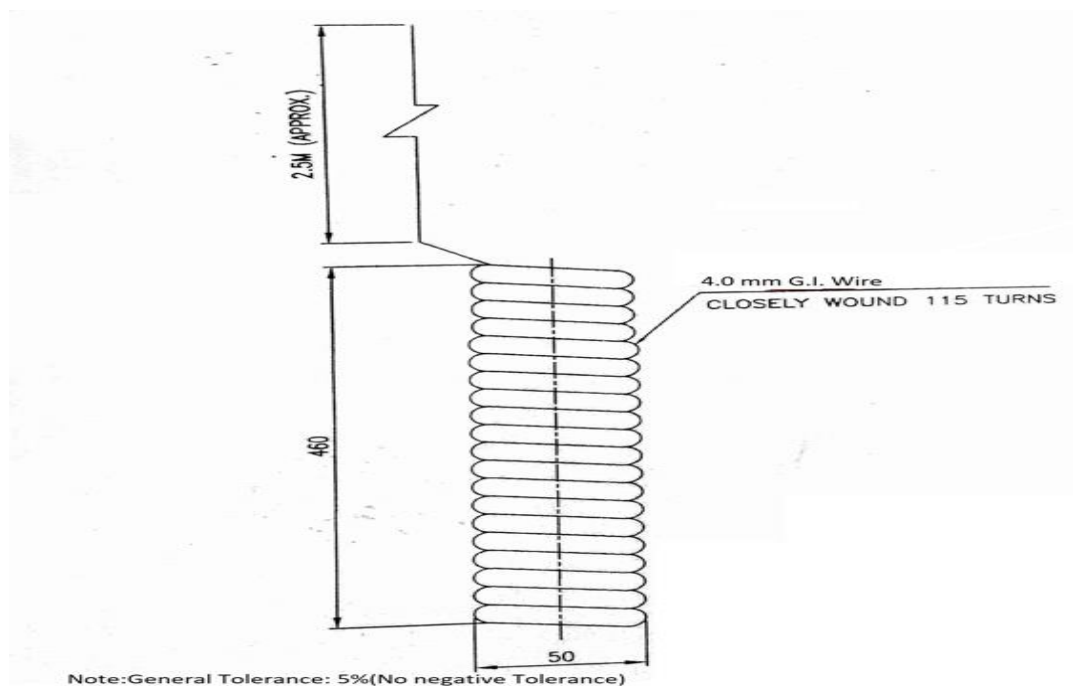
4.0 GENERAL CONSTRUCTION:

The material shall be-

- Heavy class as per IS- 1239/IS 1161-1979.
- Galvanizing to be done after fabrication as per IS: 4826
- The design shall be suitable for the climatic condition stated above.
- Tolerance in Dimensions & Weight should be $\pm 2.5\%$ unless otherwise specified
- Dimensional tolerance shall be as per IS 1852-1985
- Zinc electroplated/painted material will not be accepted, should be properly galvanized.
- No Rusting is acceptable.

5.0 GENERAL TECHNICAL REQUIREMENTS:

Sr. No.	DESCRIPTION	REQUIREMENT
1	Material of earthing coil	GI wire
2	Confirming Standard	IS 280, IS 7887, IS 4826
3	Nominal diameter of Wire	4.00mm with tolerance $\pm 2.5\%$
4	No. of Turns	115 Nos. (Min)
5	External dia of Coil	50mm (Min)
6	Length of Coil	460mm / 450mm (Min)
7	Free Length of G.I wire of earthing coil	2500mm
8	Mass of Zinc Coating	280gm/Sq.mm (Before Coiling) & 266gm/Sq. mm (After Coiling)
9	Total Weight of Coil	1.850 Kgs. (Min)
10	Tolerance in Dimensions & Weight	$\pm 2.5\%$



6.0 MARKING:

The unit shall be appropriately marked as "**PROPERTY OF TPCODL/TPNODL/TPWODL/TPSODL**" and with the name of the vendor and year of manufacturing at suitable location.

7.0 TESTS

All routine, acceptance & type tests shall be carried out in accordance with the relevant IS/IEC.

All routine/acceptance tests shall be witnessed by the purchaser/his authorized representative. All components shall also be type tested as per the relevant standards.

Tests	IS to be referred
Visual test	As a routine test
Dimensional tests	As per the drawing
Tensile test	IS 280
Wrapping test	IS 280
Hot dip galvanizing	IS 4826
Determination of mass of zinc coating on zinc coated iron and steel	IS 4826

8.0 TYPE TEST CERTIFICATE

The bidder shall furnish the type test certificates of the Specification for GI Coil Earthing for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at CPRI/ERDA/NABL accredited as per the relevant standards. Type test should have been conducted 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 or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPCODL/TPNODL/TPWODL/TPSODL.

9.0 PRE DISPATCH INSPECTION

Equipment shall be subjected to inspection by a duly authorized representative of TPCODL/TPNODL/TPWODL/TPSODL. 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/TPWODL/TPSODL's representatives at all times when the work is in progress. Inspection by TPCODL/TPNODL/TPWODL/TPSODL 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/TPWODL/TPSODL. Following documents shall be sent along with material.

- Test reports
- MDCC issued by TPCODL/TPNODL/TPWODL/TPSODL
- Invoice in duplicate
- Packing list
- Drawings & catalogue
- Guarantee / Warrantee card
- Delivery Challan
- Other Documents (as applicable)

10.0 INSPECTION AFTER RECEIPT AT STORES

The material received at TPCODL/TPNODL/TPWODL/TPSODL, Berhampur, 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 Project Engineering department.

11.0 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 Company 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 later. In the event any defect is found by the Company up to a period of 12 months from the date of commissioning or 24 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.

12.0 PACKING

Bidder shall ensure that all the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.

13.0 TENDER SAMPLE

Not Applicable.

14.0 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. TPCODL/TPNODL/TPWODL/TPSODL's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.

15.0 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

16.0 MANUFACTURING ACTIVITIES

The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.

17.0 SPARES, ACCESSORIES AND TOOLS

NA

18.0 DRAWINGS

Following drawings & documents shall be prepared based on Purchaser's specifications and statutory requirements with complete BOM and shall be submitted with the bid:

- a) Completely filled-in Technical Parameters (refer Cl. 5)
- b) General description of the equipment and all components including brochures
- c) General arrangement drawings
- d) Type Test Certificates.
- e) Experience List
- f) Manufacturing schedule and test schedule after the contract, four (4) copies of the drawings, drawn to scale, describing the equipment in detail shall be forwarded for approval and shall subsequently provide four (4) complete sets of final drawings, one of which shall be auto positive suitable for reproduction, before the dispatch of the equipment. Soft copy (Compact Disk CD) of all the drawing, GTP, test certificates shall be submitted after the final approval of the same to the purchaser.

Following Drawings/Documents shall be submitted after the award of the contract:
 Drawings/documents to be submitted after the award of the contract:

S.No	Description	For Approval	For Review Information	Final Submission
1	Technical Parameters	√		√
2	General Arrangement drawings	√		√
3	Bill Of Material	√		√
4	Instruction for Use		√	√
5	QA & QC Plan	√	√	√
6	Routine, Acceptance & Type Test Certificates	√	√	√

All the documents & drawings shall be in English language.

19.0 SCHEDULE OF DEVIATIONS

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

STANDARD TECHNICAL SPECIFICATION COVER SHEET

Specification No. : ENG-GEN-4021

Specification Name : Technical Specification For G.I Nut & Bolt

Prepared by	Reviewed by	Reviewed by	Reviewed by	Approved by	Released by
PONRAJ GA	YOGESH KHARAT	SAURAV BEHERA	Syed Mohammed Yousuf Raja	KHAJAN BHARDWAJ	POURUSH GARG
TPCODL	TPNODL	TPWODL	TPSODL	TPCODL	TPCODL
17-02-2023	22-02-2023	24-02-2023	03-03-2023	18-03-2023	18-03-2023

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   	Specification No: ENG-GEN-4021 Specification Name: Technical Specification of GI nut and bolt
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18. DRAWINGS AND DOCUMENTS
19. SCHEDULE "A" GUARANTEED TECHNICAL PARTICULARS
20. SCHEDULE "B" DEVIATIONS

   	Specification No: ENG-GEN-4021 Specification Name: Technical Specification of GI nut and bolt
--	--

1. SCOPE:

This specification covers the design, manufacture, testing and supply of GI Nuts and Bolts to be used in structures. Scope also includes transportation & unloading at store / site.

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:

IS: 1363/ Part-I & III	Hexagon Head Bolts, Screws and Nuts of Product Grade C Part 1: Hexagon Head Bolts (Size Range M 5 to M 64) Part 3: Hexagon Nuts (Size Range M5 to M64)
IS 14394	Industrial Fasteners - Hexagon Nuts of Product Grade C - Hot-Dip Galvanized (Size Range M12 to M36)
IS 1367/ Part- III, VI & XIII	Technical Supply Conditions for Threaded Steel Fasteners, Part 3: Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Bolts, Screws and Studs Part 6: Mechanical Properties and Test Methods for Nuts with Specified Proof Loads Part 13: Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Bolts, Screws and Studs
IS 2633	Methods for testing uniformity of coating of zinc coated articles
IS 4759	Hot-dip zinc coatings on structural steel and other allied products
IS 6745	Method for determination of mass of zinc coating on zinc coated iron and steel articles

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	150cm
6	Average No. of rainy days per annum	120
7	Altitude above MSL not exceeding	1000m

   	Specification No: ENG-GEN-4021 Specification Name: Technical Specification of GI nut and bolt
--	--

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)

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:

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Material details	Hot-Dip Galvanized Nut, Bolt & Washer
2	Material	Carbon steel
3	Relevant Standard	IS:1363, IS 1367, IS: 2633, IS: 2629.
4	Grade of Steel	5.6
5	Mass of Zinc Coating	As per IS 1367 Part XIII
6	Zinc Coating Thickness	As per IS 1367 Part XIII
7	Chemical Properties	C:-0.13-0.55 Max P:-0.05 Max S:- 0.06 Max B:-0.003 Max
8	Tensile Load	Table 6 of IS 1367 Part III

5. GENERAL CONSTRUCTION:

Bolts & Nuts should be strictly supplied confirming to IS-1363/Part-I & III. The Bolt and Nut should be hot dip galvanized. The Chemical Composition should be as per IS 1367 Part-III.

6. MARKING:

Following distinct non-erasable embossing is to be made on each Nut and Bolt to be supplied to TPCODL/TPNODL/TPSODL/TPWODL under this Tender.

- Manufacturer's name
- Grade of steel
- Year of manufacturing

7. TESTS:

The bidder shall be required to submit complete set of the following test reports along with the

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TPCODL/TPNODL/TPWODL/TPSODL >

   	Specification No: ENG-GEN-4021 Specification Name: Technical Specification of GI nut and bolt
---	---

offer:-

7.1 ACCEPTANCE TESTS

- i) Visual Inspection
- ii) Verification of Dimensions
- iii) Checking of threads,
- iv) Galvanization Test
- v) Proof Load Test
- vi) Hardness Test
- vii) Surface Integrity Test

7.2 ROUTINE TESTS

Same as Acceptance Test

7.3 TYPE TESTS

- i) Visual Inspection
- ii) Verification of Dimensions
- iii) Checking of threads,
- iv) Galvanization Test

8. TYPE TEST CERTIFICATES:

The Bidder shall furnish the type test certificates for the tests as mentioned above as per the corresponding standards. All the tests shall be conducted at **CPRI / ERDA / Other Government Labs** as per relevant IS. Type tests should have been conducted 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 representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPSODL/TPWODL or its authorized

	Specification No: ENG-GEN-4021 Specification Name: Technical Specification of GI nut and bolt
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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) TPCODL/TPNODL/TPSODL/TPWODL 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 STORE:

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 12 months from the date of commissioning or 18 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 material covered by 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. The bidder shall provide instructions regarding handling and storage precautions to be

   	Specification No: ENG-GEN-4021 Specification Name: Technical Specification of GI nut and bolt
--	--

taken at site.

13. TENDER SAMPLE:

Bidder shall submit the sample of material during submission of Bids.

14. QUALITY CONTROL:

The bidder shall submit QAP 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.

15. TESTING FACILITIES:

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

16. MANUFACTURING FACILITIES:

The successful bidder shall submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer.

17. SPARES, ACCESSORIES AND TOOLS

Not applicable.

18. DRAWINGS AND DOCUMENTS:

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

- Completely filled in Schedule "A" Guaranteed Technical Particulars & Schedule "B" Deviations
- Work Experience details
- Type test certificates.
- Drawing 1 set of Hard Copy & Soft copy PDF File containing complete information about manufacturing.

19. SCHEDULE- "A" GUARANTEED TECHNICAL PARTICULARS:-

SL. NO.	TECHNICAL PARTICULARS	TO BE FURNISHED BY BIDDER
1	Material	
2	Relevant Standard	

   	Specification No: ENG-GEN-4021 Specification Name: Technical Specification of GI nut and bolt
--	--

3	Grade of Steel	
4	Mass of Zinc Coating	
5	Zinc Coating Thickness	
6	Chemical Properties	
7	Tensile Load	

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.

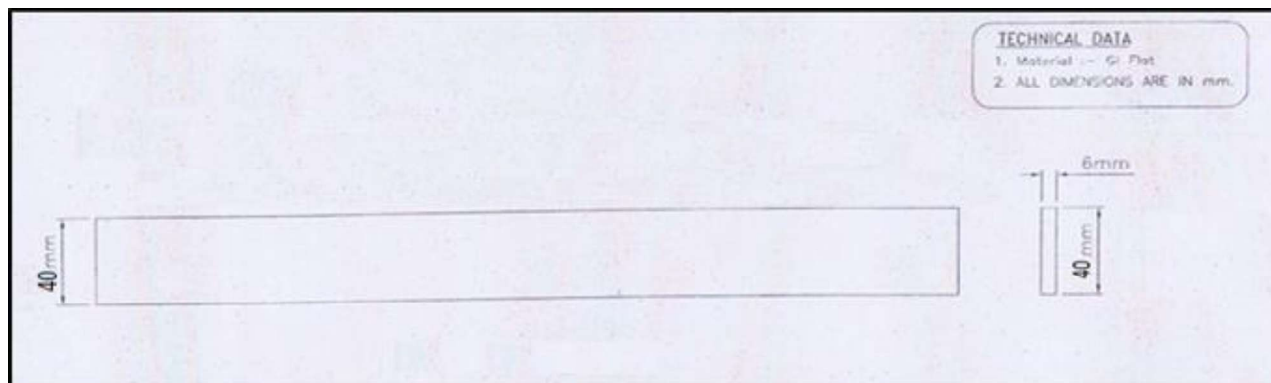
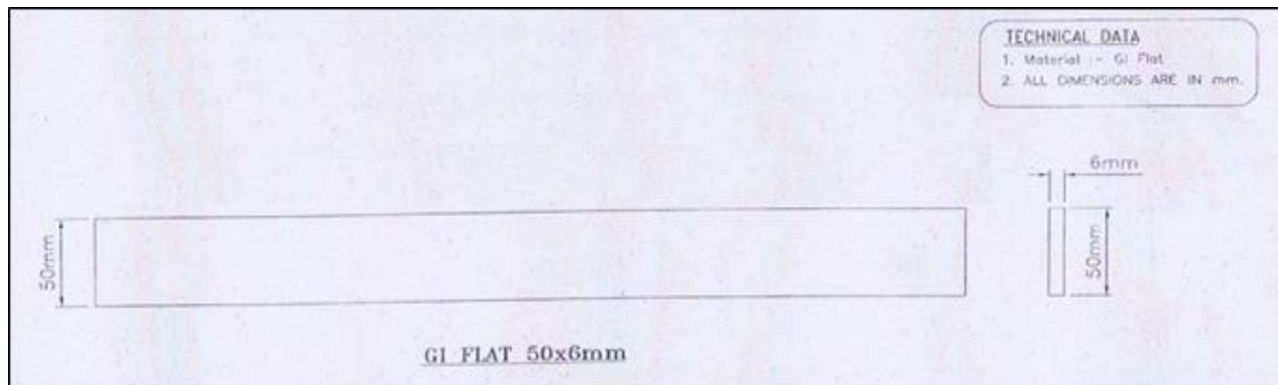
Seal of the Company:

Signature

Designation

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TP CENTRAL ODISHA DISTRIBUTION LIMITED, BHUBANESWAR		
	TECHNICAL BOOKLET		
Document Title	GENERAL TECHNICAL PARTICULARS AND DRAWINGS		
Document No.	TPCODL-ENGG. -001	Issue Date: 31.03.2025	
Revision No.	04	Page 26 of 230	
Prepared by: Engineering Department	Reviewed By: Yashobanta Rout	Approved By: Khajan C. Bhardwaj	Issued By: Pourush Garg

DRAWINGS



13. GI BARBED WIRE

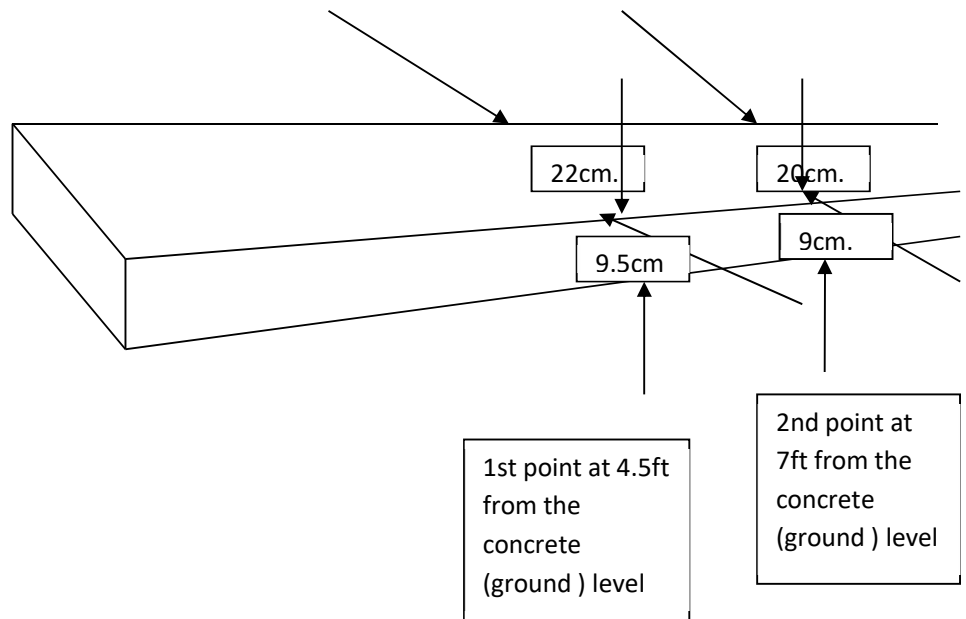
GENERAL TECHNICAL PARTICULARS

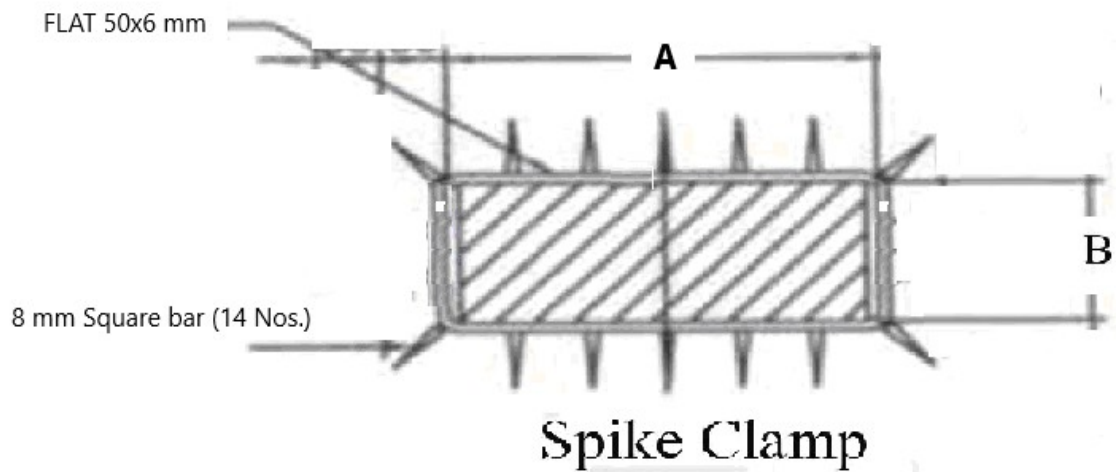
SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
1	Nominal Diameter OF Wire	2.5mm (Line) x 2.5mm (Point)
2	Min Breaking Load of complete Barbed wire	3.7KN
3	Tolerance in diameter	+/- 0.08 mm
4	Tensile strength Of line Wire	390-590 N/mm ²
5	Type of coating Heavy/Medium/Light	Heavy
6	Variety Hard/Soft	Hard
7	Weight of Zn Coating (gm/mtr ²) (After stranding)	150
a	No of dips the coating is able to withstand at 18±2°C in CuSO4 Solution	2x 1 min ,1x ½ min
8	Distance from Between Two Barbs	75 mm +/- 12mm
9	Barbs Points	35° To the Axis of Wire Forming Barbs

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TP CENTRAL ODISHA DISTRIBUTION LIMITED, BHUBANESWAR		
	TECHNICAL BOOKLET		
Document Title	GENERAL TECHNICAL PARTICULARS AND DRAWINGS		
Document No.	TPCODL-ENGG. -001	Issue Date: 31.03.2025	
Revision No.	04	Page 27 of 230	
Prepared by: Engineering Department	Reviewed By: Yashobanta Rout	Approved By: Khajan C. Bhardwaj	Issued By: Pourush Garg

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
10	No of Lays in Between Two Consecutive Barbs.	2 to 7
11	Wrapping Test	8 ON x 8 OFF x OWN Dia
12	Adhesion Test	4D x 10 Turn
13	Freedom from defects	The wire shall be free from all kinds of surface defects.
14	Chemical composition of the MS Wire used shall not exceed (IS:7887/1992)	
a)	Sulphur & Phosphorous	0.055%
b)	Carbon	0.25%
15	Standard	IS: 278/2009
16	Weight of Each Coil (In Kg)	28-32
17	Marking/ Packing	Coil attached with a metallic tag containing:
		Manufacturer make & Trade mark,
		Coil no,
		Size,
		Length, Mass of coil
		TPCODL
		Year of Manufacturing

TECHNICAL SPECIFICATION SPIKE



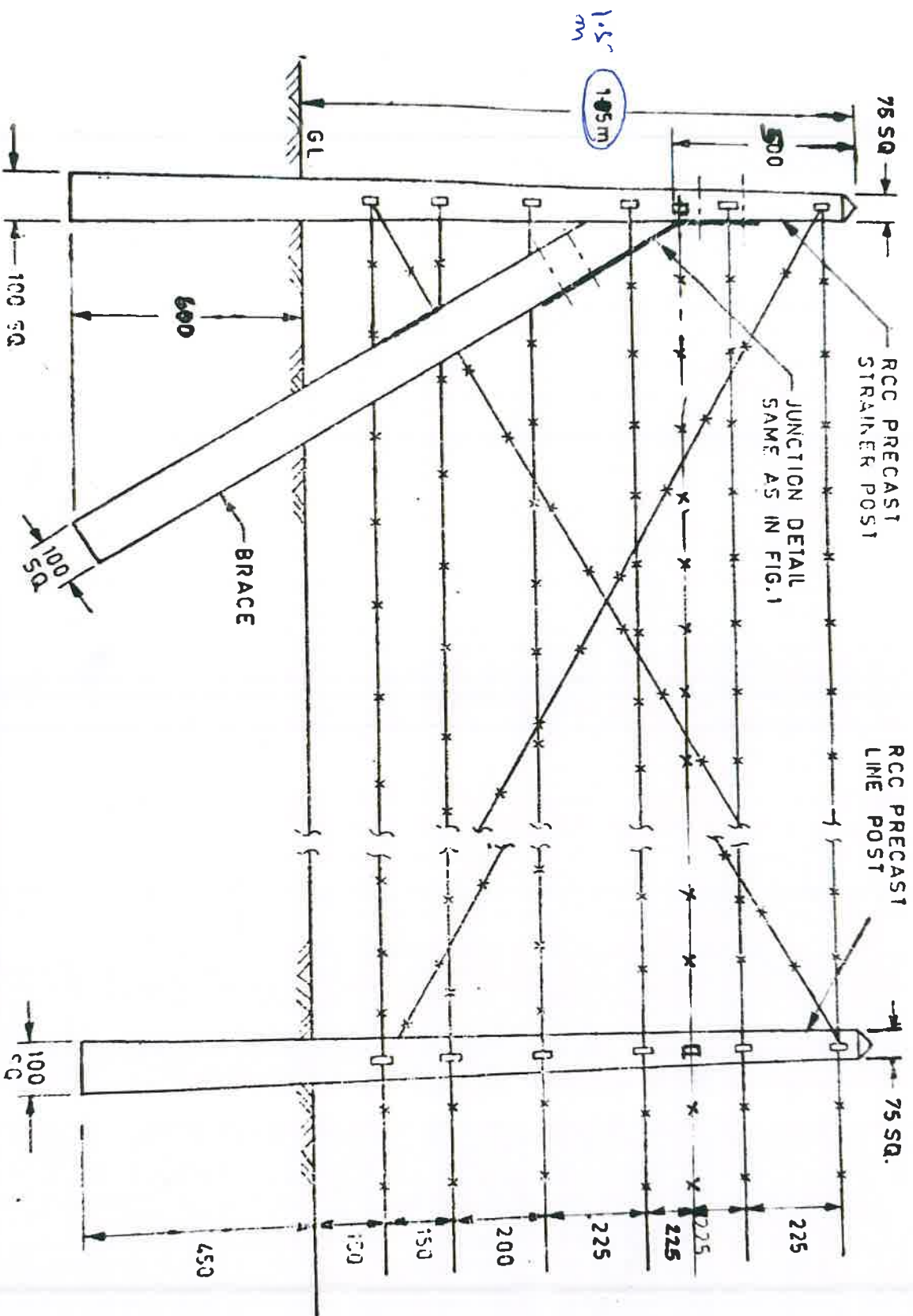


Spike Clamp	A (in mm)	B (in mm)	Type of pole
1 st point at 4.5 ft from the concrete (ground) level	310	90	PSC Pole
2 nd point at 7ft from the concrete (ground) level	280	90	

N.B. : 1. Spike should be made up of 8 mm square bar (solid type) of 8'' long. To avoid theft, the two halves should be welded completely.

2. This is to be inserted from the top of the PSC pole before fixing of the cross Arm.

3. All Spike should be hot dip galvanized. The weight of zinc deposited shall be in accordance with that stated in Standard IS 2629 and shall not less than 0.61kg/m² with a minimum thickness of 86 microns for items of thickness more than 5mm,



All dimensions in millimetres unless otherwise mentioned.

FIG. 5 TYPICAL DETAILS AND DIMENSIONS OF RCC LINE POST, STRAINER POST WITH BRACE FOR PERMANENT BARBED OR PLAIN WIRE CATTLE FENCE

Vendor List -I (Line Material)						
Sr. No	Description of Material/ Equipment	Manufacturer Name	Contact Address	Contact Person	Contact No.	Email Id
1	1.1KV PVC Insulated Cable and Control Cable	M/s Dynamic Cables Ltd, Jaipur	F-260, Road No. 13, VKIA, Jaipur - 302013	Mr. S. Kadam	9001096020	info@dynamiccables.co.in
2	1.1KV PVC Insulated Cable and Control Cable	M/s GEMSCAB Industries Ltd,Rajasthan	Plot No.SP-1192 L&K Phase-4,RICO Industrial Area,Bhiwadi,Alwar,Rajasthan	Mr. A.N Pathak	9121560974	gemscab@vsnl.com sureshchandra@gemscab.com anpathak@gemscab.com
3	1.1KV PVC Insulated Cable and Control Cable	M/s Gloster Cables Ltd,Telangana	310/E, NH 44, Kallakal Village, Manoharbad (Mnd), MEDAK, Telengana 502136	Mr. Rajesh Kumar Dutta (Cable Division)	9127239364	kdutta@glostercable.com marketing@glostercable.com
4	1.1KV PVC Insulated Cable and Control Cable	M/s Havelis India Pvt. Ltd, Rajasthan	Plot no. A/461-462 & SP-215,204 & 204(A), Matsya Industrial Area, Alwar, Rajasthan	Mr. Rudra Prasad Jena Mr. Barun Mishra	9937051045 8018041555	rudraprasad.jena@havelis.com barun.mishra@havelis.com
5	1.1KV PVC Insulated Cable and Control Cable	M/s KEC International Ltd.,Mysore	Mysoore Komataka	Mr. Satish Tomar	8212402401	tomarsk@kecrgp.com powercables@kecrgp.com
6	1.1KV PVC Insulated Cable and Control Cable	M/s KEI Industries Ltd.,Alwar	SP 919,920,922 RICO Industrial Area,Phase-3 Bhiwadi,Alwar, Rajasthan-301019	Mr. Chitrak Sardar	99030 27514	chitras.sardar@kei-ind.com chitrak.sardar@kei-ind.com
7	1.1KV PVC Insulated Cable and Control Cable	M/s Laser Power & Infra Pvt Ltd,Howrah	AT/P.O. : NH-6, Polypark, Dhalagore, Howrah-711302	Mr. Anrudhda Banerjee Mr. Sujib Goswami	9674763567 9674761456	ab.poly2016@gmail.com sales@laserpowerinfra.com
8	1.1KV PVC Insulated Cable and Control Cable	M/s Ravi Industries	Plot 451 HSIIDC Kundli Haryana	Ms Vijeta Hans	9560019276	vinodmurti@ngl-4@seegemcables.com deepakgoyal@seegemcables.com
9	1.1KV PVC Insulated Cable and Control Cable	M/s SBEE Cables India Ltd	Industrial Area, Harohalli Bangalore	Mr. Sangli Lakhota	9341067000 9448992235	sanjeev@sbecables.in orders@sbecables.in
10	1.1KV PVC Insulated Cable and Control Cable	M/s Suraj Cables	DSIIDC Industrial Area Narela Delhi	Mr. Hariom Luthra	9212012908	surajcables@gmail.com
11	1.1KV PVC Insulated Cable and Control Cable	M/s Torrent Cables Ltd, Gujrat	PELICAN Building, 6th Floor,GCCI Compound Ashram Road Ahmedabad, Gujarat - 380009	Mr. S. C. Palekar (VP-Operation)	7930001067	tushampalekar@torrentcables.com
12	1.1KV PVC Insulated Cable and Control Cable	M/s Zenium Cables Ltd.	Valad, Gujrat	Mr. Imran	7045828229	imran.k@zeniumcables.com
13	1.1KV PVC Insulated Cable and Control Cable	M/s Sterlite Technologies Ltd,Mumbai	9B & 9C, 9th Floor, South Tower, Godrej One, Piroshanagar, Vikhroli (East) Mumbai - 400079	Mr. Ashish Goyal		ashish.goyal@stl.tech
14	1.1KV PVC Insulated Cable and Control Cable	M/s Finolex Cables Limited,Bhubaneswar	677, Rudrapur, NH-16, P.O: Pakhal, Opp Kall Mandir, Bhubaneswar - 751001, Orissa		0674-2602971932 0674-2971188	clorissa@finolex.com
15	1.1KV PVC Insulated Cable and Control Cable	M/s Universal Cables Limited,Madhya Pradesh	Birika Vikas,Satna,Madhya Pradesh-485005	Mr. A.Bose		kolkata@unistar.co.in sales@unistar.co.in
16	1.1KV PVC Insulated Cable and Control Cable	M/s Cords Cable Industries Ltd,Rajasthan	A-525,RICO Industrial Area,Chopanki,Bhiwadi,Alwar, Rajasthan-301019	Mr. Niloy Chakraborty	9831066950	ccid@cordscable.co.nc@cordscable.com
17	1.1KV PVC Insulated Cable and Control Cable	M/s Crystal Cable Industries Ltd,Kolkata	32,Ganesh Chandra Avenue,Kolkata,West Bengal-700013			office@crystalcable.in
18	1.1KV PVC Insulated Cable and Control Cable	M/s. Gupta power infrastructure Ltd,Khurda	F/9, ID Centre,Khurda, Odisha-752054	Mr.Mridul Tyagi Mr.Sandeep Kumar Mr. Debabrata Parida	9821762282 8130388990 9937937659	mridul.tyagi@guptapower.com sandeep@guptapower.com debabrata.parida@guptapower.com
19	1.1KV PVC Insulated Cable and Control Cable	M/s Daksha Cable Industries Pvt Ltd(DCI),Mumbai	A-143,Govt Industrial Estate,Charkop Kandivali(West),Mumbai			dakshacables@hotmail.com
20	1.1KV PVC Insulated Cable and Control Cable	M/s V-Guard Industries Ltd.,Bhubaneswar	42/962, Vennala High school Road, Kochi			mail@v-guard.in
21	1.1KV PVC Insulated Cable and Control Cable	Mohta Electro system,Gujarat	M/s Mohta Electric & Engineering Co.A-5, 3rd Floor, Safal Profitraire,Corporate Road, Prahlad Nagar,Ahmedabad - 380 051,Gujarat		794032 2212 794032 2213	info@mohtaelectric.com
22	1.1KV PVC Insulated Cable and Control Cable	M/s Thermo Cables Ltd, Hyderabad	28, Nagarjuna Hills,Punjagutta,Hyderabad-500 082		9139336204	kolkata@thermocables.com info@thermocables.com
23	1.1KV PVC Insulated Cable and Control Cable	M/s Paramount Communications Ltd,Haryana	Plot No.37,Industrial Estate,Dharuhera,Rewari,Haryana-121306	Mr. Manoj verma	9958898025	manoj@paramountcables.com
24	1.1KV PVC Insulated Cable and Control Cable	M/s Radiant Cables,New Delhi	RADIANT INFO SOLUTIONS PVT. LTD. Y-53, Ground Floor,Okhla Industrial Area, Phase-2,New Delhi-110020			info@radiant.in
25	1.1KV PVC Insulated Cable and Control Cable	M/s Ravin Cables Ltd,Mayurbhanj	Hamilton Gardens Baripada, Dist. Mayurbhanj Orissa - 752001	Mr.Santosh George		santosh.george@ravingroup.com ho@ravincables.com
26	1.1KV PVC Insulated Cable and Control Cable	M/s Nicco Corporation Limited,Mayurbhanj	Hamilton Gardens,Baripada,Mayurbhanj,Odisha-757001	Mr. V. R Moza	06792-252454 06792-252434	niccomt@niccocable.com vmoza@niccocable.com
27	11 KV Polymer type AB Switch	M/s High Tension Electrical Equipments Pvt. Ltd,Howrah	101, I, Road, Belgachia, Dasnagar,Howrah, West Bengal	Mr. Kaushik Das	9831906005	comm1@hightension.in
28	11 KV Polymer type AB Switch	M/s Indian Metal Industries, Cuttack	53, Dingal Badi, Cuttack, Gosala Road, PO-Nayabazar, Odisha	Mr. Samir Kumar Dینگال Mr. Santanu Dینگال	7008696247 9853786663	dingal007@gmail.com
29	11 KV Polymer type AB Switch	M/s Indian Power Industries, Cuttack	Jhikira, 42 Mouza, Cuttack, Odisha- 754112	Mr. Bholanath Patra	9937091838 7978602614	indianpower123@gmail.com
30	11 KV Polymer type AB Switch	M/s National Casting & Engineering Co., Cuttack	Nayabazar, Cuttack, Odisha- 753004	Mr. Amit Dینگال Mr. Salil Kumar Dینگال	9937444762 7008811568	call_switchgear@rediffmail.com nccc1986@gmail.com
31	11 KV Polymer type AB Switch	M/s Pramoda Engineering Works	S3/12, Phase-2,New Industrial Estate,Jagatpur,Cuttack, Pin 754021 Odisha	Mr. Rakesh mallia.	9078071194/9437975180	pramodaengineeringworks@yahoo.in
32	11 KV Polymer type AB Switch	M/s Rahul Electricals,Howrah	P-85/22,Benaras Road,Belgachia,Howrah, West Bengal	Mr. Sachin Giri	7003284140 9836539130	rahulelectricals40@gmail.com
33	11 KV Polymer type AB Switch	M/s Samal Industries, Khurda	Plot No C/10 and 9/1 IID centre Industrial Estate Khurda	Mr. Prakash Samal	9437231336	samalindustries1234@gmail.com
34	11 KV Polymer type AB Switch	M/s Sigma Power Industries, Cuttack	Plot no-18, Low Laying Area, Industrial Estate, Khapuria, Madhupatana, Cuttack, 753010, Odisha	Mr. Debanank Biswal	9755550290	sigmapower2020@gmail.com
35	11 KV Polymer type AB Switch	M/s Ultima Switchgears Ltd.,Noida	F-6/F-7,JIPODC,Surgapur Industrial Area,Greater Noida,UP-201335	Mr. Vansh Parmar	9582221901 9953233568	vgp@ultimasmwchgear.com
36	11 KV Polymer type HG Fuse	M/s Indian Metal Industries, Cuttack	53, Dingal Badi, Cuttack, Gosala Road, PO-Nayabazar, Odisha	Mr. Samir Kumar Dینگال Mr. Santanu Dینگال	7008696247 9853786663	dingal007@gmail.com
37	11 KV Polymer type HG Fuse	M/s Indian Power Industries, Cuttack	Jhikira, 42 Mouza, Cuttack, Odisha- 754112	Mr. Bholanath Patra	9937091838 7978602614	indianpower123@gmail.com
38	11 KV Polymer type HG Fuse	M/s Mahatma Enterprises	115, Mahatma Gandhi Road, Kolkata 700007	Mr. Kishan Jhunjhunwala	7044360716 / 9831163516	kishanenterprises@hotmail.com
39	11 KV Polymer type HG Fuse	M/s National Casting & Engineering Co., Cuttack	Nayabazar, Cuttack, Odisha- 753004	Mr. Amit Dینگال Mr. Salil Kumar Dینگال	9937444762 7008811568	call_switchgear@rediffmail.com nccc1986@gmail.com
40	11 KV Polymer type HG Fuse	M/s Pramoda Engineering Works	S3/12, Phase-2,New Industrial Estate,Jagatpur,Cuttack, Pin 754021 Odisha	Mr. Rakesh mallia.	9078071194/9437975180	pramodaengineeringworks@yahoo.in
41	11 KV Polymer type HG Fuse	M/s Samal Industries, Khurda	Plot No C/10 and 9/1 IID centre Industrial Estate Khurda	Mr. Prakash Samal	9437231336	samalindustries1234@gmail.com
42	11 KV Polymer type HG Fuse	M/s Sigma Power Industries, Cuttack	Plot no-18, Low Laying Area, Industrial Estate, Khapuria, Madhupatana, Cuttack, 753010, Odisha	Mr. Debanank Biswal	9755550290	sigmapower2020@gmail.com
43	11 KV Polymer type HG Fuse	M/s High Tension Electrical Equipments Pvt. Ltd,Howrah	101, I, Road, Belgachia, Dasnagar,Howrah, West Bengal	Mr. Kaushik Das	9831906005	comm1@hightension.in
44	11 KV Polymer type HG Fuse	M/s Rahul Electricals,Howrah	P-85/22,Benaras Road,Belgachia,Howrah, West Bengal	Mr. Sachin Giri	7003284140 9836539130	rahulelectricals40@gmail.com
45	11 KV Polymer type HG Fuse	M/s Ultima Switchgears Ltd.,Noida	F-6/F-7,JIPODC,Surgapur Industrial Area,Greater Noida,UP-201335	Mr. Vansh Parmar	9582221901 9953233568	vgp@ultimasmwchgear.com
46	11 KV Ring Main Unit (Without Metering)	M/s ABB INDIA Ltd., Maharashtra	Plot No.79,Street No. 17, MIDC Industrial Area,Satpur, Nashik, Maharashtra	Mr. Saibal Majumdar	9007000365	saibal.majumder@in.abb.com
47	11 KV Ring Main Unit (Without Metering)	M/s Eaton Power Quality Pvt Ltd,Pondicherry	EVR Street, Sedarapet, Pondicherry	Mr. Pritham Malti Mr. Swarnadip Mukherjee	7291029069 9007026607	PRITAMM@eaton.com swarnadipmukherjee@eaton.com
48	11 KV Ring Main Unit (Without Metering)	M/s Lucy Electric India Pvt Ltd, Maharashtra	H-21, MIDC Ambad, Nashik, Maharashtra	Mr. Rahul Dheringe	8308872248	Rahul.Dheringe@lucylelectrc.com
49	11 KV Ring Main Unit (Without Metering)	M/s Partha Electricals, Gujrat	E-113, Manjuszar G.I.D.C Savli, Industrial Estate, Vadodara, Gujarat	Mr. Jignesh Patel	9879106471	jignesh.patel@parthelectricals.in
50	11 KV Ring Main Unit (Without Metering)	M/s Schneider Electric Infrastructure Ltd,Bhubaneswar	14,Forest Park,Bhubaneswar-751009	Mr. Girija Patnaik	9937062964	girija.patnaik@schneiderelectric.com
51	11 KV Ring Main Unit (Without Metering)	M/s SIEMENS Ltd, Goa	L-6,Verna Industrial Estate, Verna Salcete, Goa	Mr. Utpal Roy	9748255175	utpal.roy@siemens.com
52	11 KV Ring Main Unit (Without Metering)	M/s C-Sec Technologies Pvt Ltd.	Plot no-10,Sec-11,II E Sidcul, Ranipur Haridwar-249403	Mr. Sameer Apte Mr. Ankur Guha Thakurta	8291706851 9831689754/ 8240035570	sameer.apte@c-sec.co.in ankur.g@c-sec.co.in
53	11 KV Ring Main Unit (With Metering)	M/s ABB INDIA Ltd., Maharashtra	Plot No.79,Street No. 17, MIDC Industrial Area,Satpur, Nashik, Maharashtra	Mr. Saibal Majumdar	9007000365	saibal.majumder@in.abb.com
54	11 KV Ring Main Unit (With Metering)	M/s Lucy Electric India Pvt Ltd, Maharashtra	H-21, MIDC Ambad, Nashik, Maharashtra	Mr. Rahul Dheringe	8308872248	Rahul.Dheringe@lucylelectrc.com
55	11 KV Ring Main Unit (With Metering)	M/s Partha Electricals, Gujrat	E-113, Manjuszar G.I.D.C Savli, Industrial Estate, Vadodara, Gujarat	Mr. Jignesh Patel	9879106471	jignesh.patel@parthelectricals.in
56	11/0.4KV DTR: 100 KVA	M/s Madni Power Transformer & Electricals, Puri	Plot no-920, Near UGS College,Sakhigopal,Puri,PIN-752014.	Mohammad Khan	9861212812	madnipower786@gmail.com
57	11/0.4KV DTR: 25 & 63 KVA	M/s Jagannath Electricals, Bhadrak	At - Ereini, Po - Charampa, Dist - Bhadrak	Mr. Madan Lal Agarwal	9437060421 7008605895	madanagarwal51@yahoo.com
58	11/0.4KV DTR: 25.63 & 250 KVA	M/s Siva Transformer,Talcher,Angul	At- Remuan, Po- Hatatola, Talcher , Dist-Angul(Odisha) Pin-759100	Mr. Siva Sekhar Sahoo	9437040182, 7381040188	sivatransformer2013@gmail.com
59	11/0.4KV DTR: 25.63,100, 500 KVA 11/0.4KV DTR: 250 KVA / EEI-2(As per Ammndt.04/2021) 11/0.240KV DTR: 16 KVA (EEL-2 As per Ammndt.04/2021)	M/s Skylight Transformer,Cuttack	Plot No.52,Imman Nagar, Salpur, Bhadrapur, Jagatpur, Cuttack, Odisha	Mr. C.K Pradhan	9437644889 9337269896	skylight.odisha@gmail.com
60	11/0.4KV DTR: 25.63,100 KVA (EEL-2 As per Ammndt.04/2021)	M/s Akhandamani Electricals & Constructions, Cuttack	Kusangpur,Cuttack, Odisha	Mr. Prabhat Kumar Rout	9438873224	prawat@aceinfrastructure.com
61	11/0.4KV DTR: 25.63,100 KVA (EEL-2 As per Ammndt.04/2021)	M/s Apolo Transformer,Cuttack	Balsakh,Khapuria(GDP),Cuttack	Mr. Samir Mohan Das	9493515221 9437027885	apoloitransformer@gmail.com
62	11/0.4KV DTR: 25.63,100 KVA (EEL-2 As per Ammndt.04/2021)	M/s Bijayanee Transformer, Dhenkanal	At-Banamaliprasad near DPS , Po- Dhenkanal, Dist-Dhenkanal(Odisha) Pin-759001	Mr. Niranjana Biswal	9437292435	bijayaneentepripr@gmail.com
63	11/0.4KV DTR: 25.63,100 KVA (EEL-2 As per Ammndt.04/2021)	M/s Genmart, Cuttack	Imam Nagar,Cuttack	Mr. B. P. Mishra	9761646465 8368552984	genmartct2019@gmail.com
64	11/0.4KV DTR: 25.63,100 KVA (EEL-2 As per Ammndt.04/2021)	M/s Maa Tarini Electricals & Engineering,Cuttack	IDCO Plot No.50/O,Phase-II, New I.E.Jagatpur,Cuttack,Odisha	Mr. S. Mohapatra	8328920567	maatarinitransformer@gmail.com
65	11/0.240KV DTR: 16 KVA (EEL-2 As per Ammndt.04/2021)	M/s Powertech & Technology,Cuttack	IDCO Plot No.80/O,Phase-III, New I.E.Jagatpur,Cuttack,Odisha	Mr. Debasis Bhoi	9437120176 9437339639	powertechtechnology25@gmail.com

66	11/0.4KV DTR: 25,63,100 KVA(EEL-2)As per Ammndt-4(2021) 11/0.4KV DTR: 250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Care Transformer,Bhubaneswar	Plot No 211 (F), Sector-A, Zone -B, Mancheswar Industrial Estate, Bhubaneswar-751010, odisha	Mr.Amiya Ranjan Behera	9861140540 caretransformerbbs@gmail.com
67	11/0.4KV DTR: 25,63,100,250 & 500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Orissa Engineering Udyog Pvt.Ltd,Jagatpur,Cuttack	At-53/17 Jagatpur Industrial Estate,Phase-3,Jagatpur,Cuttack,Odisha	Er. W. Z. Khan	9861050293 9238412786 oeu_wzk2009@yahoo.com oeu.grouops@gmail.com
68	11/0.4KV DTR: 25,63,100,250 & 500KVA 11/0.240KV DTR: 16 KVA (EEL-2 As per Ammndt-04/2021)	M/s Microtek Transformers Pvt Ltd, Balesore	Kurudra,(NH-5), Near Kurudra Flyover, Balesore	Mr. Rajiv Shah Mr. Alok Ranjan Mallick	9437066099 9439984182 menterprises761@gmail.com microtek_trans@yahoo.com
69	11/0.4KV DTR: 25,63,100,250 KVA (EEL-2 As per Ammndt-04/2021)	M/s Kapiilas Transformers,Dhenkanal	At : Asanabali, Po : Barada, Dist : Dhenkanal, Odisha	Mr. Bipin Bihari Nayak	9938502167 9439280031 kapilasttransformer14@gmail.com
70	11/0.4KV DTR: 25,63,100,250 KVA (EEL-2 As per Ammndt-04/2021)	M/s Power Linc Transformer Pvt Ltd,Bhubaneswar	Mancheswar,Bhubaneswar	Mr.X C Mishra	9437025804 powerlinc.bbsr@gmail.com
71	11/0.4KV DTR: 25,63,100,250 KVA (EEL-2 As per Ammndt-04/2021)	M/s Samieswari Transformers Pvt. Ltd., Bhadrak	Baradeswar,Kendupada,Bhadrak,Odisha	Mr. Sumit Jena	7008955880 9853574199 menterprises761@gmail.com
72	11/0.4KV DTR: 25,63,100,250 KVA (EEL-2 As per Ammndt-04/2021)	M/s Siliguri Electric Works Ltd, West Bengal	Khapraail Road,Matigara,Siliguri,Darjeeling,West Bengal	Mr. A Das	9733309977 3532530776 contact.sew@gmail.com
73	11/0.4KV DTR: 25,63,100,250 KVA 11/0.240KV DTR: 16 KVA (EEL-2 As per Ammndt-04/2021)	M/s Gram Tarang Employability Training Services Pvt Ltd, Khurda	Jatani, Khurda,Odisha	Mr. Manoj Kumar Nayak	9338123532 manoj.nayak@gramtarang.org.in
74	11/0.4KV DTR: 25,63,100,250 KVA 11/0.240KV DTR: 16 KVA (EEL-2 As per Ammndt-04/2021)	M/s On Sai Transformer Pvt Ltd,Cuttack	D/2/ & D/2/3, Old Industrial Estate,Jagatpur,Cuttack	Mr.Bijay Kishore Nanda	9861062611 9437312568 onmsasttransformers2007@gmail.com
75	11/0.4KV DTR: 25,63,100,250 KVA (EEL-2 As per Ammndt-04/2021)	M/s Orissa Industrial Equipments Pvt. Ltd.,Bhubaneswar	Plot no S/72,Sec A, Zone A, Mancheswar Industrial State ,Bhubaneswar,Odisha	Mr. Jiban Kumar Badu	9437307224 oiepsb@gmail.com
76	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s I B Electricals,Dhenkanal	31 & 33 Kathagada,Anand Nagar,Dhenkanal	Mr.Ananta Charan Baral	8895353125 9861163657 b.electricals14@yahoo.in anantacharanbaral2019@gmail.com
77	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Jay Bee Industries	Village Batwal, Tehsil raipur Rani, Dist Panchkula -Haryana	Mr. Sunil Soni	9971001211 nitesh_soni@thineenergy.com
78	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Kanyaka Parneshwari Engineering Ltd.	Rudram Sangareddy, Hyderabad	Mr. Sampat Reddy	9666999038 9394488567 marketing.kpel@gmail.com Unit2@kanyaka.in
79	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Orissa Transformers Pvt. Ltd.,Bhubaneswar	53/73, Sector-A, Zone-B, Mancheswar Industrial Estate, Bhubaneswar-753010	Mr. Jiban Kumar Badu	9437307224 8328838815 tpjkb@gmail.com
80	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Sai Electricals	Sai Dham Victoria Park Meerut UP.	Mr. Akshat Sehgal / Mr. Avinash Chauhan	7536011117 9558000261 akshatsehgal@saielctricals.com postsales@saielctricals.com
81	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Shirdi Sai Electrical Ltd.	Ind Development area Kadapa AP.	Mr. Kiran Kumar	808559612 7799855800 kiran.kumar18@gmail.in
82	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Suvam Transmission Pvt Ltd, Bhubaneswar	Kesura, Jhargada, Bhubaneswar,Odisha	Mr.Harihar Parida	9090968905 tpl.bhubaneswar@gmail.com
83	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Vijay Electricals Ltd	SIDOLI, HARIDWAR	Mr. Srikantha Kumar Achari	7000093987 9690234312 vrikantakumar.achari@vijai.co.in vijai.mkt@vijai.co.in
84	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Bright Transformers Pvt Ltd,Bhubaneswar	151, Sector-A, Zone-B, Industrial Estate,Mancheswar,Bhubaneswar,Odisha	Mr.Trilochan Lenka Mr.Ajay Chhualsingh	9437317639 7609866086 tpjbsbsr10@gmail.com
85	11/0.4KV DTR: 25,63,100,250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Alfa Transformers Ltd,Bhubaneswar	Plot No.3337,Mancheswar Industrial Estate,Rasulgarh,Bhubaneswar,Odisha	Mr.Debasis Das	9437007700 debasish.das@alfa.in sele@alfa.in info@alfa.in
86	11/0.4KV DTR: 25,63,100,250,500KVA (EEL-2 As per Ammndt-04/2021)	M/s S K Electricals, Jaipur	Oupada,Pankoli,Jagpur,Odisha	Mr. Saroj Kumar Poi	9338710303 eskelectricals@gmail.com
87	11/0.4KV DTR: 25,63,100,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Konark Transformer Pvt. Ltd,Cuttack	Plot No 55,Phase-II, New Industrial Estate, Jagatpur, Cuttack Odisha	Saheduzzaman Khan	9861592825 chandraba12@rediffmail.com
88	11/0.4KV DTR: 25,63,100,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Synergy Power Equipment Pvt Ltd ,Jamshedpur	Road#17, Jawahar Nagar, Mango, Jamshedpur-831020 Jharkhand	Mrs. Sangreta Yadav	7485093673 synergypower18@yahoo.com
89	11/0.4KV DTR: 25,63,250,500 KVA 11/0.240KV DTR: 16,25 KVA (EEL-2 As per Ammndt-04/2021)	M/s Toshiba T & D Systems(India) Pvt Ltd, Telengana	Rudram, Patancheru Mandal, Sangareddy District, Telangana-502329	Mr. T Dhanraj	9573377652 vrikinkitha.durgempudi@toshiba-tdti.com mahesh.katepalli@toshiba-tdti.com
90	11/0.4KV DTR: 250,500 KVA (EEL-2 As per Ammndt-04/2021)	M/s Telawne Power Equipments Pvt Ltd., Mumbai	R-457, MIDC Rabale,behind pipeline road,Thane Belapur Road, New Mumbai - 400 701	Mr.Aswini Kumar	8698703532 tender@telawne.com
91	11/0.4KV DTR: 100 KVA	M/s Lakheswar Transformer & Tradings,Cuttack	Plot No.1640/3340, Kuranga Sasan, Niali, Cuttack	Mr. Pravat Kumar Baral	9337737271 9437035666 t12019@gmail.com
92	11/0.4KV DTR: 100 KVA	M/s Marsons Energy Ltd, Jaipur	403, Paradise Garden, A-25 Tilak Nagar, Vidhyalaya Marg, Jaipur- 302004	Mr. Kanhey Lal	9829111080 8005861581 info@marsons.co.in
93	11/0.4KV DTR: 100 KVA	M/s Tesla Power Equipments & Projects Pvt Ltd, Bhopal	Plot no H-147 & 1-147 Sector-H,Industrial Area,Govindpura,Bhopal	Mr. Hemant Malviya	9981419641 hemant@teslaintdia.co
94	11/0.4KV DTR: 25,63,100 & 500 KVA	M/s KMR Transformers, Balesore	Plot No 20, Gadialam, Bahal, Sergarh Balesore, Odisha 756060	Mr. Mahesh Kumar Modi	8917258551 9438509438 kmrtransformer@gmail.com
95	11/0.4KV DTR: 25,63,100 KVA	M/s Genmart Transformer,Cuttack	Imam Nagar,Cuttack	Mr. B.P. Mishra	9716164645 8368852984 genmartict2019@gmail.com
96	11/0.4KV DTR: 25,63,100 KVA	M/s Fyaro Transformers, Balesore	S-2/10, Industrial Estate, Balesore, Odisha-756001	Mr. S. Acharya	9437061793 9437000919 fyarotrans@gmail.com
97	11/0.4KV DTR: 25,63,100 KVA	M/s SaiKrupa Transformers, Keonjhar	Tangrapalasa, Ghadghadi Temple Road, Near Railway Over Bridge, Nanarpur, Keonjhar,Odisha	Mr. Uday Kumar Sha	9437157746 7008800796 saiakrupatransformers@rediffmail.com
98	11/0.4KV DTR: 25,63,100 KVA	M/s Star Delta Transformers Ltd, Bhopal	92-A, Industrial Area Gobindapur, Bhopal-462023(M.P)	Mr. Aman Tiwari	9589436146 star.deltateng@gmail.com
99	11/0.4KV DTR: 25,63,100 KVA, 11/0.240KV DTR: 16 KVA	M/s Vardhman Electromech Pvt Ltd, Jaipur	F-674, Phase-II, RIICO Industrial Area,Stapura, Jaipur,Rajasthan- 302022	Mr. K. P. Shenu	9179320240 k.shenu@vardhman.net
100	11/0.4KV DTR: 25,63,100,250 KVA	M/s Maa Ugrataa Transformers Pvt Ltd, Khurda	Naizang,Kuhur,Near Tangi,Dist-Khurda,Pi-752027	Mr.Subhasish Pattnaik	9853512798 9861058123 uugratarata@gmail.com
101	11/0.4KV DTR: 25,63,100,250 KVA	M/s Lakshmi Transformer Electricals, Agra	B-8, Site-A, UPSIDC, Sikandra, AGRA-282007	Mr. M. K Bhagel	9927395842 9927395012 lakshmitransformers@gmail.com
102	11/0.4KV DTR: 25,63,100,250,500 KVA	M/s Volt Tech Manufacturing Company Ltd, Tamilnadu	Survey No 212/7,212/7,213/3, Pillanakkam Village, Sriperumpudur Taluk, Kancheepuram,Tamilnadu	Mr. R Adalarasan	9360124618 9369361044 transformers@voltechgroup.com
103	11/0.4KV DTR: 25,63,100,250,500 KVA	M/s Jay Bee Industries	Village Batwal, Tehsil raipur Rani, Dist Panchkula -Haryana	Mr. Sunil Son	9971001211 nitesh_soni@thineenergy.com
104	11/0.4KV DTR: 25,63,100,500 KVA	M/s Vijji Power Transformers Pvt Ltd, Bangalore	Plot No-21, Mehta Industrial Estate, Dasanapura Hobli, Bagampura Post, Machahalli, Bangalore-560091	Mr. Dinakar B	9900111089 7829975506 vijjichdinakar10@yahoo.co.in
105	11/0.4KV DTR: 250,500 KVA	M/s SVASCA Industries Pvt Ltd, Haryana	48th Milestone, Delhi Mathura Road, Panitla, Palwal Haryana - 121102	Mr. S C Sharma	7760171114 info@svascaindustries.com
106	11/0.4KV DTR: 63,100,250,500 KVA	M/s Nucon Switchgears Pvt Ltd, Ludhiana	D-7, Phase-V, Focal Point, Ludhiana-141 010. (PB.) India	Mr.Sushil Kumar	9988388387 9891915233 sushil@nucon.co.in devgus@gmail.com
107	11kV Isolator 400/630/800/1250A with & without Earth Switch	M/s Panchkari Kayal & Co, Howrah	Baltikuri, Surkumil, Howrah, West Bengal-711113	Mr. Sandip Hazra	9831429252 9385068611 info.panchkar@gmail.com
108	11kV Isolator 400/630/800/1250A with & without Earth Switch	M/s Ruma Isolator Company, Howrah	At: 6"Q" Road, Howrah	Mr. Adnan Parvez	9830221661 rumaisolatorco@gmail.com
109	11kV Isolator 400/630/800/1250A with & without Earth Switch	M/s Ultima Switchgears Ltd.,Noida	F-6/F-7,JIPODC,Surajpur Industrial Area,Greater Noida,UP-201336	Mr.Vansh Parmar	9582271901 9952333568 rdp@ultimaswitchgear.com
110	11kV Isolator 400/630/800/1250A with & without Earth Switch	M/s. High Tension Electrical Equipments Pvt. Ltd,Howrah	101, C Road, Belgachia, Dasnagar,Howrah, West Bengal	Mr.Kaushik Das	9831906005 commi@hightension.in
111	12kV, 10KA Polymeric Lighting Arrestor	M/s Elektrolites Power Pvt Ltd, Jaipur	S-148 to 150,RIICO Industrial Area,Bagru,Jaipur,Rajasthan-302007	Mrs.Alisha Garg	8696948980 alisha.garg@elektrolites.com
112	12kV, 10KA Polymeric Lighting Arrestor	M/s New Aquaria Electeck Pvt. Ltd., Telangana	Plot No.30,Kucharam Industrial Park,Toopran,Mandal,Medak,Telangana	Mr.Karthik C Mr.Raghabendra	8806667604 9538880209 sales@newaquariaelecteck.com raghu@newaquariaelecteck.com
113	12kV, 10KA Polymeric Lighting Arrestor	M/s Oblum Electrical Industries Pvt Ltd, Hyderabad	A-16&17,Assisted Private Industrial Estate,Balanagar,Hyderabad,Telengana-500037	Mr.Prasanna	9666218445 technical@oblum.co.in prasanna@oblum.co.in
114	12kV, 10KA Polymeric Lighting Arrestor	M/s Orange Power T&D Equipments(P) Ltd, Bangalore	K-2, SSI Area, 1st Cross,Rajaji Nagar,Bangalore, Karnataka	Mr. Chetan Bhurat	9980533011 sales@orangepower.co.in
115	12kV, 10KA Polymeric Lighting Arrestor	M/s ELPRO International Ltd, Pune	Near Chaphekar Chowk,Chinchwad Gaon, Opposite Annapurna Hotel, Pune,Maharashtra	Mr. Satish Kale	8879113397 nkt@elpro.co.in mkt.mso@elpro.co.in
116	12kV, 10KA Polymeric Lighting Arrestor	M/s LAMCO Industries Pvt Ltd, Hyderabad	B-38 39 & 40,Industrial Estate,Sanathnagar,Hyderabad, Andhra Pradesh-500018	Mrs.Lavanya	8096080080 lavanya.a@lamcoindia.com info@lamcoindia.com
117	12kV, 10KA Polymeric Lighting Arrestor	M/s Raychem RPG Pvt Ltd., Gujarat	Kanjar,Lyoti Compound,Nr Halol GIDC,Panchanahal,Gujarat	Mr. Rahul Biswas Mr.Mehul Patel	9771427299 9724304632 rahul_biswas@raychemrpg.com
118	12kV, 10KA Polymeric Lighting Arrestor	M/s Rashtriya Electricals & Engineering Corporation Pvt Ltd,Ghaziabad, UP	C-2-3,Sector-A-3,Tronica City, Ghaziabad,Uttar Pradesh	Mr.Sanjeev Goyal Mr.Lalit	08048409175 8860040606 alit@rashtriyaelectrical.com
119	12kV, 10KA Polymeric Lighting Arrestor	M/s Hindustan Chemicals,Khurja, UP	NH-91,G.T Road,Near Telephone Exchange,Khurja,Uttar Pradesh- 203131	Mr. Shomil Gupta	9690011869 9837057759 sales@hindustanchemicals.com
120	30KV, 10KA Polymeric Lighting Arrestor	M/s Engineer Enterprises, Rajasthan	F-112, RIICO Industrial Area Extn,Phase-2, Bagru, Jaipur, Rajasthan	Mr. Hari	8058191595 marketing@eenterprise.in
121	30KV, 10KA Polymeric Lighting Arrestor	M/s New Aquaria Electeck Pvt. Ltd., Telangana	Plot No.30,Kucharam Industrial Park,Toopran,Mandal,Medak,Telangana	Mr.Karthik C Mr.Raghabendra	8806667604 9538880209 sales@newaquariaelecteck.com raghu@newaquariaelecteck.com
122	30KV, 10KA Polymeric Lighting Arrestor	M/s Oblum Electrical Industries Pvt Ltd, Hyderabad	A-16&17,Assisted Private Industrial Estate,Balanagar,Hyderabad,Telengana-500037	Mr.Prasanna	9666218445 technical@oblum.co.in prasanna@oblum.co.in
123	30KV, 10KA Polymeric Lighting Arrestor	M/s Orange Power T&D Equipments(P) Ltd, Bangalore	1 st Cross Small Scale Industrial Area, Rajajinagar, Bangalore - 560010 Phone-23356615	Mr. Chetan Bhurat	9980533011 orange_power@rediffmail.com
124	33 KV Polymer type HG Fuse (200A)	M/s Indian Metal Industries, Cuttack	53, Dingal Badi, Cuttack, Gosala Road, PO-Nayabazar, Odisha	Mr. Samir Kumar Dingal Mr. Santanu Dingal	7008696247 9853786663 dingal007@gmail.com
125	33 KV Polymer type HG Fuse (200A)	M/s Ultima Switchgears Ltd.,Noida	F-6/F-7,JIPODC,Surajpur Industrial Area,Greater Noida,UP-201336	Mr.Vansh Parmar	9582271901 9952333568 rdp@ultimaswitchgear.com
126	33 KV Isolator 400/630/800/1250A with & without Earth Switch	M/s Panchkari Kayal & Co, Howrah	Baltikuri, Surkumil, Howrah, West Bengal-711113	Mr. Sandip Hazra	9831429252 9385068611 info.panchkar@gmail.com
127	33 KV Isolator 400/630/800/1250A with & without Earth Switch	M/s Ruma Isolator Company, Howrah	At: 6"Q" Road, Howrah	Mr. Adnan Parvez	9830221661 rumaisolatorco@gmail.com
128	33 KV Isolator 400/630/800/1250A with & without Earth Switch	M/s. High Tension Electrical Equipments Pvt. Ltd,Howrah	101, C Road, Belgachia, Dasnagar,Howrah, West Bengal	Mr.Kaushik Das	9831906005 commi@hightension.in
129	33 KV Polymer type AB Switch & HG FUSE	M/s Sigma Power Industries, Cuttack	Plot no-18, Low Laying Area, Industrial Estate, Khapuria, Mathugupna, Cuttack- 753010, Odisha	Mr. Debankar Biswal	975550290 sigmapower2020@gmail.com
130	33 KV Polymer type AB Switch & HG FUSE	M/s Pramoda Engineering Works	53/12, Phase-2,New Industrial Estate,Jagatpur,Cuttack, Pin 754021 Odisha	Mr. Rakhesh mallia.	9078071194 9437975180 pramodaeengineeringworks@yahoo.in
131	33 KV Polymer type AB Switch & HG FUSE	M/s Indian Metal Industries, Cuttack	53, Dingal Badi, Cuttack, Gosala Road, PO-Nayabazar, Odisha	Mr. Samir Kumar Dingal Mr. Santanu Dingal	7008696247 8853786663 dingal007@gmail.com
132	33 KV Polymer type AB Switch & HG FUSE	M/s Jhirkira, 42 Mouza, Cuttack, Odisha- 754112		Mr. Bholanath Patra	9937091838 7978602614 indianpower123@gmail.com
133	33 KV Polymer type AB Switch & HG FUSE	M/s National Casting & Engineering Co., Cuttack	Nayabazar, Cuttack, Odisha- 753004	Mr. Amit Dingal Mr. Salil Kumar Dingal	9937444762 7008811568 salil_swthgear@rediffmail.com nrc1986@gmail.com

134	33 KV Polymer type AB Switch & HG FUSE	M/s Kishan Enterprises	115, Mahatma Gandhi Road, Kolkata 700007	Mr. Kishan Jhunjhunwala	7044360716 9831163516	kishanenterprises@hotmail.com
135	33 KV Polymer type AB Switch	M/s Samal Industries, Khurda	Plot No C/10 and 9/1 IID centre Industrial Estate Khurda	Mr. Prakash Samal	9437231336	samalindustries1234@gmail.com
136	33 KV Ring Main Unit (With Metering)	M/s ABB INDIA Ltd., Maharashtra	Plot No.34, MIDC Industrial Area,Satpur, Nashik, Maharashtra	Mr. Saibal Majumdar	9007000365	saibal.majumdar@in.abb.com
137	33 KV Ring Main Unit (With Metering)	M/s Schneider Electric Infrastructure Ltd,Bhubaneswar	14,Forest Park,Bhubaneswar-751009	Mr. Girija Patnaik	9937062964	girija.patnaik@schneiderelectric.com
138	33 KV Ring Main Unit (Without Metering)	M/s ABB INDIA Ltd., Maharashtra	Plot No.79,Street No. 17, MIDC Industrial Area,Satpur, Nashik, Maharashtra	Mr. Saibal Majumdar	9007000365	saibal.majumdar@in.abb.com
139	33 KV Ring Main Unit (Without Metering)	M/s Lucy Electric India Pvt Ltd, Maharashtra	H-21, MIDC, Ambad, Nashik, Maharashtra	Mr. Rahul Dheringe	8308872248	Rahul.Dheringe@lucyelectric.com
140	33 KV Ring Main Unit (Without Metering)	M/s SIEMENS Ltd., Goa	L-6,Verna Industrial Estate, Verna Salcete, Goa	Mr. Utpal Roy	9748255175	utpal.roy@siemens.com
141	33 KV Ring Main Unit (Without Metering)	M/s Eaton Power Quality Pvt Ltd	EVR Street, Sedarapet, Pondicherry	Mr. Pritam Mali	7291029069	PRITAM.Mali@eaton.com
142	33 KV Ring Main Unit (Without Metering)	M/s Partha Electricals, Gujrat	E-113, Manjisar G.I.D.C Savli, Industrial Estate, Vadodra, Gujrat	Mr. Sureshlo Mukherjee	9670266607	sureshlo.mukherjee@eaton.com
143	AAAC Conductor	M/s Akhandalmani Electricals & Constructions, Cuttack	Kusnangi,Cuttack, Odisha	Mr. Iqnessh Patel	9679106471	iqnessh.patel@parthelectricals.in
144	AAAC Conductor	M/s APAR Industries Ltd., Gujarat	Plot No.153,157-163,2827,Survey 189/71,Umbergaon,Valsad,Gujarat-396171	Mr. Prabhakar Kumar Rout	9438873224	prabhakar.kumar@apar.com
145	AAAC Conductor	M/s Cables India Pvt Ltd	85 Industrial estate Balasore	Mr. S K Suman	9967719156	shyam.suman@apar.com
146	AAAC Conductor	M/s Laser Power & Infra Pvt Ltd,Howrah	AT/P.O. : NH-6, Polypark, Dhulagore, Howrah-711302	Mr. Hiren Patel	8291664446	m.kanakarajan@apar.com
147	AAAC Conductor	M/s Mahavir Transmission Limited, Uttarakhand	A-9,B-4-A-11-13 S, Industrial Estate, Vikasnagar, Dehradun, Uttarakhand-248198	Mr. Aniruddha Banerjee	9977577226	aniruddha@bancableindia.in
148	AAAC Conductor	M/s MPM Industries Ltd	211 Shrimohini, 345 Kingsway, Nagpur 440001	Mr. Aniruddha Banerjee	9674763567	aniruddha@bancableindia.in
149	AAAC Conductor	M/s Pobon DPC & Cables Pvt. Ltd., Balasore(AAAC)	Nayabanda, Bidu, Soro, Balasore,Odisha	Mr. Biswajit Goswami	9674763567	sales@laserpowerinfra.com
150	AAAC Conductor	M/s Polytech Wire and Cables Pvt. Ltd., Rourkela	Gurundia, Lathikata, Rourkela, Sundergarh, Odisha	Mr. Akhil Jain	8447813337	akhil.jain@mahavirtransmission.com
151	AAAC Conductor	M/s Lumino Industries Ltd,Howrah	Biprannapara, Jalan Complex,Domjur,Howrah,West Bengal	Mr. Vikrant Sahare	9871002608	vkrants@mmpil.com
152	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Dharam Industries	Sitara Industrial Growth centre, Raipur	Mr. Chandrasekhara Mohanty	7350017910	vkrants@mmpil.com
153	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Industrial Forging Industries Pvt Ltd,Howrah	Jalan Complex, Gate No.1, Biprannapara, Howrah,West Bengal	Mr. Tapas Debnath	9777277719	pobondpcables@gmail.com
154	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s J B Construction & Services, Kendrapara *(33KV & 11KV V-Cross Arm)	Narasingspur,Gahaga Narasingspur,Kendrapara,Odisha	Mr. Biswajit Pattanab	8260500168	polytechwireandcable@gmail.com
155	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Jainco Transmission Ltd, Howrah	Jalan Complex, Gate No. 1, Lane No. 7, NH-6, Howrah, West Bengal	Mr. Pratik Ranjan Panda	9768525251	polytechwireandcable@gmail.com
156	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s KSE Electricals,Howrah	3rd Main road,NH-6,Begri,Howrah,West Bengal	Mr. Ankur Chadda	9674755236	susant@luminoindustries.com
157	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s New Laxmi Steel & Power Pvt Ltd, Khurda	Plot No.: A/22-25, Sarua Industrial Estate, Khordha, Odisha	Mr. Vikash Singh	9674344474	susant@luminoindustries.com
158	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Pramoda Engineering Works	S/12, Phase-2,New Industrial Estate,Jagatpur,Cuttack, Pin 754021	Mr. Arindam Dutta	9674344474	abaja@luminoindustries.com
159	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Rahul Electricals,Howrah	P-85/22,Benaras Road,Belgachia,Howrah, West Bengal	Mr. Arindam Dutta	9674344474	abaja@luminoindustries.com
160	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Reliable Sponge Pvt Ltd, Sundergarh	Unit-3,Sagore,Balanda,Sundergarh,Odisha	Mr. Pratap Jais	9674344474	abaja@luminoindustries.com
161	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Rukmani Electricals and Components Pvt Ltd	Urda industrial area, Raipur, Chhattisgarh	Mr. Pratul Ghosh	9674344474	abaja@luminoindustries.com
162	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Vijay Transmission Pvt Ltd, Raipur	Kanhera,Dhariva,Urda Acholi road,Raipur, Chhattisgarh	Mr. Ashish K Palit	9674344474	abaja@luminoindustries.com
163	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s High Tension Electrical Equipments Pvt. Ltd,Howrah	101, C Road, Belgachia, Dasnagar,Howrah, West Bengal	Mr. Srikant Samantray	9674344474	abaja@luminoindustries.com
164	All GI Channel, Angle, Flat,GI Pipe, V Cross Arm & Clamp, Pole Clamp	M/s Rajesh Electricals, Howrah	Jalan Complex, Gate No.1, Biprannapara, Howrah,West Bengal	Er. Bipin Kumar Bunnwal	9674344474	abaja@luminoindustries.com
165	Bird Cap	M/s 3M Electro & Communication India Pvt Ltd,Pune	Lattion Dana,Chandigarh Road,Ludhiana-141003	Mr. Rakshesh Mallia	9674344474	abaja@luminoindustries.com
166	Bird Cap	M/s Raychem RPG Pvt Ltd.,Gujarat	A-807,Phase-2,Industrial Area,Bhildi,Alwar,Rajasthan	Mr. Sachin Giri	9674344474	abaja@luminoindustries.com
167	Bird Guard	M/s Asian Loto Corporation Ltd, Haryana	361,Rohini,Sector-14,Aggrawal Plaza,Shahabad,Delhi-110033	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
168	Bird Guard	M/s Mangal Enterprises Pvt Ltd, Delhi		Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
169	Bird Guard	M/s Namdhari Industrial Traders Pvt Ltd,Ludhiana		Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
170	Bird Guard	M/s Rahul Powertech Engineers Pvt Ltd,Rajasthan		Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
171	Bird Guard	M/s Yogayata Electric,Delhi		Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
172	Cable Tie	M/s Mangal Enterprises Ltd, New Delhi	1743/46, 1st Floor,Electrical Market,Bhagiriath Palace,Chandini Chowk,Delhi-110006	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
173	Cable Tie	M/s Novoflex Marketing Pvt Ltd, West Bengal	Rakha-5th Floor,Unit-5,3A Ram Mohan Mullick Garden Lane,Kolkata,West Bengal-700010	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
174	Cable Tie	M/s Ripkons Tradewings, New Delhi	N1-79 Sector-5,ODIS, Biswana Industrial Area,New Delhi-110039	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
175	Covered Conductor Accessories	M/s Raychem RPG Pvt Ltd.,Gujarat	Kanjari,Jyoti Compound,Nr Halol GIDC,Panchmahal,Gujarat	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
176	Covered Conductor Accessories	M/s ENSTO India Pvt. Ltd., Haryana	Plot No. 241, Sector-6, IMT Manesar Gurugram - 122050, Haryana, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
177	Fire Fighting Equipment	MINIMAX, Gujarat	501 Delta,Technology Street,Hiranandani Powai,Mumbai,INDIA - 400076	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
178	Fire Fighting Equipment	M/s Kanadia Fyr Fyter Pvt Ltd,Gujarat	A-202, Dhanraj Industrial Estate, Dhanraj Mill Compound, S. J. Road,Lower Parel (w), MUMBAI 400 013 INDIA	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
179	Fire Fighting Equipment	M/s Cassefire Industries Pvt Ltd,Noida	Karbala, Sonarpur, Vivekanand College, Narendrapur, Kolkata-700103, West Bengal, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
180	Fire Fighting Equipment	M/s Aska Equipments Pvt Ltd,New Delhi	145,Mumbai-Pune Road,Pimpri,Pune,Maharashtra	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
181	Fire Fighting Equipment	M/s Nttn Fire Protection Industries Ltd,Mumbai	Kanjari,Jyoti Compound,Nr Halol GIDC,Panchmahal,Gujarat	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
182	Fire Fighting Equipment	M/s Safex Fire Services Ltd,Mumbai	C-3,31 Floor,Arnya Samaj Road,Nehru Ground,N.I.T,Fardabad-121001	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
183	Fire Fighting Equipment	M/s The Zenith Engineers Ltd,West Bengal	1743/46, 1st Floor,Electrical Market,Bhagiriath Palace,Chandini Chowk,Delhi-110006	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
184	GI Bolts & Nuts	M/s Precision Industrial Fasteners, Ludhiana	Hara Industrial Estate, Near Sakhamni Kanda, Sua Road, Indl. Area-C, Ludhiana-141014.	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
185	GI Bolts & Nuts	M/s Roshan Impex,Ludhiana	Plot No. 30-31, Street No. 3, Oswal Agro Plot, GT Road, Ludhiana-141003 Punjab,INDIA	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
186	GI Bolts & Nuts	M/s Agarwal Fasteners Pvt Ltd,Maharashtra	Plot No 11, Manohar Palghar Road, Chahade Village, Sajjarpada, Palghar (E), Thane Dist - 401404, Maharashtra, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
187	GI Bolts & Nuts	M/s I. C. Fasteners Ltd, Haryana	Rohank, Haryana, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
188	GI Bolts & Nuts	M/s Bharati Overseas Ltd, Ludhiana	B-29/6 & 12, N.P.C Transport Lane, Sherpur Chowk, G.T. Road, Ludhiana - 141003 (INDIA)	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
189	GI Bolts & Nuts	M/s Garg Fasteners,Ludhiana	Plot No 11, Manohar Palghar Road, Chahade Village, Sajjarpada, Palghar (E), Thane Dist - 401404, Maharashtra, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
190	GI Bolts & Nuts	M/s NEXO Industries Pvt Ltd,Ludhiana	Plot No. 163, Phase 2, Industrial Area, Chandigarh-160002, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
191	GI Bolts & Nuts	M/s G.K. Winding Wires Ltd,Noida	Indore Trade Centre, 3/2, South Tukoganj, Indore-452002, Madhya Pradesh, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
192	GI Bolts & Nuts	M/s Maheswari Fasteners & Bright Pvt. Ltd.,Hyderabad	1, Bonfield Lane, Kolkata, West Bengal	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
193	GI Bolts & Nuts	M/s Technam India Ltd, Chandigarh	Plot No.179-183, Focal Point, Industrial Area, Amritsar Punjab-143001	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
194	GI Bolts & Nuts	M/s Millenium structurals (India) Ltd, Indore	Hara Industrial Estate, Near Sukhmani Kanda, Sua Road, Indl. Area-C, Ludhiana-141014.	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
195	GI Bolts & Nuts	M/s Strelling Bolts Pvt. Ltd., Kolkata	4th Floor, First Mall, Mall Road,Ludhiana - 141001 Punjab, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
196	GI Bolts & Nuts	M/s Pankaj International Ltd, Ludhiana	E-27,Additional Ambarnath Industrial Area,Anand Nagar,MIDC,Ambarnath,Maharashtra-421506	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
197	GI Bolts & Nuts	M/s Ravi Engineers Ltd, Punjab	B-A National Highway, Mahendranagar Morbi - 363 642, Gujarat (India)	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
198	GI Bolts & Nuts	M/s Deepak Fasteners Ltd, Ludhiana	D-1, Laghu Udyog Kendra, I.B. Patel Road Goreganj East, Mumbai- 400063, Maharashtra, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
199	GI Bolts & Nuts	M/s Fit Right Nuts and Bolts Pvt Ltd,Maharashtra	Rohank, Haryana, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
200	GI Bolts & Nuts	M/s Bharat Industries, Gujarat	B-29/6 & 12, N.P.C Transport Lane, Sherpur Chowk, G.T. Road, Ludhiana - 141003 (INDIA)	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
201	GI Bolts & Nuts	Karamata Engineering Pvt Ltd,Maharashtra	D-62, Focal Point Rd, Phase V, Focal Point, Ludhiana, Punjab-141010	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
202	GI Bolts & Nuts	M/s Bolt Master India Pvt Ltd, Maharashtra	Forex Estate, Dehlon Road, Vill. Dhrou, Sahnewal, District Ludhiana-141120 Punjab, India	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com
203	GI Bolts & Nuts	M/s Remax India Fasteners Industries Ltd,Ludhiana	Plot No.31, Block-E,Autonagar, Visakhapatnam,Andhra Pradesh,India-530012	Mr. Arun Kumar	9674344474	abaja@luminoindustries.com

204	GI Bolts & Nuts	M/s Forex Fasteners, Ludhiana	Plot No 6A,Vijay Nagar,Nagpur,Maharashtra-440013			rljaw@isuberol.com
205	GI Bolts & Nuts	M/s A V Forgings,Punjab	Industrial Area C, Dhandari Kalan, Surjit Cinema Road, Ludhiana- 141010, Punjab, India	Mr.Sanjeev Kumar (HOD Design & Works)	8048935178	
206	GI Bolts & Nuts	M/s Anshika Fasteners,Maharashtra	Plot No. 39-31, Street No. 3, Chowd Agro Plot, GT Road, Ludhiana- 141003 Punjab-INDIA	Mr. Raninder Singh (Managing Director)	9876036600	ind@roshanimpex.in
207	GI Bolts & Nuts	M/s Durafast Automotives Pvt Ltd, Andhra Pradesh	Survey No 58, Keersa Road,Nagaram Village,Hyderabad-501 091		040-27127766	info@isilva.in
208	GI Bolts & Nuts	M/s Paramhart Engineers Pvt Ltd,Maharashtra	Salt, Rourkela Steel Plant, Rourkela, 769011	Mr.Subhransu Mohanty	9437074007	mohanty@sal.in
209	GI Bolts & Nuts	M/s Turbo Industries Pvt Ltd,Ludhiana	Visakhapatnam Steel Plant, Visakhapatnam - 530031,Andhra Pradesh	Mr. Ashutosh Verma	9907140015	info@artisteelind.com
210	GI Bolts & Nuts	M/s Istiva (Fasteners) Pvt Ltd,Hyderabad	Ghantikal, Mahakalabasta,Athgarh,Cuttack (Orissa)		91-671-7161000	info@artisteelind.com
211	GI Earth Wire	M/s Jainco Transmission Ltd, Howrah	Julien Complex, Gate No. 1, Lane No. 7, NH-6, Howrah, West Bengal	Mr.Pratul Ghosh	9831607956	engg@jainco.net
212	GI Earth Wire	M/s R K Wire Products Ltd, Kolkata	Unit No-VII, 15th Floor,Tower-1, PS Srijan Corporate Park,Plot No G-2, Block-EP & GP, Sector-V, Salt Lake City, Kolkata - 700 091	Mr. Indrajeet Banerjee	9123380881	b@rkwire.com info@rkwire.com
213	GI Earth Wire	M/s Aarti Steels Ltd.,Cuttack	B-20, UPSIDC Industrial Area, Site C, Surajpur Greater Noida, (U.P) 201306 (India)		8744005143	sd@ekwinding.com
214	GI Earth Wire	M/s Krikka Wires (P) Ltd.,Kolkata	28&210 Plot 51 & 52, Bharat Industrial Estate, Bhipmore, Daman		9909952812	ny@balajiwires.in, costing@balajiwires.in
215	GI Earth Wire	M/s UIC Udyog Limited,Kolkata	Unit No-VII, 15th Floor,Tower-1, PS Srijan Corporate Park,Plot No G-2, Block-EP & GP, Sector-V, Salt Lake City, Kolkata - 700 091	Mr. Indrajeet Banerjee	9123380881	b@rkwire.com,info@rkwire.com
216	GI Earth Wire	M/s G.K Winding Wires Ltd,Noida	Katara Industries Pvt. Ltd. 34-38 & 44 Industrial Area, Rattam - 457001 (M.P.) - INDIA		9981828377	info@batarajgroup.co.in, sales@batarajgroup.co.in, marketing@batarajgroup.co.in
217	GI Earth Wire	M/s Balaji Wires Pvt Ltd,Daman	A- 701, Trade World Building, Kamala Mills, Senapati Bapat Marg, Lower Parel (W), Mumbai			info@bharatwiresgroup.com
218	GI Earth Wire	M/s Bajrang Wire Products(India) Pvt Ltd, Jaipur	4, Armoury Road, Bisnupur,Jamshedpur,Jharkhand			bhmd.makelinksgroup@bharatsteel.com
219	GI Earth Wire	M/s Katana Wires Pvt Ltd,Madhya Pradesh	2A, Shakespeare Sarani, Mangal Kalash, Kolkata			marketing-east@bharatwires.com
220	GI Earth Wire	M/s Bharat Wire Ropes Ltd,Mumbai	Jalan Complex, Gate No. 1, Lane No. 7, NH-6, Howrah, West Bengal	Mr.Pratul Ghosh	9831607956	engg@jainco.net
221	GI Earth Wire	M/s Ratlam Wires Pvt Ltd,Madhya Pradesh	7C, Kiran Shankar Roy Road, Hastings Chamber, 1st & 2nd floor,Kolkata - 700 001			ramsurup@cal2.vsnl.net.in, wire@ramsurup.com, info@ramsurup.com
222	GI Earth Wire	M/s Tata Iron & Steel Ltd,Jamshedpur	28th KM Stone , Delhi Meerut Road,Duhal,Sainthil, Muradnagar,Ghaziabad (U.P.) -201206			mk@tataironsales.com, mktg@tataironsales.com
223	GI Earth Wire	M/s Usha Martin Industries Ltd,Kolkata	3rd Main road,NH-6,Begri,Howrah,West Bengal	Mr.Ashis K Palit	9830247600	ashis@uik.in
224	GI Earth Wire	M/s Ramswarup Industrial Corporation Ltd,Kolkata	Kanjarjiyoti Compound,Near Halol GIDC,Panchanahal,Gujarat	Mr.Rahul Biswas Mr.Mehul Patel	9712472299 9724304602	rahu_ biswas@raychemmpg.com
225	GI Earth Wire	M/s Manohar Lal Hira Lal Ltd,Ghaziabad	473/1196,Sirkundram Village,Chengalpatt Taluk,Kanchipuram Sirkundram,Tamilnadu-603108	Mr.Mahesh Kumar	9818156021	mahesh.gurjar@scicame.in
226	GI Pipe	M/s Tata Iron & Steel Ltd,Jamshedpur	B-20, UPSIDC Industrial Area, Site C, Surajpur, Greater Noida, (U.P.)-201306		8744005143	sd@ekwinding.com
227	GI Pipe	M/s Lindal Steel & Power Ltd,Bhubaneswar	Plot No. - 152 & 154, IDA Medchal, Medchal, Hyderabad, Telangana - 501401, India		9246887753 9246810800	maheshwarfasteners@gmail.com, mktg, mfb@gmail.com
228	GI Stay Wire ,GI Barbed Wire, GI Earthing Coil,GI Wire	M/s Industrial Forging Industries Pvt Ltd,Howrah	Jalan Complex, Gate No. 1, Bipannapara, Howrah, West Bengal	Mr.Amit Daga	9812419564	amit@dagagroup.com
229	GI Stay Wire ,GI Barbed Wire, GI Earthing Coil,GI Wire	M/s Jainco Transmission Ltd, Howrah	Jalan Complex, Gate No. 1, Lane No. 7, NH-6, Howrah, West Bengal	Mr.Arindam Dutta	7685853234	mpandit@dagagroup.com
230	GI Stay Wire ,GI Barbed Wire, GI Earthing Coil,GI Wire	M/s R K Wire Products Ltd, Kolkata	Unit No-VII, 15th Floor,Tower-1, PS Srijan Corporate Park,Plot No G-2, Block-EP & GP, Sector-V, Salt Lake City, Kolkata - 700 091	Mr.Pratul Ghosh	9831607956	engg@jainco.net
231	Hardware fittings,GI Pin,GI HT & LT Stay Set	M/s Industrial Forging Industries Pvt Ltd,Howrah	Jalan Complex, Gate No. 1, Bipannapara, Howrah, West Bengal	Mr. Indrajeet Banerjee	9123380881	b@rkwire.com info@rkwire.com
232	Hardware fittings,GI Pin,GI HT & LT Stay Set	M/s Jainco Transmission Ltd, Howrah	Jalan Complex, Gate No. 1, Lane No. 7, NH-6, Howrah, West Bengal	Mr.Amit Daga	9831241956	amit@dagagroup.com
233	Hardware fittings,GI Pin,GI HT & LT Stay Set	M/s Pramoda Engineering Works	53712, Phase-2,New Industrial Estate,Jagatpur,Cuttack, Pin odisha.	Mr.Pratul Ghosh	9831607956	mpandit@dagagroup.com
234	HDPE Pipes	M/s Aadi Polyextrusion & Moulding Pvt. Ltd,Cuttack	B 44 & 45, New Industrial Estate, Jagatpur, Cuttack, Odisha	Mr. Rakshesh malla.	9078071194/9437975180	pramodengineeringworks@yahoo.in
235	HDPE Pipes	M/s Lingaraj Pipes Pvt. Ltd., Khurda	IDCO, Plot No. A/12, Sarua Industrial Estate, Sarua, Khurda, Odisha	Mr. S Mohanty	9861096647 9439755406	asadi.poly@t@gmail.com, orissaplastpipes@rediffmail.com
236	HDPE Pipes	M/s Hari Udyog Pvt Ltd, Balasore	Khamnagar, Kuruda, Balasore, Odisha	Mr. Prashant Ku. Mishra	9040088846 8763211377	support@lingarajpipes.com
237	HDPE Pipes	M/s Valentina Pipes Pvt. Ltd., Bhubaneswar	A/22-23-24, Industrial Estate, Rasulgarh, Bhubaneswar-751010, Odisha	Mr. H.K. Mohanty Mr. Tarun Ray	7894435270 9437963776	haripiaast@haripiaast.com, ray.hupal@haripiaast.com
238	HDPE Pipes	M/s Metropplast Industries,Kuruda,Balasore	Kuruda, Near Kuruda Fly Over, NH-16, Balasore-750056, Odisha	Mr. Nikunj Chhotray Mr. Pradip Pradhan	9437025882 8249322439	mnkchotray@haripiaast.com
239	HDPE Pipes	Ms Balaji Techproducts Pvt. Ltd	Plot no 9 (p),10(p) and 11(p) Kurki Industrial area , Dist Puri	Mr. Sridhar kumar sethy	9778917213	balajitechproducts@gmail.com
240	HDPE Pipes	Ms Flexiflow Polymers LLP	Khasra No.143, Plot No.859-859, Kanjhawala Industrial Area, North West Delhi, Delhi-110081	Mr. Sukdeb Bansal	8076895170	quality@flexiflowpipe.com
241	HDPE Pipes	Ms Raraan Fluid Tech. Pvt. Ltd	Plot No 26/2,33,34,35,36 & 37 at -Jyamnagar Industrial Estate, Khurda Dist Khurda	Ms Bhupendra Shrivast	9827747007	bhupendra.s@raraan.com
242	HDPE Pipes	Ms Oriplast LTD.	Alupur, O.T Road, Balasore	Mr. Alok Dalai	7735732024	lok.dalai@oriplast.in
243	HDPE Pipes	M/s Magnum Fibres Pvt. Ltd., Bhubaneswar	Plot No-123-A, Sector-A Zone-A, Mancheswar indl. Estate, Bhubaneswar – 751010 (ODISHA)	Mr. Binaj Prasad Acharya Mr. A.P. Malla	9040011128 9040011128	binajacharya@magnum-india.com, malla@magnum-india.com
244	HDPE Pipes	M/s Anuja Ceramics Pvt Ltd	Plot No.6638/10614, Mancheswar Industrial Estate, Near Mancheswar Railway Station,Bhubaneswar-751017,Dist-Khurda, odisha	Mr. Bishnu Prasad Jena	9101616695	anjusstone@rediffmail.com
245	HDPE Pipes	M/s SHREE SALASAR INDUSTRIES	B-41, RIICO Industrial Area Sama durgar, Jaipur-302012	Mr. Sk Imran Ali	8144478565	anjusqpc1995@gmail.com
246	HT & LT Cable Termination & Jointing kit (Except Touchproof kit)	M/s 3M Electro & Communication India Pvt Ltd,Pune	145,Mumbai-Pune Road,Pimpri,Pune,Maharashtra	Priyanka Goyal	7891000551	shreesalasarindustrial@rediffmail.com
247	HT & LT Cable Termination & Jointing kit (Except Touchproof kit)	M/s Behr Bircher Cellpack BBC India Pvt. Ltd., Haryana	Plot No. 149, EHTP, Phase-5, Sector-56, HSIDC Kundli, Sonapat, Haryana-131028	Mr. Sujit Kumar Nayak	98306 62775	98306 62775
248	HT & LT Cable Termination & Jointing kit (Except Touchproof kit)	M/s Nexans (PCA Technologies Pvt Ltd.)	25,shah industries Estate, Kotambi, Vadodra, Gujarat , India 391510	Mr. Abhijit Bhagwat	9850667290	knayak@mmmm.com
249	HT & LT Cable termination & Jointing kit (Except Touchproof kit)	M/s Raychem RPE Pvt Ltd.,Gujarat	Kanjarjiyoti Compound,Nr Halol GIDC,Panchanahal,Gujarat	Mr. Soman Maltra	9830559759	suman.maltra@cellpack.com
250	HT (11 kV and 33 kV) Outdoor Type Vacuum Circuit Breaker(VCB)	M/s ABB INDIA Ltd., Maharashtra	Plot No-34, MIDC Industrial Area,Satpur, Nashik, Maharashtra	Mr. Bishnu Prasad Jena	9771427299 8372801987	rahu_ biswas@raychemmpg.com
251	HT (11 kV and 33 kV) Outdoor Type Vacuum Circuit Breaker(VCB)	M/s CG Power & Industrial Solutions Ltd, Maharashtra	A-3, MIDC, Pandavleni, Ambad, Nashik, Maharashtra	Mr. Saibal Majumdar	9007000365	saibal.majumder@in.abb.com
252	HT (11 kV and 33 kV) Outdoor Type Vacuum Circuit Breaker(VCB)	M/s Stelmec Ltd	Gaonhanpada No.2, Shed No. 3, 4 & 5, Plot No. 90.92/1, Post : Bhitone, Virar – Vajreshwar Road, Usgoon, Taluka – Vessel, Dist. Palghar (Maharashtra) – 401303	Mr. Rajesh Sethi	9934313940 7506700154	sales.usgaon@stelmec.com / rajesh.sethi@stelmec.com
253	HT 630 KVA CSS	M/s Sudhir Power, Haryana	Plot No. 92, Sector - 8, IMT Manesar, Gurgaon – 122 050, Haryana, India	Mr. Amit S Rana	7906917260	amitsrana@sudhirpower.com
254	HT 630 KVA CSS	M/s Partha Electricals, Gujrat	F-113, Manjisar G.I.D.C Savli, Industrial Estate, Vadodra, Gujarat	Mr. Jignesh Patel	9879106471	jignesh_patel@parthaelectricals.in
255	HT Indoor Type Vacuum Circuit Breaker(VCB)	M/s ABB INDIA Ltd., Maharashtra	Plot No.34, MIDC Industrial Area,Satpur, Nashik, Maharashtra	Mr. Saibal Majumdar	9007000365	saibal.majumder@in.abb.com
256	HT Indoor Type Vacuum Circuit Breaker(VCB)	M/s Schneider Electric Infrastructure Ltd,Bhubaneswar	14 Forest Park,Bhubaneswar-751009	Mr. Girija Pattnaik	9937062964	girija.patnaik@schneiderelctrcn.com
257	HT Polymer Pin & Disc Insulator	M/s Adinath Industries, Rajasthan	Plot No. E-45(G-2), RICCO Ind. Area,Khushkhera, Bhiwadi, Dist. Alwar, Rajasthan-301019 (INDIA)	Mr. Arnab Mitra	9830195664	arnab.adinathindus@gmail.com
258	HT Polymer Pin & Disc Insulator	M/s Ele Chem Systems Pvt. Ltd., Punjab	Plot No:- 524-525, Phase - IX, Industrial Area, Mohali, Punjab-160062 (india)	Mr. Neha	8872080082	heystemst1@gmail.com
259	HT Polymer Pin & Disc Insulator	M/s Hindustan Chemicals, Khurji, UP	NH-93,G.T Road,Near Telephone Exchange,Khurji,Uttar Pradesh-203131	Mr.Yashdip Patel	9690011869 9837057759	elechemindia123@gmail.com
260	HT Polymer Pin & Disc Insulator	M/s Hobb International,Howrah	Jalan Complex,Howrah,West Bengal	Mr. Shomil Gupta	8017733646 9830079313	scenario.power@gmail.com
261	HT Polymer Pin & Disc Insulator	M/s Jainco Transmission Ltd, Howrah	Jalan Complex, Gate No. 1, Lane No. 7, NH-6, Howrah, West Bengal	Mr.Pratik HoreMr.Vedant Balasaria	9831607956	ender@hobbinternational.com
262	HT Polymer Pin & Disc Insulator	M/s Prime Insulators Pvt Ltd, Gujarat	Ceramic Zone, Block no. 134/P2,Daipur, TA Prantij, Sabarkantha, Gujarat, INDIA (383 120).	Mr.Pratul Ghosh	9925237312 9879521374	engg@jainco.net
263	HT Polymer Pin & Disc Insulator	M/s Prithvi Industries Pvt. Ltd., Howrah	PB Samadard Industrial Area,Villa: Ruiu, Mouza:Popatlula, 24 North Farganas, Kolkata, West Bengal-700119	Mr. Mohan Krishna		info@primeinsulators.com, sales@primeinsulators.com
264	HT Polymer Pin & Disc Insulator	M/s Rashtriya Electricals & Engineering Corporation Pvt Ltd,Ghaziabad	C-2-3,Sector-A-3,Tronica City, Ghaziabad,Uttar Pradesh	Mr. Sanjib Kumar Pal	9438344128	inquiry.prithvi@gmail.com
265	HT Polymer Pin & Disc Insulator	M/s Scenario Powertech Pvt Ltd,Gujrat	Survey No.827P,Gambhirpura,Vadvi-Harsol Road,Talod Sabarkantha,Gujarat,India-383305	Mr. Sanjeev Goyal	8048409175	alt@rashtriyaelectrical.com
266	HT Polymer Pin & Disc Insulator	M/s Imperial Porcelain Pvt Ltd, Rajasthan	Plot No. 153,157-163,2&27,Survey 827P,Gambhirpura,Vadvi-Harsol Road,Talod Sabarkantha,Gujarat,India-383305	Mr. Ketul Patel	9525446612	ketul@scenariopower.com
267	HT XLPE Cable (11kV & 33 KV)	M/s APAR Industries Ltd, Gujarat (11 KV)	F-247,248,248A, IGC Khara, Khara, Bikaner, Rajasthan, India - 334601	Mr. Anand Lahoti Mr.Mukesh Joshi	9898137221 9901091701	scenario.power@gmail.com
268	HT XLPE Cable (11kV & 33 KV)	M/s Dynamic Cables Ltd, Jaipur	F-260, Road No. 13, VKIA, Jaipur - 302013	Mr. S.K Suman	9967719156 8291664446	polymer@imperialceramics.in
269	HT XLPE Cable (11kV & 33 KV)	M/s GEMSCAB Industries Ltd,Rajasthan	Plot No.153,157-163,2&27,Survey 827P,Gambhirpura,Vadvi-Harsol Road,Talod Sabarkantha,Gujarat,India-383305	Mr. S.K Suman	9967719156 8291664446	dhyam.suman@apar.com
270	HT XLPE Cable (11kV & 33 KV)	M/s Havells India Pvt. Ltd.,Alwar(only for 11kV)	F-260, Road No. 13, VKIA, Jaipur - 302013	Mr. Anand Lahoti Mr.Mukesh Joshi	9967719156 8291664446	m.kanakarajan@apar.com
271	HT XLPE Cable (11kV & 33 KV)	M/s KEI Industries Ltd.,Alwar	Plot No SP-1192 L&K Phase-4,RIICO Industrial Area,Bhiwadi,Alwar,Rajasthan	Mr. Rudra Prasad Jena	9121560974	info@dynamiccables.co.in
272	HT XLPE Cable (11kV & 33 KV)	M/s TCL Cables Pvt Ltd	Plot No. A/461-462 & SP-215,204 & 204(A), Matsya Industrial Area,Alwar, Rajasthan	Mr. A.N Pathak	921560974	gemicab@vsnl.com
273	HT XLPE Cable (11kV & 33 KV)	M/s KEI Industries Ltd.,Alwar	SP-910-920,922 RIICO Industrial Area Phase-3 Bhiwadi,Alwar,Rajasthan-301019	Mr. Chitrak Sardar	9937051045 8018041545	surechchandra@gemscab.com
274	HT XLPE Cable (11kV & 33 KV)	M/s TCL Cables Pvt Ltd	Yogi Nagar, Nadiad, Gujarat	Mr. Chitrak Sardar	9937051045 8018041545	anpathak@gemscab.com
275	HT XLPE Cable (11kV & 33 KV)	M/s KEI Industries Ltd.,Alwar	SP-910-920,922 RIICO Industrial Area Phase-3 Bhiwadi,Alwar,Rajasthan-301019	Mr. Chitrak Sardar	9937051045 8018041545	barun.mishra@havells.com
276	HT XLPE Cable (11kV & 33 KV)	M/s KEI Industries Ltd.,Alwar	SP-910-920,922 RIICO Industrial Area Phase-3 Bhiwadi,Alwar,Rajasthan-301019	Mr. Chitrak Sardar	9937051045 8018041545	bhavana.pati@kei-ind.com
277	HT XLPE Cable (11kV & 33 KV)	M/s KEI Industries Ltd.,Alwar	SP-910-920,922 RIICO Industrial Area Phase-3 Bhiwadi,Alwar,Rajasthan-301019	Mr. Chitrak Sardar	9937051045 8018041545	chitrak.sardar@kei-ind.com
278	HT XLPE Cable (11kV & 33 KV)	M/s KEI Industries Ltd.,Alwar	SP-910-920,922 RIICO Industrial Area Phase-3 Bhiwadi,Alwar,Rajasthan-301019	Mr. Chitrak Sardar	9937051045 8018041545	mainakchakraborty@tclcables.in

273	HT XLPE Cable (11kV & 33 kV)	Ms KEC International Ltd	Vadodara, Gujarat	Mr. Balaji	9845407847	thorhathb@kecorg.com
274	HT XLPE Insulated Covered AAAC Conductor (11kV & 33 kV)	M/s APAR Industries Ltd, Gujarat	Plot No.153,157-163,2827, Survey 180/P1,Umbergaon,Vasad,Gujarat-390171	Mr. S K Suman	9967719156	shyam.suman@apar.com
275	HT XLPE Insulated Covered AAAC Conductor (11kV & 33 kV)	M/s KEI Industries Ltd.,Alwar	SP 919,920,922 B/O Industrial Area,Phase-3,Bhiwadi,Alwar,Rajasthan-301019	Mr. Chitrak Sardar	829164446	m.kanakarajan@apar.com
276	HT XLPE Insulated Covered AAAC Conductor (11kV & 33 kV)	M/s Laser Power & Infra Pvt Ltd,Howrah	AT/P.O. : NH-6, Polypark, Dhalugore, Howrah-711302	Mr. Anirudha Banerjee	99030 27514	thavana.pati@kei-ind.com
				Mr. Sujib Goswami	9674763567	chitrak.sardar@kei-ind.com
					9674763567	abp.poly2016@gmail.com
					9674763567	sales@laserpowerinfra.com
277	HT XLPE Insulated Covered AAAC Conductor (11kV & 33 kV)	M/s Raychem RPG Pvt Ltd ,Gujarat	Near Safari Crossing, Near GDC Hal, Vadodara - 389350	Mr. Mohammad Shoab	9776826016	khoshnood_shoab@raychemrpg.com
				Mr. Riaz Makrani	978997221	riaz_makrani@raychemrpg.com
278	LT ABC Accessories, IPC (Insulated Piercing connector, Suspension, Dead end etc.)	M/s 3M Electro & Communication India Pvt Ltd,Pune	145,Mumbai-Pune Road,Pimpri,Pune,Maharashtra	Mr. Sujit Kumar Nayak	98306 62725	rbhagwat@mmm.com
279	LT ABC Accessories, IPC (Insulated Piercing connector, Suspension, Dead end etc.)	M/s Jainco Transmission Ltd, Howrah	Jalan Complex, Gate No. 1, Lane No. 7, NH-6, Howrah, West Bengal	Mr. Abhisit Bhagwat	9850667220	knayak@mmm.com
280	LT ABC Accessories, IPC (Insulated Piercing connector, Suspension, Dead end etc.)	M/s KSE Electricals,Howrah	3rd Main road,NH-6,Begri,Howrah,West Bengal	Mr. Pratul Ghosh	9831607956	engr@jainco.net
281	LT ABC Accessories, IPC (Insulated Piercing connector, Suspension, Dead end etc.)	M/s Raychem RPG Pvt Ltd ,Gujarat	Kanjan,Iyoti Compound,Near Halol GIDC,Panchmahal,Gujarat	Mr. Aohis,K Palit	9830547600	mktg@kse.in
282	LT ABC Accessories, IPC (Insulated Piercing connector, Suspension, Dead end etc.)	M/s SICAME India Connectors Pvt Ltd,Tamilnadu	479/1(96),Sirkundram Village,Chengalpet Taluk,Kanchipuram,Sirkundram,Tamilnadu-603108	Mr. Rahul Biswas	9771427299	rahul_biswas@raychemrpg.com
283	LT XLPE AB Cable	M/s Polytex Wire and Cables Pvt. Ltd.,Bourkela	Gurundia, Lathikata, Rourkela, Sundergarh, Odisha	Mr. Mahesh Kumar	9818156021	mahesh.gurjar@sicame.in
284	LT XLPE AB Cable	M/s Akhandamani Electricals & Constructions, Cuttack	Kusapangi,Cuttack, Odisha	Mr. Biswajit Pattanai	8260500168	polytechwireandcable@gmail.com
285	LT XLPE AB Cable	M/s Dynamic Cables Ltd, Jaipur	F-260, Road No. 13, VKIA, Jaipur - 302013	Mr. Prabhat Kumar Rout	977685234	pravat@aeinfrastructure.com
286	LT XLPE AB Cable	M/s Havelis India Pvt. Ltd, Rajasthan	Plot no. A/461-462 & SP-215,204 & 204(A), Matsya Industrial Area, Alwar, Rajasthan	Mr. S. Kadam	9438873224	info@dynamiccables.co.in
287	LT XLPE AB Cable	M/s Laser Power & Infra Pvt Ltd,Howrah	AT/P.O. : NH-6, Polypark, Dhalugore, Howrah-711302	Mr. Rudra Prasad Jena	9001096020	info@dynamiccables.co.in
				Mr. Anirudha Banerjee	9937651045	rudraprasad.jena@havelis.com
				Mr. Sujib Goswami	8018043545	barun.mishra@havelis.com
					9674763567	abp.poly2016@gmail.com
					9674763567	sales@laserpowerinfra.com
288	LT XLPE AB Cable	M/s Lumino Industries Ltd,Howrah	Bipranapara, Jalan Complex,Dumjir,Howrah,West Bengal	Mr. Tapas Deb Nath	9674755236	susan@luminoindustries.com
				Mr. Vikash Singh	9674344474	ababaj@luminoindustries.com
289	LT XLPE AB Cable	M/s Pobon DPC & Cables Pvt. Ltd, Balasore	Nayakbada, Bidu, Soro, Balasore,Odisha	Mr. Chandra Sekhara Mohanty	9777277719	pobondpcables@gmail.com
290	LT XLPE AB Cable	M/s Ravi Ras Industries	Plot 451 HSIDC, Kundli Haryana	Ms Vijeta Hans	9560019276	tendermarketing@deepseecables.com
291	LT XLPE AB Cable	M/s Paramount Communications Ltd,Haryana	Plot No.37,Industrial Estate,Dharuhera,Rewari,Haryana-123106	Mr. Manoj Verma	9958898025	deepakgoyal@deepseecables.com
292	LT XLPE AB Cable	M/s MMP Industries Ltd	211 Shrimohini, 345 Kingsway, Nagpur 440001	Mr. Vikrant Sahane	9958898025	nanoo@paramountcables.com
293	LT XLPE AB Cable	M/s. Gupta power Infrastructure Ltd,Khurda	F/9, IIO Centre,Khurda, Odisha-752054	Mr. Vikrant Sahane	7350017910	vikrants@mmpoil.com
294	LT ACB/MCCB	L&T		Mr. Mridul Tyagi Mr. Sandeep Kumar Mr. Debabrata Parida	9821762282	info@mmpoil.com
295	LT ACB/MCCB	M/s SIEMENS Ltd,Kolkata	43,Shanti Pally,EM By Pass,Connector,Rashbehari Avenue,Kolkata- 700042	Mr. Atul Singh	8130388990	mridul.tyagi@guptapower.com
296	LT ACB/MCCB	MERLIN GERIN			9937937659	debabrata.parida@guptapower.com
297	LT ACB/MCCB	M/s GE Power Controls India Pvt Ltd, Bangalore	42/1 & 45/14,Electronic City Phase-2,Bangalore-560100			atulsingh@ntec.com
298	LT ACB/MCCB	M/s ABB India Ltd,Bhubaneswar	1st Floor,City Centre A-5/1,Sachivalaya Marg,Unit-9,Bhubaneswar- 751022			adwaita.mukherjee@siemens.com
299	LT ACB/MCCB	M/s Crompton Greaves India Ltd,Mumbai	Equinox Business Park,1st Floor,Tower-3,LBS Marg,Kurla(W),Mumbai- 400070	Mr. Girija Pattnaik	9831038155	anil.mitra@siemens.com
300	LT ACB/MCCB	M/s Havelis India Pvt. Ltd,Uttar Pradesh	Plot no. 6, Site-4, Sahibabad Industrial Area, Sahibabad, Ghaziabad, UttarPradesh-201010	Mr. Siddhartha Das	9937203309	gajula@siemens.com
301	LT ACB/MCCB	M/s. C & S India Pvt Ltd,Uttarakhand	Plot no. 10,Sector-11,JEE,SIDCUL,Ranipur,Haridwar, Uttarakhand-249403	Mr. Gaurav Sharma	9650564714	msidhartha.das@havelis.com
302	LT ACB/MCCB	M/s BCH Electric Ltd, Haryana	20/4, Mathura Road, Faridabad – 121 006 Haryana			mservice@c-sec.co.in
303	LT ACB/MCCB	M/s ERA Electricals Pvt Ltd,Noida	Plot No.8-200, Phase-II, Noida, Uttar Pradesh, 201305	Mr. Mukesh Gupta Mr. Sachin Gupta		marketing@bchindia.com
304	LT ACB/MCCB	M/s Schneider Electric Infrastructure Ltd,Bhubaneswar	14,Forest Park,Bhubaneswar-751009	Mr. Girija Pattnaik		girija.patnaik@schneiderelectric.com
305	M.S/GI LT Distribution Box	M/s Arun Enterprises, Sahibabad, New delhi	B-48,site IV,Sahibabad-201010, Dist -Ghaziabad(UP)	Mr. Nayan Raj / Narendra singh	7042896191, 7042896177	mktg2arunenterprises@gmail.com // td@arunenterprises.in // enquiry@arunenterprises.in
306	M.S/GI LT Distribution Box	M/s Gouav Energen India Pvt Ltd	Industrial Estate, CB ganj Bareilly UP	Mr. Tanuj Vasis	9456623202	project3@arunenterprises.in
307	M.S/GI LT Distribution Box	M/s Lan Engineering	B-16,Sector-83,Noida,Uttar Pradesh	Mr. Rahul Chaudhary	9811004836	marketing@lanengineering.in
308	M.S/GI LT Distribution Box	M/s S R Automation Pvt Ltd, Kolkata	Arapanch,Sonarpur,Kolkata,West Bengal-700150	Mr. Deepak Kumar Jha	8130481764	deepak@lanengineering.in
309	M.S/GI LT Distribution Box	M/s Bose Engineering (India) Pvt Ltd, Kolkata	K-14 Behala Industrial Estate,620 D H Road,Kolkata,West Bengal-700034	Mr. B Sarkar	9811274861 9903050292	s_r_automation61@yahoo.com
310	M.S/GI LT Distribution Box	M/s I D Electrical Products Pvt Ltd,Kolkata	30,Baharhat Road,Kolkata,Near Hospital Moore,West Bengal-700104	Mr. Anindya K Bose		r_automation@rediffmail.com
311	MCB	L&T		Mr. Rinka Ghosh Mr. Soumya Ghosh	8017024048	factory@srautomationkolkata.com
312	MCB	M/s ABB India Ltd,Bhubaneswar	1st Floor,City Centre A-5/1,Sachivalaya Marg,Unit-9,Bhubaneswar- 751022	Mr. Atul Singh	9804263626	anind_bose@yahoo.co.in
313	MCB	M/s SIEMENS Ltd,Kolkata	43,Shanti Pally,EM ByPass,Connector,Rashbehari Avenue,Kolkata- 700042			rinka.ghosh@ide.co.in
314	MCB	M/s Havelis India Pvt. Ltd,Uttarakhand	Plot no. 6, Site-4, Sahibabad Industrial Area, Sahibabad, Ghaziabad, UttarPradesh-201010			atulsingh@ntec.com
315	MCB	M/s Standard Electricals Ltd,Noida	Global Headquarters , DRC Towers,2D, Sec-126, Expressway, Noida - 201304 U.P	Mr. Siddhartha Das	9937203309	contact.center@in.abb.com
316	MCB	M/s Schneider Electric Infrastructure Ltd,Bhubaneswar	14,Forest Park,Bhubaneswar-751009	Mr. Girija Pattnaik		adwaita.mukherjee@siemens.com
317	MCB	Legrand, Kolkata	Bhaktia Towers, 2nd & 3rd Floor, Plot No. KB 22, Salt Lake, Sector - 3, KOLKATA - 700 091	Mr. Siddhartha Das	9937203309	msidhartha.das@havelis.com
318	MCB	M/s Crompton Greaves India Ltd,Mumbai	Equinox Business Park,1st Floor,Tower-3,LBS Marg,Kurla(W),Mumbai- 400070	Mr. Girija Pattnaik		gajula@siemens.com
319	MCB	MERLIN GERIN				girija.patnaik@schneiderelectric.com
320	MCB	M/s. C & S India Pvt Ltd,Uttarakhand	Plot no.10,Sector-11,JEE,SIDCUL,Ranipur,Haridwar, Uttarakhand-249403	Mr. Gaurav Sharma	9650564714	mservice@c-sec.co.in
321	PSC Pole (300 Kg/9 mtr)	M/s Baba Loknath Dev Concrete Products Pvt Ltd Ltd_Khurda	Kulhari, Tangi, Khurda, Odisha	Mr. N.K Mishra	7008475197	bknkhatdev@gmail.com
322	PSC Pole (300 Kg/9 mtr)	M/s Baba Loknath Pvt Ltd,Khurda	Kulhod,Khurda	Mr. Bijay Pradhan	9937397199	bknkhatdev@gmail.com
323	PSC Pole (300 Kg/9 mtr)	M/s BabaAkhandalamani,Bhadrak	Randia,Bhadrak,Odisha	Mr. Ravi Sharma	9861058123	bknkhatdev@gmail.com
324	PSC Pole (300 Kg/9 mtr)	M/s Bajaj PSC Poles Industries,Khurda	35/46,Jaydev Vihar,Near Vishnu Priya Apartment, Bhubaneswar, Khurda, Odisha	Mr. Chinnmay T. Mohapatra	9040045476	babaconcrete17@gmail.com
325	PSC Pole (300 Kg/9 mtr)	M/s Divine Concrete Pvt. Ltd, Jaipur	Mandira,Haridrapur,Chandikhol,Jaipur,Odisha	Mr. S P Mohapatra	9937528888	saiprasad@yahoo.com
326	PSC Pole (300 Kg/9 mtr)	M/s Gautam Cements Works Ltd,Jharsuguda	Hirma,Badmal,Jharsuguda,Odisha	Mr. S P Sahoo	9437078787	divineconcreteproducts@gmail.com
327	PSC Pole (300 Kg/9 mtr)	M/s JSME Energy and Power - Berhampur Odisha	Police Station, Berhampur Odisha	Mr. Ashpet Sarina	9600321111	risapooale@gmail.com
328	PSC Pole (300 Kg/9 mtr)	M/s KMR Udyog, Balasore	At- Gadimal, Po- Bahal, Via- Sergarh, Dist- Balasore, Odisha, Pin- 756060	Mr. Nirabha Mehta	9165053638	sales@jsmentp.com
329	PSC Pole (300 Kg/9 mtr)	M/s Konark Construction & Engineers Ltd,Cuttack	On NH-16,Telengapentha, Cuttack,Odisha	Mr. Somen K.	9437060060	emrudyog@gmail.com
330	PSC Pole (300 Kg/9 mtr)	M/s Laxmi Industries, Khurda	C-35 & C-36, IIO Centre, Khurda Industrial Estate,Khurda, Odisha-752059	Mr. Mahesh Kumar Modi	9551639809	kmrudyog@gmail.com
331	PSC Pole (300 Kg/9 mtr)	M/s Metro Poles, Balasore	Sahabla,Sargagan,Balasore,Odisha	Mr. Priya Ranjan Shal	9668025336	os05@hotmail.com
332	PSC Pole (300 Kg/9 mtr)	M/s Neelchal Enterprises, Chhnapur, Balasore	Bampada, Chhnapur, Balasore, Odisha	Mr. Giridharlal Halan	9437012666	os05@hotmail.com
333	PSC Pole (300 Kg/9 mtr)	M/s Omn Concrete Products, Bhubaneswar	Kujmahal, Chandaka, Bhubaneswar, Khurda, Odisha	Mr. Bipin Trivedi	9934318366	axmi.entrprizes@gmail.com
334	PSC Pole (300 Kg/9 mtr)	M/s Sai Saran Concrete, Talcher	Remjan,Hatatota,Talcher,Angul,Odisha	Mr. Rajiv Shah	8249827644	metro_poles@yahoo.com
335	PSC Pole (300 Kg/9 mtr)	M/s SR Cementch, Cuttack	Nishint,Benchuca,Govindpur Chhak,Tangi,Cuttack,Odisha	Mr. Harish Patel	9437013147	neekon@gmail.com
336	PSC Pole (300 Kg/9 mtr)	M/s Gayatri Industry Ganjam	Kalabada, Chikri, Ganjam, Odisha	Mr. K.C.Padhi	9438877282	omnconcretes@yahoo.com
337	PSC Pole (300 Kg/9 mtr)	M/s Lackerr Silit Pvt Ltd ,Ganjam	Palughera,Rambha,Huma, Ganjam, Odisha	Mr. Shivram Sahoo	7381040188	saissanconcrete48@gmail.com
338	PSC Pole (300 Kg/9 mtr)	M/s Meeco, West Bengal	Bolpur, Birbhum, West Bengal	Mr. Tarun Agarwal	9583212121	em.rahul@gmail.com
339	PVC Wire	M/s Havelis India Pvt. Ltd,Rajasthan	Plot no. A/461-462 & SP-215,204 & 204(A), Matsya Industrial Area, Alwar, Rajasthan	Mr. Subhadra Sahu	9439331387	subhadra.sahu@gmail.com
340	PVC Wire	M/s. Gupta power Infrastructure Ltd, Khurda	F/9, IIO Centre,Khurda, Odisha-752054	Mr. K Dilewar Rao	9437434611	kdrlackerr@gmail.com
341	PVC Wire	M/s Polycab India Ltd,Gujarat	Unit 4, Plot No.105, Halol Vadodara Road,Nurpura, Halol, Panchmahal, Gujarat	Mr. Lalit	9337227923	ltdrlackerr@gmail.com
342	PVC Wire	M/s Anchor Electricals Pvt Ltd	Steel House, B wing, Plot No. 24, Mahal Industrial Estate, Mahakali Caves Road, Near Paper Box, Andheri, Mumbai-400093, Maharashtra, India	Mr. Kavish Kotian	7047585821	info@polycab.com
343	PVC Wire	M/s Finolx Cables Ltd, Bhubaneswar	677, Rudrapur, NH-16, PO: Pahal, Opp Kali Mandir, Bhubaneswar - 752101, Orissa		0674-2971922, 0674-2971188	klorcas@finolx.com
344	PVC Wire	L&T		Mr. Atul Singh		atulsingh@ntec.com
345	Rebar Lacing Pole(4-Pole)(24 mtr)	M/s Reliable Sponge Pvt Ltd, Sundergarh	Unit-3,Sagore,Balanda,Sundergarh,Odisha	Mr. Pranab Mohanty	9437487402	pranab@reliable.com
346	SMC LT Distribution Box	M/s Neelu Packing Industries Pvt Ltd, Uttar Pradesh	B-16,Sector-83,Noida,Uttar Pradesh	Mr. Manas Mandal	8800538206	info@neelupacking.net
347	SMC LT Distribution Box	M/s Plastochem Pvt Ltd	Plot No.11 Block GP, Kolkata, WB.	Mr. Shiban Charkrabarty	7044255787	deepak@neelupacking.net
348	SMC LT Distribution Box	M/s Reliable Sponge Pvt Ltd, Sundergarh	Unit-3,Sagore,Balanda,Sundergarh,Odisha	Mr. Pranab Mohanty	9437487402	marketing@plastochem.in
349	SMC LT Distribution Box	M/s Sanskriti Composites Pvt Ltd, Hooghly	Mollerberh,Bhadua NH-2 Delhi Road,Hooghly,West Bengal	Mr. Aayush Jhunjhunwala	9831158358	td@reliablepat.com
350	SMC LT Distribution Box	M/s Plasto Tech Industries Pvt Ltd, Pune	Plot No.3413,Talegaon Dhamdhare Talshirur, Pune,Maharashtra-412208	Mr. Jalinder P Bihjal	8380035350	plastotech@yahoo.com
351	SMC LT Distribution Box	M/s Sintex Industries, Ahmedabad	119,Kalsagar Shopping Hub,1st floor,Opposite Sai Baba Temple,Sattadhar,Ahmedabad,Gujarat	Mr. Jigar	8380035352	plastotech@yahoo.com
352	Steel Structure	M/s SAIL India Ltd,Rourkela	No.1A, Bonfield Lane, Bara bazaar,Mezanine Floor,Caning Street,Kolkata, West Bengal, 700001		9099080572	bjr.abraham@sintex.co.in
353	Steel Structure	M/s Rashtriya Ispat Nigam Ltd.,Vizag	Anandolk, Block-A, 1st Floor, 227,A.I.C. Bose Road, Kolkata - 700020,West Bengal, India.		3322429581	info@iucwires.com
354	Steel Structure	M/s Indal Steel & Power Ltd,Bhubaneswar	F/9, IIO Centre,Khurda, Odisha-752054	Mr. Mridul Tyagi Mr. Sandeep Kumar Mr. Debabrata Parida	9821762282	info@iucwires.com
					8130388990	mridul.tyagi@guptapower.com
					9937937659	sandeep@guptapower.com
						debabrata.parida@guptapower.com

355	Switches	M/s Anchor Electricals Pvt Ltd,Mumbai	Steel House, 8 wing, Plot No. 24, Mahal Industrial Estate, Mahakali Caves Road, Near Paper Box, Andheri, Mumbai-400093, Maharashtra, India	Mr. Kavish Kotian	7045785821	
356	Switches	M/s Schneider Electric Infrastructure Ltd Bhubaneswar	14,Forest Park,Bhubaneswar-751009	Mr. Girija Patnaik		girija.patnaik@schneiderelectric.com
357	Switches	INDOASIAN , Maharashtra	Indo Asian Building Pvt. Ltd.,Eternity Mall Teen Hath Naka, Lal Bahadur Shastri Rd, Thane West, Thane, Maharashtra 400604			
358	Switches	M/s Havells India Pvt. Ltd,Ghaziabad	Plot no. 6, Site-4, Sahibabad Industrial Area, Sahibabad, Ghaziabad, UttarPradesh-201010	Mr.Siddhartha Das	9937203309	siddhartha.das@havells.com
359	Switches	M/s CONA Industries Pvt Ltd, Mumbai	302 Brahans Business Park, Off Mahakali Caves Rd, Andheri East, Mumbai, Maharashtra 400093			
360	Switches	M/s ABB India Ltd, Bhubaneswar	1st Floor,City centre,A-5/1, Sachivalaya Marg,Unit-9,Bhubaneswar-751022			contact.center@in.abb.com
361	WPB / RSI Pole (11 & 13 mtr)	M/s Dharam Industries	Siltara Industrial Growth centre, Raipur	Mr. Ankur Chadda	9560454095	info@dharamindustries.in
362	WPB / RSI Pole (11 & 13 mtr)	M/s K L Steels Pvt Ltd,Uttar Pradesh	G.T.Bulandshahar Road,Near Lal Kuan,Chiprana,Gautam Budh Nagar,Uttar Pradesh	Mr.Nageshwar Prasad Mr.Jagdeesh Sharma	9810235789 7291992004	mrc@klsn.in sales.rajaathan@klsn.in
363	WPB / RSI Pole (11 & 13 mtr)	M/s New Laxmi Steel & Power Pvt Ltd, Khurda	Plot No.: A/22-25, Sarua Industrial Estate, Khordha, Odisha	Mr. Srikanth Samantray Er. Bijin Kumar Burtwal	9437055908 6289715340	newlaxmistee@gmail.com newlaxmisteeefactory@gmail.com
364	WPB / RSI Pole (11 & 13 mtr)	M/s Reliable Sponge Pvt Ltd, Sundergarh	Unit-3,Sagjore,Balanda,Sundergarh,Odisha	Mr. Pranab Mohanty	9437497402	it@reliablespat.com
365	WPB / RSI Pole (11 & 13 mtr)	M/s Rukmani Electricals and Components Pvt Ltd	Urli industrial area, Raipur, Chhattisgarh	Mr. Manurthi Kabra	7024135744/9330255908	ushilkabra123@yahoo.co.in
366	WPB / RSI Pole (11 & 13 mtr)	M/s Supreme & Co Pvt Ltd & M/s Utikal Galvanizers Ltd,Cuttack	Kapursingh,Oranda,Cuttack, Odisha	Mr. Arun K Das	9938410739 8249608042	ho@utikaltd.in utikalho@gmail.com
367	WPB / RSI Pole (11 & 13 mtr)	M/s Swastika Steel & Allied Products Pvt. Ltd., Howrah	AT: B/1, Nutan Para Road, Liliuh, Howrah, West Bengal-711204	Mr. Ravinder Sharma	9139775648	ks@swastikasteel.com
368	WPB / RSI Pole (11 & 13 mtr)	M/s Vijay Transmission Pvt Ltd, Raipur	Kanhera,Dharsiva,Urli Acholi road,Raipur, Chhattisgarh	Mr.Abhishek Dwivedi Mr.A Kodape	9753872335 9425503518	abhishekdvijaytransmission.com koushals@vijaytransmission.com

VENDOR LIST-II		
MAJOR EQUIPMENT/ITEMS		
Sl. no.	Description of equipment or material	Name of vendor
1	POWER TRANSFORMER	Schneider/BHEL/Siemens/ Toubha (India) Ltd/Shirdi Sai/Vijai Electrical/ Telwara/Volttech Manufacturing Co. Ltd (upto 5 MVA)/Marsons (upto 5 MVA)
2	INDOOR SWITCHGEAR Panel (with VCB, CT, IVT, Bus bar)*	For AIS-Siemens/AB B/CGI/Schneider/BHEL/GE , For GIS-Siemens/AB B/CGI/Toubha (India) Ltd/Schneider/ BHEL
3	VCB (Outdoor)	Siemens/ABB/CGI/Schneider/BHEL/CG Power
4	CT (Outdoor)	CGI/Vishal Transformers & Switch Gears Ltd/ KAPCO Electric/Akanksha/ Tushar Trans equipment pvt.Ltd/perfect sales/savio transformers/SONA ELECTRICALS
5	PT(IVT)- Outdoor	CGI/ Vishal Transformers & Switch Gears Ltd/ KAPCO Electric/Akanksha/Tushar Trans equipment pvt. Ltd/perfect sales/savio transformers/SONA ELECTRICALS
6	SURGE ARRESTOR/Lighting arrester	CGI/OBLUM/LAMCO/Schneider/Raychem/New Aquaria/Orange Power T&D Equipments(P) Ltd
7	RELAYS	ABB /Siemens/Schneider/ALSTOM/GE/SEL
8	CONTROL & RELAY PANEL	Control & Relay Panel shall be as per the specification by using above make Relays, at Item-7. (Siemens/ABB/ALSTOM/HAUL/Ultima switchgear/Stelmec popular switchgear/OHM Energy)
9	ISOLATORS/DBCR/AB Switch & HG Fuse	ABB/SIEMENS/Switchgear & Structural/CGI/Schneider/G R Power/L D Electricals/Ultima Switch Gears/Electrolites (Power) Pvt Ltd./SMQ/S&S Power switchgear/Panchkari Kayal & Co/Pramoda Engineering Works/Indian Metal Industries
10	48 Volt VRLA BATTERY 12Voltx4nos.)	EXIDE/AMARA RAJA
11	48 Volt BATTERY CHARGER	Chloride Power System Services (previously CALDYNE)/AMARARAJA/Mass-tech Chhabbi/Emerson/EXIDE
12	PVC INSULATED POWER AND CONTROL CABLES	NICCO/GLOSTER/CCO/KEI/CRYSTAL/POLY/CAB /FINOLEX/Universal Havells India Ltd/KEC International Ltd./ Rabin Cables/Sterilite Technologies Ltd
13	STATION TRANSFORMER (BEE STANDARD)	Schneider/ALFA/TESLA/ Vijai Electricals/Orissa Transformers Pvt. Ltd
14	RS JOST/WPB/H Pole	Manufacturer - TATA/SAIL/RINL/Jindal Steel & Power; Supplier - KL Steel/Dharam Industries/Reliable sponge/SupremeIndustries/Vijay transmission/RB ISPAT/RIKMANI
15	CHANNEL & ANGLES, GI Flat	Manufacturer - TATA/SAIL/RINL/Jindal Steel & Power; Supplier - KL Steel/Dharam Industries/Reliable sponge/Supreme Industries/Vijay transmission
16	CONDUCTOR	APAR/Vijai Electricals/Lumino/Cabcon/laser power
17	Covered Conductor	APAR/Raychem
18	DISC INSULATORS/ SOLID CORE POST INSULATORS / PIN INSULATORS (33 &11 kV)	Elechem Systems Pvt Ltd / Adinath Industries / Scenario Powertech pvt Ltd / Prime Insulators/Hub International / Hindustan Chemicals, Khurja / Rashtriya Electricals & Engineering
19	HARDWARE FITTINGS	Jainco/Transmission Ltd / Industrial Forging Industries Pvt Ltd/ KSE Electricals/Pramoda Engineering Works
20	CLAMPS/CONNECTORS	Exalt Engineering Industries / Pee Vee Engineering / JAINCO Transmission Ltd/ Raychem
21	GI BOLTS & NUTS	NEXO/MAHESWARI (P) FASTENERS & BRIGHT PVT LTD/Techman India / Ravi Engineers / Precision Fasterns Ltd/ AV Forgings / Garg Fastners/ Agarwal Fasteners, Maharastra/ Sterling Bolts Pvt Ltd, Kolkata
22	CEMENT OPC/PSC	ACC/ULTRATECH/DALMIA (KONARK)/LAFARGE/AMBUJA/ACC/SHREE/NUVOCO
23	STEEL	SAIL/TATA/RINL/Jindal Steel & Power
24	GI PIPE for Earthing)	RAW MATERIAL- TATA/JINDAL/RINL/JSW
25	HDPE Pipe	Lingaraj Pipes, Khurda / Hari Udyog Pvt. Ltd, Balasore / Valentina Pipes, Bhubaneswar / Utkarsh Pipes, Kolkata
26	RTU, SCADA	Alstom / Siemens / Schneider /GE / Synergy / ABB
27	CABLE JOINT KIT	RPG Raychem / 3M / Nexon / cell pack
28	XLPE HT Cable, LT XLPE Cable	XLPE HT Cable - M/S KEI Industries Ltd, Rajasthan/ Dynamic Cables /Gemscab M/s Sterilite Technologies Ltd/ Havels India/ Universal Cables/ KEC International Limited / Torrent Cables Ltd. XLPE LT Cable - M/S KEI Industries Ltd, Rajasthan/ Dynamic Cables /Gemscab/ M/s Sterilite Technologies Ltd/ Havels India/ Universal Cables/ KEC International Limited / Torrent Cables Ltd / Finolex / polycab/ laser power
29	GI Earth wire	Aaarti Steels Ltd / Ratlam Wires Pvt Ltd / Kataria Wires Pvt Ltd / RK Wire Product Ltd/ GK Winding wires/ M/s Kartika Wires (P) Ltd./ Jainco Transmission Ltd/ Industrial forging
30	MULTI-FUNCTION Meters	Secure Meters Pvt Ltd / Schneider / Accord Electro / Genus / L&G
31	Energy Meter	Secure Meters Pvt Ltd / Schneider / GENUS /L&T/HPL
32	CT PT Metering Unit	M/s Perfect Sales Corporation, M/s Kapco Electric Pvt Ltd M/s Savio Transformers, M/s Continental Engineers
MINOR EQUIPMENT/MATERIAL		
Sl. no.	Description of equipment or material	Name of vendor
33	INSULATION RESISTANCE TESTER	MEGGER/FLUKE/MOTWANE
34	AIR CONDITIONER	CARRIER/BLUE STAR/VOLTAS/LLOYD/DAIKAN
35	MCB	L&T/ABB/SIEMENS / HAVELLS/Schneider / Legrand / CGI/ C&S Electric
36	ACB / MCCB	L&T/ABB/SIEMENS / HAVELLS / Schneider / Legrand / CGI/ C&S Electric
37	ACDB/DCDB/CONSOLE BOX/BMK	Technocrat / United Engineers Pvt Ltd. / AMARARAJA/ C&S Electric
38	PVC WIRES	L&T/FINOLEX/ANCHOR / HAVELLS
39	SWITCHES	ANCHOR/CONA/HAVELLS/ Schneider /GRABTREE
40	LIGHTING FIXTURES	PHILIPS/ BAJAJ / HAVELLS/ Syska/Crompton/Wipro Lighting
41	FIRE FIGHTING EQUIPMENT	CEASE FIRE/ M/s Safex Services Ltd/
42	GI Earth Wire	Aaarti Steels Ltd / Ratlam Wires Pvt Ltd / Kataria Wires Pvt Ltd// RK Wire Product Ltd/ GK wires/ M/s Kartika Wires (P) Ltd.
43	Ceiling Fan (1400mm)	Usha / Bajaj / Crompton / Havells
44	Exhaust Fan (12 inch)	Khaitan / Almonard / Bajaj / Crompton / Havells
45	25 & 11 kV RMU	M/s Lucy Electric India Pvt Ltd, M/s ABB INDIA Ltd, M/s SIEMENS Ltd, M/s Eaton Power Quality Pvt Ltd ,Partha Electricals Gujrat , Ms C-Sec Technologies Pvt Ltd
46	LT Distribution Box Polycarbonate 10 Way	M/s Plastichem Pvt. Ltd, M/s Neelja Packing Industries Pvt Ltd
47	Rebar Lacing Poles	Manufacturer - TATA/SAIL/RINL/Jindal Steel & Power; Supplier - KL Steel/Dharam Industries/Reliable sponge/Vijay Transmission
48	CABLE TRAY	ROY ENGG WORKS/SUMIP COMPOSITE LLP/SREE JAGANATH ENGG WORKS/RIKMANI/PREMIER POWER PRODUCT (P) LTD.
49	WATER PURIFIER & COOLER	AQUAGUARD/LIV PURE/PURIT/KENT
50	RAIL FOR PTR BASE	SAIL/TATA/RINL/Jindal Steel & Power
NB - Subject to meet the requirement as per technical specification & Valid Type test reports		

APPROVED MAKE LIST (Other Supplies)	
66 KV CT/PT/CVT	BHEL/CGL/ABBAREVA/MEHRU KAPCO/HEPTACARE
C&R Panels	ABB/SIEMENS/ALSTOM/HAIL
66 KV CB	ABB/SIEMENS
LIGHTNING ARRESTORS	AREVA/CGL/ELPRO/OLBUM RAYCHEMM/LAMCO
INSULATORS	WSI/BHEL/BIRLA NGK (ABILY GENERAL POWER CJI, IEC
HARDWARE FITTINGS	RASHTRA UDYOG LTD (RUL)/SUPREME/LIGEON ENERGY/ELECTROMECH/TRANSTECH
11 KV CAPACITORS	SHREEM/EPCOS/UNIVERSAL/ABB
LIGHT FITTINGS (INDOOR/ OUTDOOR)	PHILIPS/CGL/GE/BAJAJ/WIPRO
250 KVA DISTRIBUTION TRANSFORMER	CGL/AREVA VOLTAMP/PATSON/KOTSON/VIJAY ELECTRICALS/CAPITAL/NUCON/RAYCHEM/ SPECIATLANTA/TOSHIBA
CIRCUIT BREAKER/ SWITCHGEARPANELS (33 KV VCB PANELS)	SIEMENS/SCHNEIDER/ABB
CIRCUIT BREAKER/ SWITCHGEARPANELS (11 KV VCB PANELS)	SIEMENS/SCHNEIDER/ABB
11 KV POWER CABLE (XLPE)	RPG/CCI/NICCO/FORT GLOSTER/POLYCAB/ TORRENT/UNIVERSAL/ STERLITE/KEC/KEI
1.1 KV POWER AND CONTROL CABLE	RPG/POLYCAB/KRISHNA ELECTRICALS/ TORRENT/GEMSCAB/ALCON/GENUS/ ELECTROTECH/PARAGAON/TCL /RAVIN CABLES/ MP TELELINK/CAPITAL URJATECH/EMPIRE/ PARAMOUNT/KEI
33 KV CABLE	UNIVERSAL/NICCO/RPG/ TORRENT/FORT GLOSTER/CCI/ILGIN/LS/STERLITE
Power Connector	TYCO-Wedge type connector/Sun Electric
1.1KV, Electrical wire	Finolex/POLYCAB/CAPITAL/URJATECH/TCL/Havells/KEI
Cables Termination Kits/Joints	RAYCHEM/3M
Cable tray	BHARATI/SLOTCO/STEEL WAYS, AR enterprises, MME
Battery Charger/ DCDB Battery (Ni-Cd)	MASSTECH/EMERSON
LT Moulded case circuit breaker MOGE)	HLB, AMAR RAJA, AMCO
AC LT panel Boards	GE POWER/ SIEMENS/L & T/ABB
LT Fuse Switches/Switch Fuses	ISCHNEIDER/ELESCON ENGG./C & S
AFDAS (Fire detection system)	L&T/ Siemens/ Kaybee/Advance/ A TO Z
Indication Meters	GE POWER/SIEMENS/L&T
Static Type Energy Meter	Honeywell, Agni Suraksha, System sensor
Control Switches	IMP/AE
Select Switches	SECURE/L & T/ ABB/ ELSTER
Contactors	SIEMENS / KAYCEE / SALZER
Push Button	SIEMENS/KAYCEE/SALZER
Indication Lamp	SIEMENS/L&T/GE POWER/C & S
Annunciator	MINILEC/AREVA/PROCON
Fuses (LT)	Areva / SIEMENS / L & T
Miniature Circuit Breaker (MCB)	MDS/HAGER/MERLIN GERIN
Cable glands	COMET/AXIS
ERW Conduit / PVC Conduit	AKG /Supreme/Finolex
6A & 16 A Switch - Socket	MK/ANCHOR/ MDS
63 A & 20A Industrial Socket	MDS /CGL
Ceiling fan/Exhaust Fan	KHAITAN/CROMPTON GREAVES/USHA/ GEC
Inverter	Exide, Microtech, Sukam
Metal clad socket	B&C/CROMPTON/MDS
TMU	a-eberle,
Terminal Blocks	ELMEX/ESSEN
Reinforcement steel (TMT)	Rathi/TISCO/SAIL
Fire Extinguisher	Ceasefire/Minimax/ Safex
Air Conditioner	Voltas
Isolator	ABB,SEIMENS, S&S chennai
Marshalling Kiosk	A To Z/Telmos / ECS/ Advance
Earth Enhancement Material	Terec+, Erico Gem
Galvanized Structural Steel	Nexo/Techno/NL Engineers/RS Steel/ M J engg/Sangam/Jyoti/Good Luck/Mann/Ferro Gelva/salasar/Techno/UCIC/Balakra fabricon/ VSP Enterprises
LED Lighting	Nichia,cree, seoul, osram, Philips, Bajaj
Pump	CGL/Kirloskar
RTU/Data Concentrator / Protection relays	Please refer latest revision of protection specification ENG- EHV-105 & automation specification ENG-EHV-106

Protection		O/CE/F	Trafo Diff	Line diff (with distance backup)
Schneider	66KV/33KV	S-80	P642	P543

	11 KV	S-80	NA	NA
ABB	66KV/33KV	REC 670	RET650	RED670
	11 KV	REF615 with RIO 600	NA	NA
Siemens	66KV/33KV	It shall be as per TPSODL protection & automation specification & be finalized during detailed engineering	7UT61	7SD5
	11 KV	7SJ66	NA	NA
GE	66KV/33KV	F650	T60	L90
	11 KV	F650	NA	NA
Alstom	66KV/33KV	It shall be as per TPSODL protection & automation specification & be finalized during detailed engineering	P642	P543
	11 KV	It shall be as per TPSODL protection & automation specification & be finalized during detailed engineering	NA	NA

APPROVED MAKE LIST-Product to be of the following make or equivalent subject to TP Odisha DISCOM approval	
Note: The list indicates the make of manufacturers for equipment & material and successful bidder may supply above materials as approved by TP Odisha DISCOM In addition, Bidder may refer to the attached QR for purchasing the material from other bidders.	
LIST OF APPROVED MAKES (CIVIL,SANITARY ITEMS)	
Material Description	Make
Cement PPC	Ultratech/Birla Uttam / Binani / Shree Ultra/Gujrat Ambuja / ACC
White Cement	Birla / JK
Structural Steel	TATA/SAIL/RINL/IISCO (For quantity more than 10 tonnes) Capital, Rana, MC
Reinforcement Steel	Tisco, SAIL (For quantity more than 10 tonnes) Rathi, Kamdhenu
Acid Resistant Tiles	Corromandel
Floatglass/Mirror	Modi Guard / Saint Gobain
Enamel Paint / Primer	Premium Quality of Asian / Berger / Nerolac /Dulux
Cement Paint / Primer	Snowcem India
Interlocking Tiles	Nimco / Dalal / HPL
Aluminium	Hindalco/Jindal / Mahabir
PVC Water Tank	Syntex
Wash Basin, IWC, EWC etc.	Parryware/Hindware
Kitchen Sink	Neelkanth
PVC Pipes and Fittings	Supreme, Finolex, Prakash
CI Soil Pipes /Waste/ Rainwater Pipes	S.I.F, R.I.F
CP Brass Bib Cock, Stop Cock etc.	Parko, Chilli, Jaguar (Base model) (For Distt. Offices and other major buildings like Corporate, Scada, KPM, Cenpied)
GI Pipe	Jindal B
GI Fittings	Unik

Laminates	Formica, Greenlam, Merino
Flush doors	ISI mark water proof
Board / Ply	National, Kitply, Durian, Greenlam, Century
MDF Board - Exterior / Interior Grade	Nuwud, Duratuff, Bajaj Echotech, Action Tesa
Particle Board	Bajaj. Action tesa, Novapan.
Door Closer/Floor Spring	Everite, Doorking, Doorset,Ozone, Dorma) (For Distt. Offices and other major buildings like Corporate, Scada, KPM, Cenpied)
Door Locks and Handles	Godrej, Hettich, Doorset
Adhesive	Fevicol, Vamicol
Melamine Polish	Asian Paints, ICI, MRF, Touchwood, Wemblay
Fire Retardent Paint (For all frame works)	Viper FR.881 or Approved Equivalent
Terxtured paint	Spectrum, Unitex, Dulux
Wood For Framing	Jammu Kail, Marandi, African Hard Wood
Veneered Ply	Jacksons, United Veneers, Donear, Duro
Glazed / Vitrified Tiles	Kajaria, Somani, Jhonson & Jhonson, Marbonite
PTMT Fittings	Prayag or Equivalent
Exhaust Fan	Crompton
Monoblock Pump Sets	Kirloskar, Crompton Greaves
Submersible Pump and Starter	KSB
Brass Bib Cock / Stop Cock	Benson, Pace
Brass Ferrule, Gunmetal Valves	DRP
<u>LIST OF APPROVED MAKE MATERIALS: ELECTRICAL-Building</u>	
MATERIAL	APPROVED MAKE
M.S. Conduit Pipe (ISI Marked-ERW)	BEC/SENCO(CALCUTTA)/AKG
M.S. Conduit Accessories	SHARMA/RAMA/PEI
PVC Insulated Copper Stranded Conductor a) 1.1 KV Grade Cable	NATIONAL / SKYLINE / FINOLEX / BATRA-HENALY / RR KABLES
PVC Insulated PVC Sheathed Aluminium /Copper Conductor armoured L.T Cable (1.1) KV)	GLOSTER/UNIVERSAL/ICC/INCAB/POLYCAB
Moulded Plate Switch Socket with Switch Boxes & accessories / As per Item:Telephone/Music/Sockets	MK
Lugs/Ferrules	DOWELLS/JAINSON
Brass Compression Gland	COMMEK/GRIPWELL
MCCB Thermal Magnetic O/C,S/C, E/F	SIEMENS /L&T/ABB
ELCB/MCB (10 KA)	HAGER/MDS (Legrand)/ MERLIN GERIN
Distributions Board (Double Door & Metal Clad Socket Outlet)	HANGER/MDS (Legrand) / MERLIN GERIN
Telephone Cable	DELTON/NATIONAL / SKYLINE / FINOLEX
Telephone Tag Block with Boxes	KRONE/POUYET

Cable Trays	BHARATI/SLOTCO/STEEL WAYS, AR enterprises, MME
Selector Switch	L&T/SIEMENS /BCH/SALZER
L.T. Switch by M.V. Switch Boards (Powder Coated)	TRICOLITE / ELECTRO CONTROL SYSTEM / MADHU ELECTRICAL./ KAYBEE Electricals (Noida) / KMG ATOZ (NOIDA)
PVC Conduit (ISI)	BEC/POLYPACK/PRECISION / AKG
Measuring Meters	DUCATI / ENERCON /L&T/AE
Control Fuses	SIEMENS/GE/L&T
CT'S (Cast Resin)	AEI/KAPPA/PRAGATI/C & S
MCCB'S	SIEMENS/L&T/SCHNEIDER/ LEGRAND (MDS)
GICU. Strip & Earthing Material	BHARATI/INDIANA
Ceiling Fan (High Breeze)	CROMPTON/GEC
Braket Fan	ALMONARD/CROMPTON/GEC
G.I. Pipe & Accessories (ISI)	TATA/JINDAL/PRAKASH/HISSAR
Light Fixture	PHILIPS/DECON/WIPRO, OR APPROVED MAKE
Smoke/Heat Defector	APOLLO/EST (EDWARD), TATA HONEWELL
Fire Alarm Panel with SMF Battery & Battery charger	MCE/MINIMAX/STYLUSS/AGNI SURAKSHA
Response Indicator	APOLLO/EDWARDS /TAT HONEYWELL/AGNI
Speaker/ Hooter	PHILIPS/EDWARD/TAT HONEYWELL/AGNI
M.S. Conduit ISI	BEC/SENCO
Conduit Accessories Heavy Duty (ISI)	SHARMA /PIE EQUIVALENT
FRLS PVC Insulated Copper Wire 1.1 KV Grade ISI	SKYLINE / NATIONAL / FINOLEX / BATRA HANELY! RR KABELS
Manual Call Station	APOLLO/EDWARD/TAT HONEYWELL/ AGNI
Exhaust fans	CROMPTON/Newtec / Alsthom
Ceiling Rose, Piano type Switches/ Sockets and lamp holders	ANCHOR
Changeover Switch / Main switch	L&T SCHNEIDER / ABB/Siemens

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Business Associate's Safety Code of Conduct

Reason for Change	Date of Last Revision	Prepared By	Reviewed By	Approved by 
CSCC is termed as BASCC. CSCC is internal Process and Safety terms, and condition is binding documents for Business associates. Addition of Definition. Defining responsibility, Procedure added, Appendix 13 to 15 added.	<u>11-May-2015-R1</u> <u>01 August-2023-R7</u>	CFT members from all cluster	Corporate Safety Team.	Suresh H Khetwani (Chief safety and Environment)

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1.0 Objective

- The Tata Power engages Business Associate workforce to execute, run and maintain various operating sites and facilities across locations for various business verticals including Generation, Transmission, Distribution and Renewable must perform work in a manner consistent with Tata Power Policies, Principle, values, working standard applied to activities range from project execution, operation, and maintenance to facilities management.
- The management of Business Associate safety represents a significant challenge for management. Tata Power has a responsibility to ensure that Business Associate s 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, Micro grid, Roof top solar etc. This Code of Conduct also applies to all operating and project sites of four Odisha Discom and New business based on mutually agreed timeline for implementation.
- This document is applicable to Odisha Discom also. Odisha Discom 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 Business Associate workforce to execute, run and maintain various operating sites and facilities across locations the activities range from project execution, operation & maintenance of facilities.

3.0 Definitions

- 3.1. **Contract:** A written agreement between The Tata Power and its Business Associate(s) to supply manpower, services, and/or materials or to carry out the whole or part of any work required by Tata Power (R8).
- 3.2. **Contract Administrator (CA):** An officer from Tata Power, accountable for managing contract related activities for implementation of the entire BASCOC (R8).
- 3.3. **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.
- 3.4. **Site Safety Management Plan:** It is the safety plan agreed between Business Associate and Tata Power-Division/DISCOM. It will contain the entire job specific safety requirement and will be signed by the Business Associate.
- 3.5. **Business Associate /Vendor (BA):** An individual or a company that provides services to Tata Power-Division/DISCOM under a signed contract.
- 3.6. **Business Associate's Supervisor:** The link between The Tata Power and the Business Associates employees. He coordinates the work of his company's employee on site and is responsible & accountable for the safety of contract workforce. He will collaborate with site safety supervisor (SSS) (R8).

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- 3.7. BA Employee(s):** Any person(s) employed by a Business Associate having gate pass of BA to carry out the contracted work, but not employed directly by Tata Power (R8).
- 3.8. Sub-Vendor:** Any entity or person engaged & registered as per Tata Power Sub-vendor norms, by a main/prime Vendor to assist in execution of the job.(R8)
- 3.9. 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.
- 3.10. Expert Service jobs:** Jobs which needs expert services of Business Associate 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.
- 3.11. CEO/Chief/Head of division/Unit/Utility:** Business in charge who is overall custodian of the Tata Power-Division/DISCOM.
- 3.12. Category A: Business Associate/ 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.
- 3.13. Category B: Business Associate/ 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.
- 3.14. Category C: Business Associate/ 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.
- 3.15. Category D: Business Associate/ 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.
- 3.16. 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 13(R8) of this document.
- 3.17. 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.
- 3.18. 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.
- 3.19. Long Duration Jobs:** When the duration of job is more than 12 months, it is considered as long duration job.

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3.20. High Value Jobs: When the value of the job contract is Rs. One Crore or more, it is considered as High value job.

3.21. 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.

4.0 Responsibilities

4.1 Contract Administrator (CA): Contract Administrator is Tata Power-Division /DISCOM representative, who is responsible for ensuring the overall management and implementation of the BASCC standard and process, right from the registration to periodic evaluation of the BA (R8).

4.2 Order Manager/Engineer in Charge: Order Manager is Tata Power-Division /DISCOM representative , who is responsible for:

- 4.2.1 Assessment of Safety Potential of new vendor before registration along with SCG.
- 4.2.2 Safety Evaluation of the bids along with SCG.
- 4.2.3 Finalizing the Site Safety Management Plan along with Business Associate, Safety Concurrences Group, Divisional Safety Head and Expert (External or Internal) if required.
- 4.2.4 Ensuring that potential safety hazards are identified and controlled before any contracted work starts. Hazard identification should be conducted using multi-disciplinary teams which includes members from competent safety professional/execution team/competent BA supervisor & workforce to understand and identify project-specific safety hazards (R8).
- 4.2.5 Ensuring that Pre-work meeting/TBT & Mass meeting are being held either under his/project owner's supervision and/or under the BA's qualified and designated representatives (R8).
- 4.2.6 Ensure 100% safety capability building SHE L1, L2, L3 for Business Associate work force and supervisor before start of Job.
- 4.2.7 Ensure Business Associate SHE L1 safety revalidation test for all work force quarterly or Half yearly for new business such as Odisha Discom.
- 4.2.8 Conduct competency assessment of all critical work force working on High-Risk Jobs based on Experience, Technical skill and Safety capability through Business Associate representative along with division/Discom safety representative.
- 4.2.9 Supervise and ensure work is carried out as per the Site Safety Management Plan including agreed Risk Assessment (HIRA/JSA) and Method Statement.
- 4.2.10 Conduct audit and evaluate Safety Performance of Business Associate including Star rating of Business Associates within specified period as per guidelines and ensure all High-risk & Medium -risk jobs are performed by competent vendors 4-Star&above and 3-star& above respectively.
- 4.2.11 Monthly auditing BA activities to determine compliance with the Safety terms and conditions of the Contract. All violations shall be brought to the attention of the BA'

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proprietor and supervisor(s). If an unsafe act or a condition creates an imminent danger of injury/incident, Order Manager should initiate immediate steps to stop the work and Penalty against violation to be impose on BA as per CSM F12 - Safety Violation Penalty Criteria. Also Feedback on Safety performance and facilitating in safety improvement activities with BA proprietor every month (R8).

- 4.2.12 Ensure Business Associate's adhere to all statutory provisions.
- 4.2.13 In case any Exception needed in agreed safety management plan or in BASCC 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/Chief Corporate Safety.
- 4.2.14 Order Manager for all High Risk shall be HOD/Division Head of Discom and above.(R8)

4.3 Business Associate / Vendor (BA): The person, entity or organisation who is executing the job for Tata Power-Division /Odisha Discom under a contractual agreement and will be responsible for the following.

- 4.3.1 To follow all Tata Power-Division /DISCOM Critical Safety Procedure, Rules and guidelines given in **CSM F2 Safety Terms and Conditions**.
- 4.3.2 Undertake job as per **CSM F9 Site Safety Management Plan** and method statements agreed with the Tata Power-Division /DISCOM.
- 4.3.3 Ensure 100% safety capability building L1, L2, L3 for Business Associate work force and supervisor before start of Job
- 4.3.4 Ensure Business Associate safety revalidation test for all workforce quarterly or Half yearly for new business such as Odisha Discom up to three years.
- 4.3.5 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.
- 4.3.6 Raise any concerns about their work and its safety with the Order Manager.
- 4.3.7 Report all injuries, near misses, unsafe acts/conditions, and occurrences to the Order Manager immediately.
- 4.3.8 Ensure that all sub-Business Associate s follow the Tata Power Safety Procedure and agreed **CSM F9 Site Safety Management Plan**. If Business Associate sub vendor 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-Business Associate s follow the Tata Power Safety Procedure and agreed CSM F9 Site Safety Management Plan.
- 4.3.9 To follow all statutory requirements as per the laws of the land.
- 4.3.10 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.
- 4.3.11 The BA shall not sublet/sub-contract, transfer, or assign the Contract or any part thereof without the written permission of the CA/ HOD approved by Chief Procurement officer/ Chief Commercial. In the event a contractor violates this condition, the Procurement division in consultation with the CA shall be entitled to place the Contract elsewhere on

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the BA's account and at the latter's sole risk; in addition, the contractor shall be liable for any loss or damage which the CA may sustain arising out of such placing of the Contract.

4.3.12 For engaging any sub-Vendor, the Prime Vendor as well as the sub-Vendor should be individually registered with Tata Power. Sub-contracting or hiring of others, by the BA to perform the services is subjected to specific, prior approval by the CA/OM. Such approval shall depend upon compliance with the following minimum requirements(R8)-

- i. Sub-vendors identified by the Prime vendor will be subject to the same Safety Potential Evaluation Criteria as the Prime vendor for all Medium-risk/High-risk job where supervision will be done by the sub- vendors. In such cases, vendors must have a Star-rating of 4 or above, for becoming a sub- vendor.
- ii. The SCG team shall evaluate the Safety and technical competency of the sub-contractors for High risk job.
- iii. The Departmental Head will have the authority to approve any sub-contracting process based on requirement as submitted by the Prime Vendor (See CSM F-14 Sub-Vendor Engagement Request Form).
- iv. No Safety potential evaluation shall be conducted for sub-letting of Low risk work.
- v. The Prime vendor shall be fully liable and responsible to Tata Power for the acts, errors, and omissions of its sub-vendors and shall be relieved neither of any obligation to Tata Power under the contract, nor of any other legal requirements.
- vi. The Prime vendor shall use only sub-vendors of demonstrated experience and reliability regarding the services to be provided.
- vii. The Sub-vendor shall agree in writing to be bound by all obligations of the Prime vendor set forth in the Contract.
- viii. Safety performance evaluation shall be done for both prime vendor & sub-vendor.

Types of Sub-contracts and Associated Requirements (R8):

- I. Sub - Vendor working with his own supervision:- Sub-vendors must achieve a minimum Star-rating of 3 for performing High risk jobs under Tata Power supervision or under the Principal/Main Vendor (Prime Vendor).
- II. Sub-vendor working under Prime vendor's supervision (as supplier of manpower):- Manpower-supply contracts have to be supervised by the Prime vendor and the Prime vendor's Star- rating has to be taken into consideration. Vendors supplying manpower need not qualify in the Star-rating assessment.
- III. Only one level of sub-contracting is allowed, and the use of any sub-vendors must be authorised by Tata Power before any contract is finalised. Sub-vendors shall be subject to the same registration and selection/screening processes, as well as the same Safety performance requirements as those required of all Tata Power vendor's. Sub- vendor details are to be attached to the main contract during the RFQ stage. The process of sub-contracting is to be approved by the Chief / Head of the department (Appendix#14).

4.4 BA's Supervisor(R8): The BA's supervisor is the link between Tata Power Management and the BA (including his employees).(R8)

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- 4.4.1 He coordinates the work of his company's employee on site and is responsible & accountable for the safety of BA workforce. He will collaborate with site safety supervisor (SSS). BA's supervisor shall review the Safety requirements with his employees prior to the beginning of each job. Documentation of this review shall be forwarded by him to the Order Manager.(R8)
- 4.4.2 Assigning jobs to his workers, inspection of tools, equipment & PPEs , reporting of incidents & near-misses, housekeeping of work area and carrying out Safety Audits.(R8)
- 4.4.3 Deployment of all applicable Safety standards & procedure as mention in Safety Term& Condition CSMF2 during execution of the jobs.
- 4.4.4 Ensuring job specific training prior to execution of the job.
- 4.4.5 Conducting Tool - box meeting and compliance of SOP & statutory requirements at work place, correction of all unsafe conditions and acts.(R8)
- 4.4.6 BA'S Supervisor will deeply involve in making JSA through participation of work force.(R8)
- 4.4.7 BA's Supervisor will invite all BA employees for participation & engagement daily ensuring 100% in either observation reporting, TBT, Mass Meeting and discussion for Risk Assessment & implementation of control measure.(R8)

4.5 BA's Site Safety Supervisor(SSS)(R8):

- 4.5.1 SSS will carry out daily safety audit and inspections of tools, tackles, equipment and PPEs. They will identify and help in correcting the unsafe acts and unsafe conditions created while executing job t site with the help of BA's supervisors (R8).
- 4.5.2 SSS will ensure his participations in TBT and Mass Meetings regularly. They will also ensure reporting of all incidents & near-misses and participate in incident investigation (R8).
- 4.5.3 SSS will help in risk assessment of activities while developing SOP for the job (R8).
- 4.5.4 SSS will deeply involve in making JSA through participation of work force.
- 4.5.5 SSS will assist for participation & engagement of 100% BA employees daily in either observation reporting, TBT, Mass Meeting and discussion for Risk Assessment & implementation of control measure.(R8)

4.6 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:

- 4.6.1 **Assessment of Safety Potential of new vendor before registration using CSM F1 Process Flowchart for Vendor Registration, CSM F3 Safety Category Qualification Form and CSM F4 Safety Potential Evaluation Criteria along with Star Rating(R8).**
- 4.6.2 **Safety Evaluation of the bids as per evaluation format CSM F7 Safety Bid Evaluation Criteria**
- 4.6.3 **Finalization of the CSM F9 Site Safety Management Plan submitted by the Business Associate.**
- 4.6.4 **During Safety Bid Evaluation for following types of jobs are evaluated:**
 - 4.6.4.1 **High-Risk jobs, Medium Risk job, Major Shutdowns and Outages.**

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4.6.4.2 Capex jobs of High-Risk Category.

- 4.6.5 Site safety supervisor deployment for any specific & specialized work will be decided by SCG.(R8)

4.7 HR Department(R8):

- 4.7.1 Ensuring Health (Medical, Drinking water facility & sanitation support) & welfare (canteen services, rest room & sitting facility, first Aid) for BA employees as per social accountability guidelines stipulated in factory rules for all clusters (R8).
- 4.7.2 Ensuring protection of their legal rights, wages, insurance, provident fund etc. through awareness programs and through regular interaction with the contract employees (R8).
- 4.7.3 Enhancing capability competency and skill of BA employees, arranging Safety training for BA employees (R8).

5.0 Procedure

The BASCC specifies systematic requirements to manage safety related to BA' activities. All Tata Power employees shall comply with the provisions of this procedure (R8)

This is guided by a six-step process as enlisted in the Table below: -(R8)

SI No.	Name	Explanation	Key Elements
1	Registration of BA	Pre-Qualification for Registration	Identify BA who comply with Tata Power's Safety principles and standards. 1) <u>CSM F1 - Process Flow Chart for Vendor Registration</u> to be use for vendor registration. 2) <u>CSM F2 Safety Terms and Conditions (R8)</u>: The document CSM F2 Safety Terms and Conditions provides the information about Tata Power-Division /Odisha Discom safety System to the Business Associate. 3) Evaluation of BA's safety category as per <u>CSM F3 - Safety Category Qualification form</u> 4) Evaluation of BA's Safety potential & Star rating as per <u>CSM F4 - Safety Potential Evaluation Criteria</u> before registration.
2	Contract Preparation	Scope of Work, specific Safety clauses based on Safety Hazards Assessment and control measures	Develop Contract orders using <u>CSM F2 - Safety Term & Conditions</u> & specific Safety clauses in the documents to clarify Health and Safety expectations and Sub Vendor engagement as per <u>CSM F14: Sub-vendor Engagement</u>

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			Request Form (R8)
3	Contract Award	Awarding the contract to qualified competent BA/Vendors	Thorough & effective communication and review of Contract Safety specifications at Pre-bid, Post-bid & pre-award meeting. Evaluation as per CSM F7 - Safety Bid Criteria and award contract through CSM F5 - Flow Chart for Issuing RFQ and PO.
4	Orientation and Training	BA workforce Safety training, generic & Skill-based Safety training (SHE L1,L2,L3)	Assure that BA's workers embrace the Tata Power's 'health & safety culture' and follow the Tata Power Safety standards. BA workforce training as per CSM F2 - Safety Term & Conditions (clause 3.3.2)
5	Managing the Work	Safety supervision/function ensuring implementation of Tata Power Safety standards and SOP	Hold Pre-work meetings and assessing field safety execution against contract requirements as per below- 1) CSM F6 – Safety Competency Assessment Form 2) CSM F8 – PPE Requirements 3) CSM F9– Site Safety Management Plan And High Risk job to be considered & managed as per 4) CSM F13- Indicative List of High-Risk Jobs (R8).
6	Periodic Evaluation	Post-work BA's Safety performance Evaluation	BA's Safety Performance evaluation as below- 1) CSM F10 – Process Flow Chart for Safety Performance Evaluation(R8) 2) CSM F11 - Safety Performance Evaluation Criteria 3) CSM F12 – Safety Violation Penalty Criteria and feedback to BA & Procurement, This will include Reward/Recognition & Penalty for safety violation/ accident. Enable all locations to have better access to Safety-qualified and capable BA's

5.1 Registration of Business Associates: Different vendors are to register based on following categories:

- ✓ **Category A- Vendors eligible to carry out High risk Jobs**
- ✓ **Category B- Vendors eligible to carry out technical jobs that are Medium/~~low~~ risk**
- ✓ **Category C- Vendors eligible to carry out administrative and office jobs**
- ✓ **Category D- Outsourced Jobs / Consultants /Medical Practitioners / Suppliers etc.**

For Vendor Registration, Contract Department will issue following documents for evaluation of Business Associate's safety capability.

- 1) **CSM F2 Safety Terms and Conditions (R8):** The document **CSM F2 Safety Terms and Conditions** provides the information about Tata Power-Division /Odisha Discom safety

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System to the Business Associate

- 2) **CSM F3 Safety Category Qualification Form(R8):** Business Associate will submit the **CSM F3 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.
- 3) **CSM F4 Safety Potential Evaluation Criteria:** The SCG will evaluate the details submitted by the Business Associate based on a predetermined criteria **CSM F4 Safety Potential Evaluation Criteria** along with Star Rating (R8) for Vendor Registration and will determine the category (Category A/B/C/D) for which the Business Associate 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 Business Associate does not qualify the safety criteria, the Business Associate will not be registered. However, he may apply afresh for registration after 6 months.

5.1.1 Star Rating(R8):

SCG will evaluate Star Rating as per following -(R8)

- Initially potential Star Rating based on **CSM F4 Safety Potential Evaluation Criteria**
- After 6 month actual star rating assessment to be carried out based on **CSM F4 Safety Potential Evaluation Criteria** and safety performance evaluation.
- Odisha Discom & New Business Star Rating process will be applicable only 1 year after implementation of it.
- Based on Safety capability score Vendors rating will be evaluated (For 3 star rated vendors - within 12 months from previous assessment date and for 4 & 5 Star rated vendors – within 24 months from previous assessment and Re-assessment within three months from previous assessment date when a vendor is unable to achieve Star rating 3)
- Category A - Vendor must require [Safety Star Rating 4](#) and above.
- Category B - Vendor must require [Safety Star Rating 3](#)

***Star Rating will be evaluated by Third Party from FY 26 *(R8)**

5.2 Contract Preparation :

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 **CSM F2 Safety Terms and Conditions** which includes following and safety bid will be evaluated

- 1) **CSM F6 Safety Competency Assessment Form**
- 2) **CSM F8 PPE requirements**
- 3) **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.)**

Safety bid evaluation will not be done for category C and D.

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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.

5.3 Contract Award: 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 Business Associate, 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 Business Associate will be considered for evaluation by contract team only if Business Associate is qualified in safety bid. Site Safety Management Plan, defining the complete procedure of executing the job at site will be signed by the Business Associate 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**.

5.4 Capability Building(R8):

5.4.1 Before issuing gate pass:

For Odisha Discom/New business(R8): All Tata Power Business Associate and sub Vendor 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:

- 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 Business Associate and sub vendor 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.

5.4.2 Before start of actual work:

- Appropriate practical training such as SHE L1, L2& L3 (As per Competency Skill Matrix Annexure - 15)(R8) 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 followed by Post Assessment on the list of 15 critical Safety procedures mentioned under safety procedures. Duration of course is as specified by Division/Discom
- Business Associate shall ensure that concerned workmen are provided with adequate training

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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 (Bronze/Silver/Gold Card), which will be valid for 3 years, post which the workmen have to reappear for assessment.

- *BA Employee who Fail in assessment to be removed from work.(R8)*
- *BA Employee who achieved Bronze card can work for assisting Silver and Gold.(R8)*
- *BA Employee who achieved Silver card can Work under competent supervisors.(R8)*
- *BA Employee who achieved Gold card can Work independently.(R8)*
- *BA Supervisor who achieved Bronze card can be treated as Learner & can only supervise low Risk Job.(R8)*
- *BA Supervisor who achieved Silver can not take permit, Tata Power employee will take permit in such cases.*
- *BA Supervisor who achieved Gold card can take permit & supervise work.(R8)*
- *BA Safety Supervisor who achieved Bronze card can be treated as Learner.(R8)*
- 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 /Discom.
- After expiry of Certificate or Training /Competency Card again one day recertification of L1, L2 and L3 skill training will be provided.
- Quarterly /Half yearly (For Odisha and New business) Revalidation Test - "SHE L1 Revalidation test" will be conducted for the Business Associate's employees to revalidate their safety awareness and knowledge.
- 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.
- 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 Business Associate and rates shall be decided by TPSDI from time to time in case of training through 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.
- All BA's workmen and BA 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.

5.4.3 Recognition to the Prior Learning in Safety

If "Order Manager" recommends and "Head of the Safety Department of Discom" is satisfied with the safety knowledge and competency of the employee of Business Associate, a test may be conducted by Tata power Skill development Institute/ other recognized institute to assess the

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prior learning in safety. If employees of the Business Associates 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 Managing Work(R8):

Order Manger shall -

- 1) Comprehensively assess and ensure field Safety implementation against Contract requirements and the Safety Management Plan.
- 2) Maintain a follow up process that drives continuous improvement in Safety practices and avoids repetition of common errors.
- 3) Order Manager and BA should aim at optimizing Safety performance of the Contract by working in a collaborative manner during the execution of the work. This can be achieved by:
 - Ensure that potential safety hazards are identified and controlled before any contracted work starts. Hazard identification should be conducted using multi-disciplinary teams which includes members from competent safety professional/execution team/competent BA supervisor & workforce to understand and identify project-specific safety hazards.
 - Monthly inspection and replacement of damaged Personal Protective equipment - PPE & Critical Equipment, lifting Tools & Tackles and hand tools used at site.
 - **PTW** - PTW procedure must be adhere and implement at site.
 - Reviewing the Safety Management Plan (**CSM F9– Site Safety Management Plan**) before each stage of work begins.
 - **TBT & Mass Meeting**: Every day Tool box talks to be conducted based on JSA/SOP with maximum participation of BA Workforce & Safety points to be shared by BA employee & line manager and 100% participation of BA employee & workmen in to mass meeting/communication.
 - **BA Self safety audit**: BA Safety Supervisor will carry out daily safety audit and inspections of tools, tackles, equipment and PPEs. They will identify and help in correcting the unsafe acts and unsafe conditions created while executing job at site with the help of BA's supervisors.
 - All respective **Critical safety Rules & Procedures and General safety Rules & Procedures** to be use and implement at site during job.
 - "**Suraksha Samwad**" also known as Safety Interaction is a proactive safety initiative. In this program, leadership engages with BA workmen and employees in a scheduled 30-minute session to discuss and observe safety practices in the workplace.

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- **Reporting safety observations by BA employee:** This involves the active participation of the workforce in identifying and reporting safety observations, which can help prevent accidents and improve safety performance.
- **Felt Leadership for Business Associates Proprietor /Co-ordinators:** This program aims to develop leadership skills within the Business Associates Proprietor/Co-ordinators. It encourages individuals to take ownership of their work and fosters a culture of responsibility and accountability.
- **Behavior based safety program (Jivan Ki Aur):** It aims to create regular awareness among all ground staff. It seeks to sensitize them, establish relationships, foster teamwork, enhance communication, motivate and empower everyone, promote good health, and enable a happy and safe life. The program will cover various activities such as morning meetings, home visits, personal meetings, group meetings, short training sessions, games, and other forms of engagement.

5.6 Periodic Evaluation(R8):

1. During the time of job execution, regular site inspection will be carried out by the Tata Power-Division /DISCOM officials **mainly Line manager (R8)** to evaluate monthly safety performance of the Business Associate as per **CSM F11 Safety Performance Evaluation Report (R8)** 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.
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 Business Associate, if such delays are attributable to Business Associate.
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.
6. **Site contract team will arrange Quarterly meetings with Order Manager to take feedback for Safety performance of Business Associates In-turn Site Leadership and Site Contract team will give feedback of safety performance to BA proprietors so as to take Corrective actions (R8).**
7. **CSM F11 Safety Performance Evaluation Report (R8) to be used to evaluate Star Rating of Business Associate for lead & Lag Indicator.**

5.6.1 Safety performance retention:

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

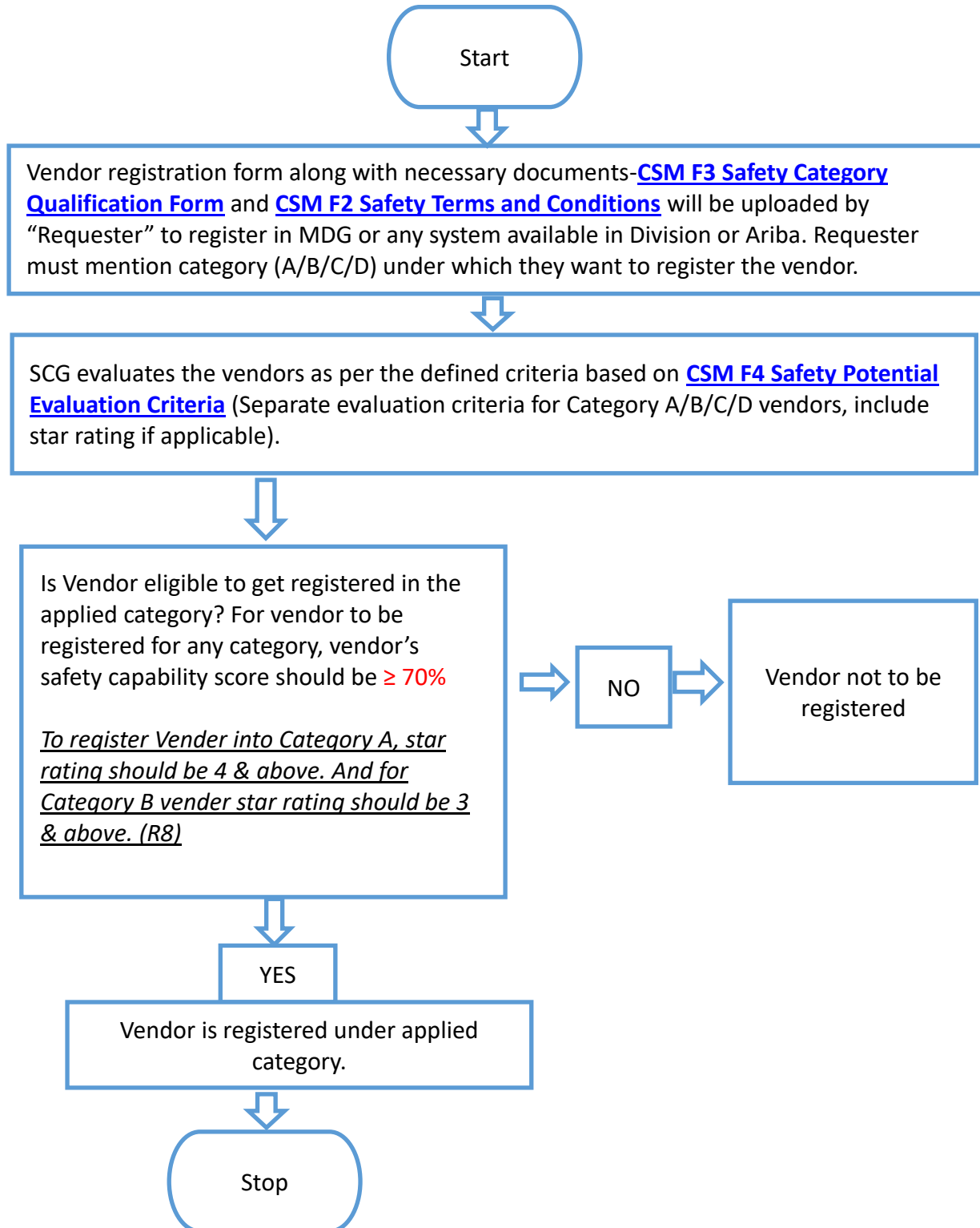
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Performance Score of Business Associate s. The retention amount will be calculated based on contract value as below.

Risk Category	Contract Value	Retention Amount (%)
<u>Very high/High risk job/ Medium Risk jobs</u>	Up to 10 Lakhs	2.5
<u>Very high/High risk job/ Medium Risk jobs</u>	10 – 50 Lakhs	2
<u>Low/Very Low Risk jobs</u>	10 – 50 Lakhs	1
<u>Very high/High risk job</u>	0.5 to 10 Cr	2
<u>Medium Risk jobs</u>	0.5 to 10 Cr	1.5
<u>Low/Very Low Risk jobs</u>	0.5 to 10 Cr	1
<u>Very high/High risk job</u>	>10 Cr	1.5
<u>Medium Risk jobs</u>	>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 Business Associate is as per desired criteria.
2. If safety performance of Business Associate 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. 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 Business Associate available with Tata Power for the said contract between the Business Associate and Tata Power.
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.
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%.

Appendix 1: CSM F1 - Process Flow Chart for Vendor Registration



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Appendix 2: CSM F2 - Safety Terms and Conditions

(Attached as a separate document under the title CSM F2 – Safety Terms and Conditions)

Appendix 3: CSM F3 - Safety Category Qualification form

1. **“Safety Category Qualification Form”** is part of vendor registration form. It needs to be filled by the Business Associate 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 Business Associate 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.

Name of the Vendor:							
#	Safety Information	Yes / No	Remarks				
1	Certified for i. ISO 45001, ii. ISO: 14001 iii. ISO: 9001 (ISO certificates to be issued from reputed accreditation agencies specified by Tata Power)	i. Y/ N ii. Y/ N iii. Y/ N	If Yes, Attach copy of the certification. If No, mention plan to get the certification.				
2	Safety Statistics for current and Last Three (3) Years - LTIFR	Yes/No		Current Year	Year 1(Last FY)	Year 2	Year 3

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Name of the Vendor:																			
	- LTISR		LTIF R																
			LTIS R																
3	Any Compensation paid due to accidents during current and last three years?	Yes/No	<table border="1"> <thead> <tr> <th></th> <th>Amount (INR)</th> <th>Man-hour</th> </tr> </thead> <tbody> <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> </tbody> </table>		Amount (INR)	Man-hour	Current Year			Y1 (Last FY)			Y2			Y3			
	Amount (INR)	Man-hour																	
Current Year																			
Y1 (Last FY)																			
Y2																			
Y3																			
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 man-hour 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.																
9	Do you have a reward and recognition scheme for your employees who show exemplary safe	Yes/No	If yes, show the records of Reward and Recognition given during the last three years.																

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Name of the Vendor:			
	behavior and contribute to overall safety improvement at site?		
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 4: CSM F4 - Safety Potential Evaluation Criteria for Vendor Registration (R8)

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

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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)

Star rating criteria score: 5 Star- 90 to 100, 4 Star- 80 to 90, 3 Star- 70 to 80(R8)

Sr No	Description	Weight age (%)	Actual Score
1	Does the service provider have a valid 45001 Certification?	10	
2	<u>Performance Measure: Lead Indicator</u> <u>(Ref to Safety Performance evaluation report CSM F11 (A) Lead indicator score)(R8)</u>	<u>40</u>	
3	<u>Performance Measure: Laq Indicator</u> <u>(Ref to Safety Performance evaluation report CSM F11 (B) Laq indicator score)(R8)</u>	<u>20</u>	
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 5 Marks.	5	
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	
6	Check the organizational structure for safety professionals & engineers / supervisors. ✓ Check Availability of number of Safety Supervisor from government recognized institute as per workforce strength. 1 in 50 employees than 5 Marks <u>otherwise Zero.</u> (R8)	<u>5</u>	
	Total	100	

Evaluation Criteria for Category C

Sr no	Description	Weight age (%)	Actual Score
1	Does the Business Associate have a valid ISO 9001 certification?	40	

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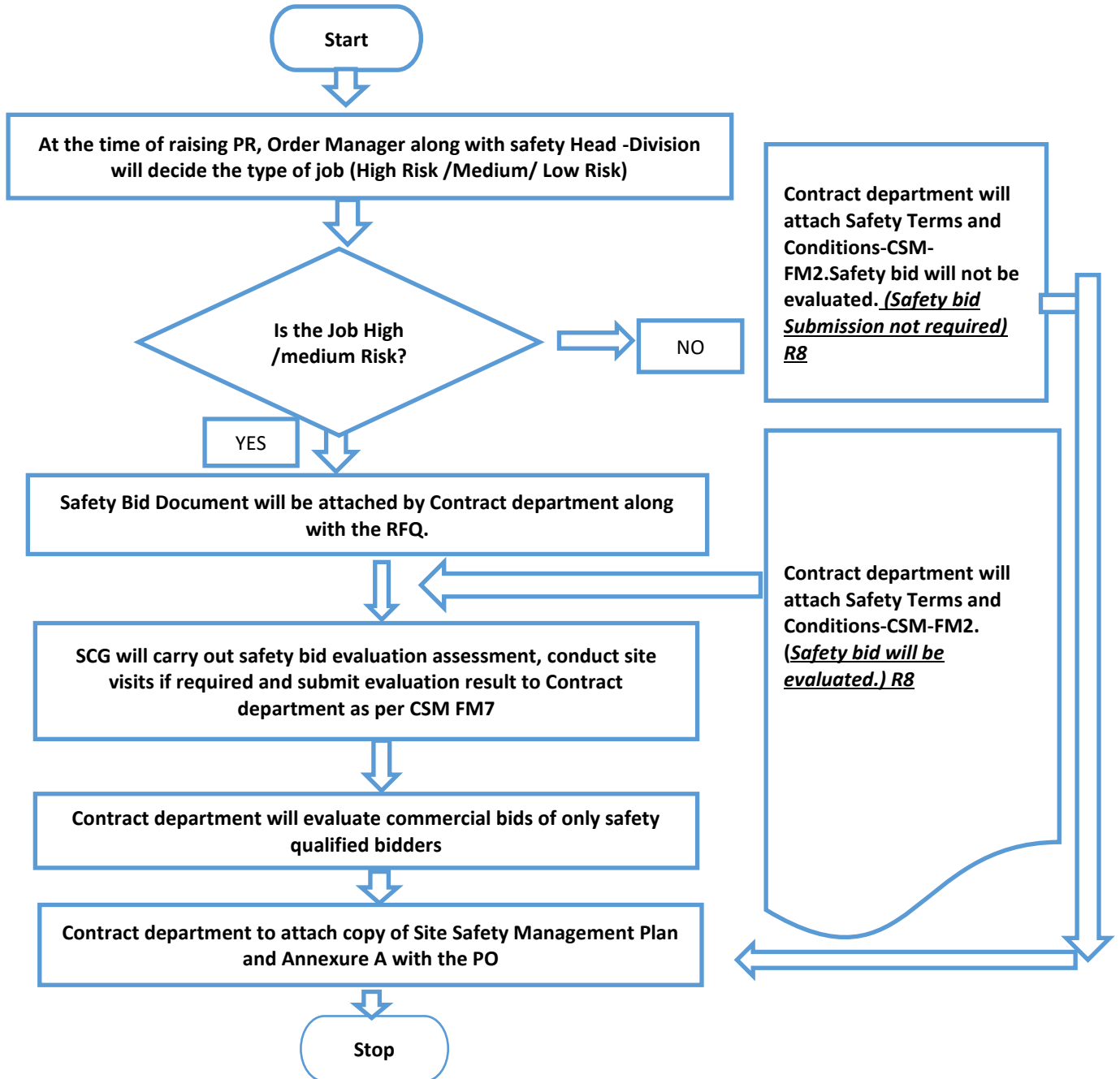
2	Check the Safety statistics of Service provider (If available than 10 otherwise Zero)	10	
3	Check the trend LTIFR/LTISR for last 3 years (If less than 0.2 than give 20 Marks if between 0.2 to 0.3 than give 10 marks and otherwise Zero)	20	
4	Has there been any prosecution / conviction for any Contravention 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 $\geq 70\%$.

Appendix 5: CSM F5 - Flow Chart for Issuing RFQ and PO (R8)



Appendix 6: CSM F6 - Safety Competency Assessment Form (Template)

Name of the Vendor/Bidder:

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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						
Site In Charge						
Safety Manager						
Safety Officer						
Supervisors						
Technicians						
High Skilled workmen						
Skilled workmen						
Semiskilled workmen						
Lineman						
Helpers						
Drivers						
Unskilled						
Others						

Instruction to Bidders:

- Indicate the overall site manpower deployment schedule as above
- Indicate direct or subcontracted employees by using color code given below:

Direct Bidder Employee – Green

Partly Direct / partly Subcontracted – Yellow

Subcontracted – Red If sub Business Associate 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-Business Associate's follow the Tata Power Safety Procedure and agreed CSM F9 Site Safety Management Plan.

- Against each category, indicate minimum educational qualification and work experience
- Add rows to include other specialized manpower, if any.
- Extend columns to cover the entire duration of the proposed contract.
- 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: -

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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 Business Associate 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

Division/DISCOM Requirement	Bidders Response
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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

S. No.	Vehicle No.	Vehicle Type	Location	EV/CNG/Diesel/Petrol	Year	Whether CNG endorsed on RC

7. Crane Deployment: 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.

SI No	Crane No	Location	Year

8. Training Records: 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,

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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:** 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 13. The risk assessment will be done along with Division safety Head.
- 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**”.
- 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

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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.
- 6) Contracts / Division shall provide a list of regular Business Associates 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.
- 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.
- 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.

Safety Bid Evaluation will be based on following parameters.

Evaluation Criteria

S. No.	Description	Max Marks	Criteria for evaluation
1.	Qualification and Experience of manpower	15	As per Clause No. 1 <u>CSM F6 – Safety Competency Assessment Form (R8)</u>
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 <u>CSM F8 – PPE Requirements (R8)</u>
4	Job Safety Plan/ Method	15	To be evaluated as per as per SOP/WI/HIRA
5	Vehicle Deployment	5	<u>Weightage will be given for CNG/Electrical Vehicles with endorsement of CNG kit on RC (R8)</u>
6	Crane and Mechanized heavy equipment Deployment	15	<u>Date of manufacturing or running hours or stipulated in laws.(R8)</u>
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

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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)

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.

The Tata Power Ltd	Company	Minimum Requirement 		Weightage	Score Obtained
				Business Associate's Safety Code of Conduct	
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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). <u>(For any specific & specialized work, site safety supervisor will be decided by SCG)(R8)</u>	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. Training – Trained and certified by Tata power Skill development Institute or equivalent institute in relevant safety procedures. Note: On request of the Business Associate /Users -TPDSI should vet & certify the skilled & experienced Technician if Technical Qualification is not adequate.		5	
	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 Business Associate. Evaluation of the list will be carried out based on 1) Suitability as per the relevant job		15	

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		2) Make and age of the tools from authorized agencies defined by the user. 3) Certification by the competent authority of respective state.		
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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 CSMC implementation date.

Appendix 8: CSM F8 - PPE requirements

The Business Associate 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 2 CFM 2 in detail.

PPE Requirement

1	All Business Associate '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& 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

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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
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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)	

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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: -	

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Detail of Sub Business Associate s involved: -		
Method Statement Prepared By: - Designation: - (e.g., Site Manager)	<u>Signature</u>	<u>Date</u>

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 subBusiness Associate s' staff, Project Manager/Site Manager of principal Business Associate , Sub Business Associate Site Manager, Project Engineer, Safety officer, Competent Supervisory Staff etc.)*

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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, Business Associate s. 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.				

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3				
4				
5.				

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

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

Attachment: - Specific Risk Assessment

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

Fall Protection Measures: (Where Work at height cannot be avoided)							
Control Measures for Electrical Hazards							
Others Hazard if any (please provide details)							
Hazardous Substances to be used in job: (Attach MSDS if required)	 Acute Toxic	 Health Hazard	 Corrosive	 Dangerous For the environment	 Oxidising	 Highly flammable	 Explosives
	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N

8.0 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,*

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firefighting, and first aid arrangements, nearest onsite/offsite emergency response also to be considered during emergency planning.

9.0 "5S issues" / Waste Disposal/ Housekeeping and Environmental issues: *Details waste disposal processes and or housekeeping activities, Details of environmental impacts and control measures.*

--

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

<i>Safety Helmet / Hard Hats</i>		<i>Safety Shoe / Safety Boots</i>	
<i>Gum Boot</i>		<i>Double Lanyard Safety Harness with work positioning attachment</i>	
<i>Electrical Hand gloves</i>		<i>Other hand gloves</i>	
<i>Eye protection</i>		<i>Respiratory protection</i>	
<i>Ear Protection</i>		<i>Electrical Arc flash suit</i>	
<i>Chemical resistant suit</i>		<i>Reflective Jackets</i>	
<i>Any Other</i>		<i>Any Other</i>	

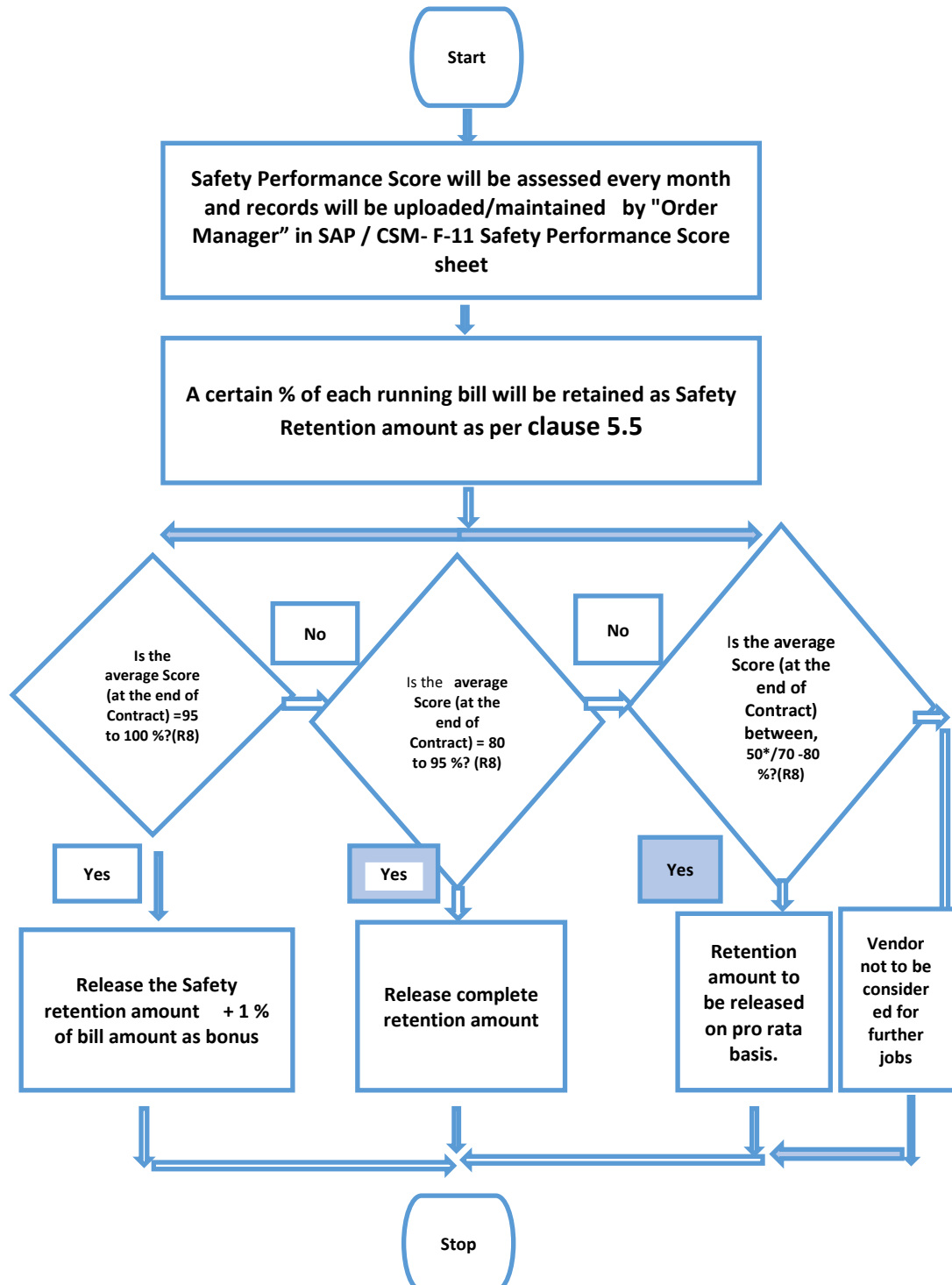
11.0 First Aid facilities and Nearby Hospitals Details

- Name of On Site First Aider
- First Aid Box Location
- Location of nearest hospital

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

- | |
|---|
| <ul style="list-style-type: none"> • Please give a brief write-up / 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 (R8)



*** For New Business such as Odisha Discoms**

Appendix 11 CSM F11 - Safety Performance Evaluation Criteria (R8)

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Safety Performance Evaluation Report- CSM F11

BA field safety audit (Safety Performance Evaluation for BA).							
Division		Function					
Name of BA		Month					
Nature of Work		PO					
	A. Lead Indicators		100 (for star rating score will dividend scale of 2.5)				
	-	UOM	Target		Actual score for the month		
1	% of employees certified in Skill development institute/ authorized agency/Card issued.	% Workforce covered	100 %	51% to 99%	50%	<50 %	
	Score		10	Pro-rata	5	0	
2	Monthly inspection and replacement of damaged Personal Protective equipment -PPE by BA (Safety shoes, Induction helmet, full body safety harness with work positioning lanyard, rubber insulated gloves, reflective jacket etc.as per Job requirement)	% of total workforce	100 %	99% to 50%	<50%		
	Score		10	5	0		
3	Monthly inspection and replacement of damaged Critical Equipment, lifting Tools & Tackles and hand tools used at site by BA (Neon Tester, Discharge rod, ladders Vehicle, Tools & tackles carried out and defective equipment replaced as required.	% Total T&T	100 %	99% to 50%	<50%		
	Score		10	7	0		

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4	Unsafe Conditions/Acts (Potential Hazards), near miss(Close calls), minor injury(First aid cases and MTC) cases reported	Observation / Nos of workforce	0.50	0.25	<0.25		
	Score		10	7	0		
5	Monthly R&R for workforce along with Tata power reparative monthly	% of total workforce	10%	5%	0		
	Score		10	5	0		
6	Nos of workforce covered under program under Jivan Ki Aur/Ghar se Ghar tak/Surkhshit Pariwar ki aur	% of total workforce	10%	5%-10%			
	Score		10	0			
7	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		15	0			
8	<u>Daily Tool box talk and Weekly Mass communications covering 100 % workforce and records maintained or not(R8).</u>	% of total workforce	100 %	50-100%	<50%		
	Score		10	5	0		
09	<u>Check for housekeeping at site(R8)</u>	At least 3S.	YES	NO			
	Score		15	0			
	B. Lag Indicators		50 (for star rating score will dividend scale of 2.5)				
			Target				

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1	Number of Fatalities	0	>0			
	Score	30	0			
2	No of LWDC - Reportable	0	>0			
	Score	10 / 20*	0			
3	Major Fire	0	>0			
	Score	10 / 0*	0			
	Total score	150				0
	* Odisha				%	0

Appendix 12: CSM F12 - Safety Violation Penalty Criteria

Major Violations and Escalation matrix

Consequence of safety violation observed not related to incidents or accidents		Violations				
Sl. No.	<u>Safety Violation</u>	1st	2nd	3rd	4th	<u>Subsequent violation</u>
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
B	Memo to BA and Levy of Penalty	Order manager / EIC	10000	

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C	Memo to BA and Levy of Penalty	Order manager / EIC	25000	cumulative during the FY and deduction will be done from the monthly bills.(R8) the contract period, not on a monthly basis
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	

***Blacklisted Business Associates shall eligible for New Bid after one year subjected to Star Rating Performance evaluation (R8).**

Other Violations and Penalty

Penalty shall be imposed on the Business Associate's 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 Earthing 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

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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 sub Business Associate 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 <i>TPSMS/GSP/GHK/022</i> • 1st Instant • 2nd instant • 3rd instant • 4th instant • Subsequent instants	2	• 1000 • 2000 • 5000 • 10000 • 10000
28	Violations related to vehicles with respect to <i>TPSMS/CSP/RSP/015</i> . • 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	5	2000 per each violation

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	• Cylinder trolley not available • Cylinders are transported by manual rolling		
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 • 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	5	2000 per each violation
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

Consequence of incident / Accident		Incident / Accident				Action Required
Sr.No.	Type of Injury	1st	2nd	3rd	4th	
1	Major Injury (Bone injury or burn or hospitalization >48 hrs.) Non-fatal	F	F	G	G	Required
2	Major Injury (Bone injury or burn or hospitalization >48 hrs.) Non-	G	G	H		Intolerable

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	Fatal (Two or more non-Fatal in one event)					
3	Single fatality in one event	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)	The no. of violations shall be calculated cumulative during FY and deduction will be done just after Consequence of incident / Accident(R8)the contract period for all contracts in SBU, not on a monthly basis	
F	Memo to BA and Levy of Penalty	Order Manager/Engineer in charge		200000		
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: Indicative List of High-Risk Jobs (R8)-

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

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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
19	Work at height
20	Electrical Work
21	Excavation work >3 ft.
22	Line breaking - Fuel
23	Line breaking - Power
24	Line breaking - Gas
25	Hot work - Welding, Brazing , Gas cutting , Grinding and any process which generates heat and Spark
26	DG Maintenance
27	Gas line - Cylinder change over
28	Gas line - Any part replacement, Flushing, working with high pressure (Not applicable for General check or any other Alarm reset etc.)
29	Chemical drum change over
30	Effluent handling - Loading to tanker, Pump or any other part replacement
31	Chemical and Effluent handling - Pump, Valve replacement, and any work which exposes chemical or effluent (Not applicable for General check or any other Alarm reset etc.)
32	Working on Robots - General check using check list, alarm reset etc.
33	Working on Robots - Replacement of Faulty devices, sensors etc.
34	Working Inside ASRS- General check using check list, alarm reset etc.
35	Working Inside ASRS - Replacement of Faulty devices, sensors etc.
36	Lifting activity
37	Working in Elevator / Lift
38	Canopy work
39	Panel & equipment Testing.
40	String Connection & VOC Testing
41	Commissioning activities.
42	Transformer Testing.

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43	HIPO Test.
44	Battery Bank Installation & testing.

Appendix 14: Sub-vendor Engagement Request Form (R8)

(This form is to be used by Prime / Main Vendor's organisation in their letter head)

Form

Ref No.....

Date:

The Chief Procurement Officer / Chief Commercial (Division.....) Tata Power
Location:

Sub: Approval Request for Engagement of Sub-vendor against Work Order
No.....dated [High risk job/Medium risk job/Low risk job]

Through: Representative of user department (Signature)-

Dear Sir,

This is to bring to your kind attention that Tata Power/.....has placed a Work Order on us: No:
..... date:.....for execution of the following job
.....

We seek your approval for the engagement of Sub-vendor/ Vendors (registered as per BASCC) for execution of the job as detailed below.

Tick option A or B as applicable:

A) M/s Vendor code (3-Star qualified) will be
deployed as

B) Sub-vendor for executing the job under their own supervision.

M/s

.....Vendor code will be deployed as Sub-vendor
under Prime / Main Vendor supervision (Star-rating is not mandatory).

We hereby declare that we shall be solely responsible for compliance of all the terms and conditions of the said order as well as with various statutory provisions as applicable for the execution of the job through the said sub-vendor to be engaged by us.

Thanking you

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Yours sincerely
(Prime Vendor with office seal)

Name of the prime vendor's representative:..... Designation..... Vendor

Name:..... Vendor Code:.....

For Official Use only

Approval Granted/ Not Granted:
Order Manager/Contract Administrator -

Appendix 15: CSM F 15: BA Competency Skill Matrix

Generation Cluster

SI No.	Department	Designation	Qualification	Experience	Mandatory Requirement	L0	L1	L2	L2 Trainings	L3
1	O&M	Helper	Preferably 10th Pass				Mandatory			
		Electrician	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category	License is required		Mandatory	Mandatory	LT/HT/WAH	
		Heavy Equipment Operator (EOT/Crane/ Heavy vehicles)		Mini. 2Yr Exp.	License is required as per state statutory requirement		Mandatory	Mandatory	Road/Vehicle Safety/ Lifting Operation	
		IBR Welder/ Welder/gas cutter/Grinder		Mini. 2Yr Exp.			Mandatory	Mandatory	HOT Work/WAH/CS	
		Rigger		Mini. 2Yr Exp.			Mandatory	Mandatory	Lifting /WAH/	
		Foreman		Mini. 5 Yr Exp.			Mandatory	Mandatory	Lifting /WAH/CS	
		Fire Man		Mini. 2Yr Exp.			Mandatory		Fire Fighting	
		Masson		Mini. 2Yr Exp.			Mandatory			
		Carpenter		Mini. 2Yr Exp.			Mandatory			
		fitter		Mini. 2Yr Exp.			Mandatory			
		Garden Maintenance/ Security/ Pantry Staff / Pest Controller		Mini. 2Yr Exp.		Mandatory	Mandatory			
		Assit. Chemist	Bsc Chemical	Mini. 2Yr Exp.			Mandatory	Mandatory		
		Chemist	Bsc Chemical	Mini. 2Yr Exp.			Mandatory	Mandatory		
		Scaffolder		Mini. 2Yr Exp.			Mandatory	Mandatory	Scaffolding / WAH/CS	
		Supervisor	Degree/Diploma in Engg.	Mini. 5Yr Exp.			Mandatory			Mandatory

		BA Engineer	Degree/Diploma in Engg.	Mini. 2Yr Exp.			Mandatory			Mandatory
2	Projects	Helper	Preferably 10th Pass				Mandatory			
		Electrician	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category	License is required		Mandatory	Mandatory	LT/HT/WAH	
		Operator		Mini. 2Yr Exp.			Mandatory	Mandatory	Road/Vehicle Safety/ Lifting Operation	
		Welder		Mini. 2Yr Exp.			Mandatory	Mandatory	HOT Work/WAH/CS	
		Rigger		Mini. 2Yr Exp.			Mandatory	Mandatory	Lifting /WAH/	
		Foreman		Mini. 5 Yr Exp.			Mandatory	Mandatory	Lifting /WAH/CS	
		Scaffolder		Mini. 2Yr Exp.			Mandatory	Mandatory	Scaffolding / WAH/CS	
		Supervisor	Degree/Diploma in Engg.	Mini. 5Yr Exp.			Mandatory	Mandatory		
		BA Engineer	Degree/Diploma in Engg.	Mini. 2Yr Exp.			Mandatory			Mandatory

Competency Framework -		
Competency Assessment criteria consists of	-	<u>Criteria for competency assessment of Lineman/helper Bronze/Silver/Gold Category</u>
1. CV Selection before imparting training L1/L2 2. One to one interaction with CFT. (CFT comprises of more then 2 member team in which a safety/SDI official, and a functional Manager from the same department or cross functional department.)	-	<u>For Skilled - L1(30) + L2/L3(30) + Interview (40 Marks)</u>
Gold - 91% - 95%, Silver - 81% -90%, Bronze - 71% - 80%, Fail - 70% & Below		
Notes: All trade to be assessed for Technical competency even before imparting L1/L2/L3 training. 1. Fail: To be removed from work. 2. Bronze: Work for assisting Silver and Gold. 3. Silver: Work under competent supervisors. 4. Gold: Work independently. This is only for BA workforce		

T&D Cluster

SI No.	Department	Designation	Qualification	Experience	Mandatory Requirement	L1	L2	L2 Trainings	L3
1	O&M	Helper	Preferably 10th Pass	Mini. 2 Yr working Exp. in power distribution, ability to read, write emphasis on safety.		Mandatory			
		Lineman/ Fitter	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category	license is required	Mandatory	Mandatory	LT/HT	
		Cable Joiner				Mandatory	Mandatory	LT/HT	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr Post qualification exp. In the field of Electrical safety		Mandatory			Mandatory
2	Projects	Helper	Preferably 10th Pass	Mini. 2 Yr working Exp. in power distribution, ability to read, write emphasis on safety.		Mandatory			
		Lineman/ Fitter	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category	Minimum MV license is required	Mandatory	Mandatory	LT/HT	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr Post qualification exp. In the field of Electrical safety		Mandatory			Mandatory
3	Civil	Helper	Preferably 10th Pass	Ability to read, write emphasis on safety		Mandatory			
		Masson		Mini. 2Yr Exp.		Mandatory	Mandatory	Excavation Safety	
		Supervisor	Degree/Diploma in Electrical Engg./Civil Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
4	MMG	Helper/MI	Preferably 10th Pass	Minimum 2 Yr working Exp. in power distribution, ability to read, write emphasis on safety.		Mandatory			
		Lineman	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category	Minimum MV license is required	Mandatory	Mandatory	LT/HT	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory

		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr Post qualification exp. In the field of Electrical safety		Mandatory			Mandatory
5	EHV	Helper	Preferably 10th Pass	Minimum 2 Yr working Experience in power distribution, ability to read, write emphasis on safety.		Mandatory			
		Lineman	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category	Minimum MV license is required	Mandatory	Mandatory	LT/HT	
		Supervisor		2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
		BA Safety Engineer	Degree/Diploma in Electrical Engg.	2 Yr. Post Qualification Exp. with valid supervisory license		Mandatory			Mandatory
		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr Post qualification exp. In the field of Electrical safety		Mandatory			Mandatory
6	Admin	Helper	Preferably 10th Pass	Ability to read, write emphasis on safety		Mandatory			
		Driver	Preferably 10th Pass	With Valid driving Licence		Mandatory	Mandatory	Road/ Vehicle Safety	
		Supervisor				Mandatory			Mandatory

Competency Framework -

Competency Assessment criteria consists of	-	<u>Criteria for competency assessment of Lineman/helper Bronze/Silver/Gold Category</u>
1. CV Selection before imparting training L1/L2 2. One to one interaction with CFT. (CFT comprises of more then 2 member team in which a safety/SDI official, and a functional Manager from the same department or cross functional department.)	-	For Lineman/Supervisor - SDI Assessment(30) + L1(20) + L2/L3(20) + Interview (30 Marks)
Gold - 91% - 95%, Silver - 81% -90%, Bronze - 71% - 80%, Fail - 70% & Below		
Notes: All trade to be assessed for Technical competency even before imparting L1/L2/L3 training. 1. Fail: To be removed from work. 2. Bronze: Work for assisting Silver and Gold. 3. Silver: Work under competent supervisors. 4. Gold: Work independently. This is only for BA workforce		

Renewable Cluster

SI No.	Department	Designation	Qualification	Experience	Mandatory Requirement	L0	L1	L2	L2 Training (Specific)	L3
1	EPC Project (Large/Solar/ Wind/Roof Top Solar)	Helper	Preferably 10th Pass				Mandatory			
		Electrician	ITI(Electrician /Wireman trade) with wireman license from Respective state electrical licensing board for voltage level	Mini. 2Yr exp. in Industry	Possession of Valid Electrician/ Wireman License		Mandatory	Mandatory	LT	
		Heavy Equipment (Farahana/JCB/ Excavator etc.)		Mini. 2Yr Exp.	Possession of appropriate Driving license approved by RTO		Mandatory			
		Crane Operator		Mini. 2Yr Exp.	Possession of appropriate Driving License approved by RTO		Mandatory	Mandatory	Road/Vehicl e Safety	
		Carpenter		Mini. 2Yr Exp.			Mandatory			
		Fitter		Mini. 2Yr Exp.			Mandatory			
		Masson		Mini. 2Yr Exp.			Mandatory			
		Welder/Gas cutter/ Grinder		Mini. 2Yr Exp.			Mandatory			
		Supervisor	Preferably 10th/ITI/Diploma Pass	Mini. 5Yr Exp.			Mandatory			Mandatory
		Engr.	Degree/Diploma in Engg.	Mini. 2Yr Exp.			Mandatory			Mandatory
2	Manufacturin g/4GW	Helper/Security/ Canteen Staff/ HK Staff/Waste Mang. Handler	Preferably 10th Pass	Experience In similar working profile.		Mandatory				
		Electrician	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp.	License is required		Mandatory	Mandatory	LT/HT	
		Electrician (Working below 11KV)	ITI (Electrical/wire man trade)	Mini. 2Yr Post qualification exp.	NA		Mandatory	Mandatory	LT	
		Forklift Operator/Stacker/ BOPT	Preferably 10th Pass	Mini. 2Yr Exp.	License is required as per state statutory Req. (If not define in		Mandatory			

					that case LMV is must)					
		Operator/Trainee	ITI (Mech./Electrical/other trades)	NA			Mandatory			
		Operator/Trainee (Non-Technical)	Minimum 10th	NA			Mandatory			
		Carpenter	Preferably 10th Pass	NA			Mandatory			
		Welder	ITI welder trade	Min 2 Yr Exp.			Mandatory			
		Supervisor	Degree/Diploma	0 TO 2 Yr Exp.			Mandatory			Mandatory
		BA Safety Officer/ Supervisor	Degree/Diploma in Engg.	Mini. 2 Yr Exp.	Qualification as per State Factory Rule		Mandatory			Mandatory
		BA Engg.	Degree/Diploma in Engg.	Mini. 2Yr Exp.			Mandatory			Mandatory
3	Wind O&M	Technician Electrical	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category			Mandatory	Mandatory	LT/WAH/CS	
		Technician Mech.	ITI (Mach/fitter)	Mini. 2Yr Exp.			Mandatory	Mandatory	LT/WAH/CS	
		Supervisor	Degree/Diploma in Engg.	Mini. 5Yr Exp.			Mandatory			Mandatory
		BA Engr./Site In charge	Degree/Diploma in Engg.	Mini. 2Yr Exp.			Mandatory			Mandatory
4	Solar O&M	Helper	Preferably 10th Pass	Preferably exp. In similar working profile.			Mandatory			
		Electrician	ITI(Electrician /Wireman trade) with wireman license from Respective state electrical licensing board for voltage level	Mini. 2Yr Post qualification exp. in Project/maintenance as per voltage category	License ie required		Mandatory	Mandatory	LT/HT/WAH	

		Grass Cutter	Preferably 10th Pass	Mini. 2Yr Exp.			Mandatory			
		Module Cleaner	Preferably 10th Pass	Experience In similar working profile.			Mandatory			
		Technician		Mini. 2Yr Exp.			Mandatory	Mandatory	Lifting/LT	
		Supervisor		Mini. 5Yr Exp.			Mandatory			Mandatory
		BA Engg.		Mini. 2Yr Exp.			Mandatory			Mandatory

Competency Framework -

Competency Assessment criteria consists of	-	<u>Criteria for competency assessment of Lineman/helper Bronze/Silver/Gold Category</u>
1. CV Selection before imparting training L1/L2 2. One to one interaction with CFT. (CFT comprises of more then 2 member team in which a safety/SDI official, and a functional Manager from the same department or cross functional department.)	-	For Skilled - L1(30) + L2/L3(30) + Interview (40 Marks)
Gold - 91% - 95%, Silver - 81% -90%, Bronze - 71% - 80%, Fail - 70% & Below		
Notes: All trade to be assessed for Technical competency even before imparting L1/L2/L3 training. 1. Fail: To be removed from work. 2. Bronze: Work for assisting Silver and Gold. 3. Silver: Work under competent supervisors. 4. Gold: Work independently. This is only for BA workforce		

Odisha Discom Cluster

SI No.	Department	Designation	Qualification	Experience	Mandatory Requirement	L1	L2	L2 Trainings (Specific)	L3
1	O&M (33 KV, 11KV and below)	Helper	Preferably 10th Pass	Having basic knowledge of working in power distribution, ability to read, write emphasis on safety		Mandatory			
		Lineman/ Fitter	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance of 33/11/0.415KV as per voltage category	Minimum MV license is required	Mandatory	Mandatory	LT/HT	
		Cable Jointer				Mandatory	Mandatory	LT/HT	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr Post qualification exp. In the field of Electrical safety		Mandatory			Mandatory
2	Projects	Helper	Preferably 10th Pass	Having basic knowledge of working in power distribution, ability to read, write emphasis on safety		Mandatory			
		Lineman/ Fitter	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance of 33/11/0.415KV as per voltage category	Minimum MV license is required	Mandatory	Mandatory	LT/HT	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr Post qualification exp. In the field of Electrical safety /Construction Safety		Mandatory			Mandatory
3	Civil	Helper	Preferably 10th Pass	Having basic knowledge of working in power distribution,		Mandatory			
		Masson				Mandatory	Mandatory	Excavation Safety/WAH	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr. Post qualification exp. In the field of Construction Safety		Mandatory			Mandatory
4	MMG	Helper/MI	Preferably 10th Pass	Having basic knowledge of working in power distribution, ability to read, write emphasis on safety		Mandatory			

		Lineman	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance of 33/11/0.415KV as per voltage category	Minimum MV license is required	Mandatory	Mandatory	LT/HT	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
		BA Safety Officer / Supervisor	Degree/Diploma in Engg. & Diploma in industrial safety From Recognised institute	Mini. 3 Yr Post qualification exp. In the field of Electrical safety		Mandatory			Mandatory
5	Enforcement	Helper	Preferably 10th Pass	Having basic knowledge of working in power distribution,		Mandatory			
		Lineman	ITI(Electrical trade) Or shall as per CEA Regulation chapter 2 clause 7.2 [Electrical Licence as per voltage]	Mini. 2Yr Post qualification exp. in Project/maintenance of 33/11/0.415KV as per voltage category	Minimum MV license is required	Mandatory	Mandatory	LT/HT	
		Supervisor	Degree/Diploma in Electrical Engg.	2 Exp. as per voltage category and valid supervisory licence		Mandatory			Mandatory
6	Admin	Helper/ Plumber/ Gardner/ AC Mechanic	Preferably 10th Pass	Ability to read, write emphasis on safety		Mandatory			
		Driver	Preferably 10th Pass	With Valid driving Licence		Mandatory	Mandatory	Road/Vehicle Safety	
		Supervisor	Preferably 12th Pass	2 Yr. Relevant Experience		Mandatory			Mandatory

Competency Framework -

Competency Assessment criteria consists of	-	<u>Criteria for competency assessment of Lineman/helper Bronze/Silver/Gold Category</u>	
1. CV Selection before imparting training L1/L2 2. One to one interaction with CFT. (CFT comprises of more then 2 member team in which a safety/SDI official, and a functional Manager from the same department or cross functional department.)	-	For Lineman/Supervisor - SDI Assessment(30) + L1(20) + L2/L3(20) + Interview (30 Marks)	
Gold - 91% - 95%,	Silver - 81% -90%,	Bronze - 71% - 80%,	Fail - 70% & Below
Notes: All trade to be assessed for Technical competency even before imparting L1/L2/L3 training. 1. Fail: To be removed from work. 2. Bronze: Work for assisting Silver and Gold. 3. Silver: Work under competent supervisors. 4. Gold: Work independently. This is only for BA workforce			

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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	<u>10-Jan-2021-R4</u>	All Discom and CFT members	Debi Prasad Acharya (Head-Safety-Odisha Discom)	Suresh H Khetwani (Chief safety and Environment)

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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.

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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.

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- 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.

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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 through 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**.

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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.

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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)

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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):

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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

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- 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 through 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

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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

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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.

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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.

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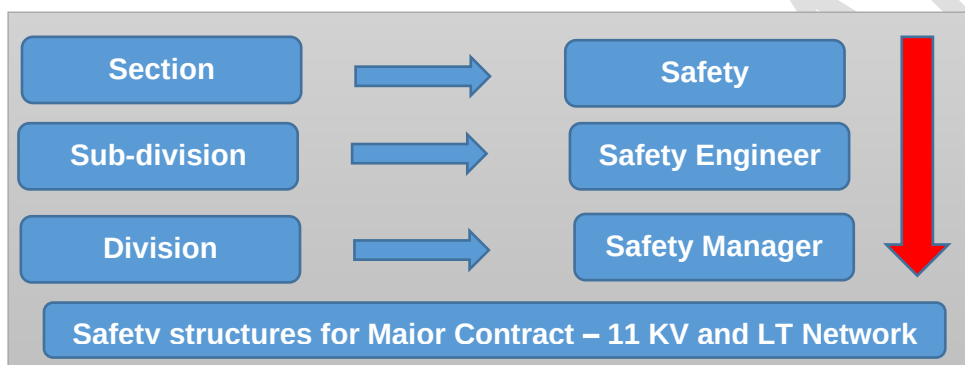
14.0 Safety Conditions for maintenance of 11 KV and LT Network.

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.

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- 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.

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- 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.

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- 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:

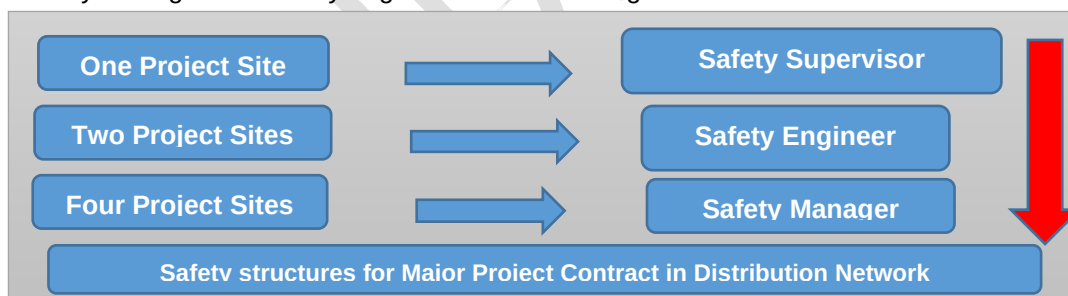
- Availability of Discharge Rods - Minimum 6 Nos. for each project site, fit for purpose and in good conditions and defective rods are removed from service.
- Availability of Neon tester - Minimum one Neon Tester in each project site, in good and working condition and defective or non-standard neon testers 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.

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- 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 be 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

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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.

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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.

VERIFICATION

DEPONENT

Verified aton this _Day of _____ 20__ that the contents of the above affidavit are true and correct and nothing material has been concealed therefrom

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	WORK INSTRUCTION /OPERATING GUIDELINES	
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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 members of Team TPCODL, Associates and Stakeholders are requested to submit any grievance on ethics violation to Mr. Rajeev Kharyal, Chief Ethics Counselor.

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 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

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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 (detailed in section 12 of this document) 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 execution of all items in the schedule of quantities (Supply, Service and or both as applicable) shall be deemed as the Contract Execution Completion Date.

3.6 Contract Execution Period/Time

The Period from Contract Commencement Date to Contract Execution Completion Date shall be the Contract Execution Period/Time. Timely Completion of Works/Timely Delivery of Materials is the essence of the contract. The period from effective date of contract to the date stipulated for completion of delivery of all items/completion of all the works/services, as per schedule of quantities of the contract is defined as contract execution completion time. The Delivery of Materials /The Completion of Works, as applicable, should be achieved in all respects as per schedules of quantities and all the terms and conditions of the contract, in the contract execution time.

Any revision/amendment in the originally stipulated contract execution time has to be approved by authorized representative of TPCODL.

3.7 Contract Price /Value

The total all inclusive price/value mentioned in the LOI/PO/RC of the contract document 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/actual measurement of work done and accepted and certified by the authorized representative of the company unless otherwise specified in schedule of quantities or in contract documents.

3.8 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.

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- Letter of Intent (LOI/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)

3.9 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.

3.10 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 J. The bidders along with the tender document shall mandatorily submit a duly signed copy of the Acceptance Form as mentioned in the Annexure J as a token of acceptance for the same.

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

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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.

4.1 Technical Evaluation

TPCODL reserves the right to assign scores to different parameters including but not limited to the following while evaluating the bids. TPCODL reserves the right to change the parameters and score without prior information to the associates:

S. No.	Evaluation Parameter	Max. Score
A	Bidders already Registered with TPCODL	100
	Quality of the Products & Services	
	a. <u>For Supply Part:</u> No Material Rejections in last 2 years Deduction of 3 marks for each PO/ RO (for same product category) with major rejections in last 2 years. (Major rejection shall be considered when material is taken back by the vendor for rectification and the quantity of rejected material is more than 10%).	12
A.1.	b. <u>For Service Part:</u> No violation of statutory compliances in last 1 year. Deduction of 2 marks for each instance of violation in last 1 year.	12
	c. <u>Safety</u> Deduction of 2 marks for each instance of safety violation in last 1 year. Deduction of 4 marks for each reported Non-Fatal Accident in last 1 year. In case of any reported fatal accident: ZERO MARKS	16
A.2.	Timely Execution of Contracts Total Achieved Score = {30 – 3 x (Avg. %age LD deductions in last 2 years)}	30
A.3.	Legal Issues with TPCODL Zero instances of Arbitration procedures / Court Cases / PBG forfeitures in last 2 years: 30 marks else 'Zero' marks	30
B	Bidders new to TPCODL	100
	Visits <u>For Supply Part:</u> Factory Visit and Evaluation. <u>For Service Part:</u> Client Site Visit where the bidder is providing similar services.	30
B.1.	The visits as above shall be arranged by the bidder. However all costs towards conveyance, lodging, boarding etc. shall be borne by TPCODL. The score assigned by TPCODL based on the above visits shall be final and binding on the bidder.	
	Safety:	20

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S. No.	Evaluation Parameter	Max. Score
	Score achieved against the BA safety Management System questionnaire.	
B.2.	Client Referrals At least 3 nos. Customer References for similar products/ services in last 3 years. All customer references shall be either of the following: - Govt. Organizations/ PSUs/ Power Distribution Utilities. - Private Organizations with an annual turnover of ≥ 500 cr. PO copies or Completion Certificates are admissible. Each reference: 10 marks	30
B.3.	Blacklisting Information Not blacklisted by any reputed organization / utility in last 2 years: 20 marks else 'Zero' marks.	20

- Bidder shall be considered as technically qualified if they are able to achieve a technical score of >70 marks on the above parameters. 'A' or 'B'.
- The bidder must have the PF and ESI registration. In case it is not there (provided the bidder is not exempted from the PF and ESI), bidder shall not be evaluated on the above parameters and will be considered as disqualified.

4.2 Indemnity

Associates shall undertake to fully indemnify TPCODL (also referred to as the Company in the GCC) against all kinds of liabilities or damages, of whatsoever nature, including compensation arising from any accident to the person or property of those in Associate's employment or to any other person or properties including those of TPCODL, arising due to reasons attributable to any, act, omission or negligence of the Associate the Associates, for the entire period of contract including period of guarantee.

Within 7 days of award of work, the Associates shall submit Indemnity Bond in the format as per Annexure-E to Order Issuing Authority.

Contract having value more than Rs 2 Cr per Annum, Associates shall submit Indemnity Bond on Rs 100/- Non Judicial Stamp Paper in the format as per Annexure- E to Order Issuing Authority.

4.3 Display of Notice Boards at Work Sites

The Associate shall put up display notice board at each project site where the works are in progress indicating the information given below:

- Name of the Project.
- Estimated Cost of Project.
- Date of Commencement.
- Expected date of completion.
- Name of Associate and his telephone number.
- Name of Engineer-in-Charge and his telephone number.

4.4 Disposal of Waste at Site

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.

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The associates shall follow the below criteria for disposal of waste at site during the execution of project.

- Associate shall ensure that the detailed project plan include the waste management, segregation of all designated waste material (Recyclable/ Non-Recyclable), collecting, storing, disposing and transferring the same to pre-arranged facility/destination in timely and safe manner as per environmental legislations during the execution of project. The project plan shall also include the innovative construction practice to eliminate or minimize waste, protect surface/ground water, control dust and other emissions to air and control noise during the execution of project. The copy of same shall be given to EIC before the commencement of project.
- The purchase policy of BA shall encourage the procurement of material with recycled and minimum packaging of goods during delivery. Associate shall provide the appropriate means for site to site transportation of materials to avoid damage and litter generation.
- Associate shall educate and inform to its project team about the requirement and responsibilities for waste minimization and disposal in general and provide training of practices that support this. Waste management should be treated like a safety program.
- In the event that area of contaminated or biological hazard is identified, Associate shall ensure that plant, equipment, personnel and any activity associated with the work is carried out in consultation with EIC of TPCODL.
- Associate shall ensure that the residents living near the site are kept informed about proposed working schedule and shall informed timings and duration of any abnormal noise full activity that is likely to happen.
- Associate shall ensure the regular maintenance and monitoring of vehicles and equipment for efficient fuel use so that emissions and noise are within acceptable limits to avoid air pollution.

4.5 Deployment of Work Force

Associate shall deploy adequate labour, as considered necessary by TPCODL for execution of the contract including Sundays and Holidays whenever required to do so with no extra cost to TPCODL. However, prior permission shall be taken from the site Engineer to carry out the work beyond normal working hours or on Sundays and Holidays. Female employees shall not be deployed beyond normal working hours/days and no child labour shall ever be deployed. Associate shall depute full time qualified and experienced engineers to supervise the work at site. All such staff shall be maintained from commencement to completion of all works to the entire satisfaction of the Engineer-in-Charge. Associate's employees deployed for the works under this contract will not be considered in Company's employment at any time. Associate shall continue to be responsible for all such employees, their safety, all types of statutory compliances related thereto and in any other manner whatsoever. The company will stand indemnified by the Associate in respect of all the above. At the same time Company upon noticing any breach or default on any statutory compliances, may at their sole discretion, decide to act in a manner as deemed fit at the risks and costs of the Associate.

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TPCODL shall have the right to instruct the Associate to change the Sub- Associates or skilled /unskilled workers in case the conduct, the workmanship or speed of the work is not satisfactory.

Associates shall submit duly signed undertaking regarding engagement of competent staff / employee commensurate to the nature of job to Engineer-in-charge in the format attached as Annexure – H.

4.6 Damages to Properties

The Associates shall take necessary steps to ensure that the equipment and installations of the Company, Third parties, including other utility services like water supply pipelines; open drains telephone cables etc. are not damaged during execution of the works. The Associates shall be responsible for all such damages and shall have to repair/ replace and/or compensate for the entire claims in respect of such damages at its own cost.

4.7 Issuance of Material

The material issued to the Associate shall be in the custody of the Associates who shall be fully responsible for the same. After completion of the works, the Associates will reconcile the material. Any cost of material which is short or damaged/lost will be deducted from Associate bill/ deposits.

4.8 Company's Right To Use Works

If Taking Over Certificate is delayed for any reason, for which TPCODL's decision shall be final and binding upon the Associate, the Company shall be entitled to use the works or portion thereof without affecting Associate's responsibility and liability to complete the balance works as per company's directives from time to time, though Associate shall be afforded reasonable opportunity by the company to enable Associates to complete all balance works required for issuance of 'Taking Over Certificate' by the company.

4.9 Rights of TPCODL to vary the scope work

TPCODL shall 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 communicating the intent to do so in writing to the Associate. On receipt of such communication the Associate shall, within the time frame specified in the contract shall provide TPCODL with a reasonably detailed estimate of the cost of the change in scope outlined in the TPCODL communication. The change in the Contract price and time shall be revised 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 in the scope of work till such time revision of Contract price and time schedule are approved and communicated to the associate by TPCODL.

Any change in the Scope of Work and/or Terms & Conditions of the order shall be intimated by TPCODL through an amendment to the contract. The amendment shall be treated valid only if signed by the authorized signatory of the original contract.

5.0 PRICES/ RATES/ TAXES

5.1 For Supply part of Contract

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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, cesses 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.

5.2 For Service part of Contract

The Prices and Rates are inclusive of cost of materials supplied as per contract terms and for which MDCC is issued by TPCODL and to the extent required for completion of works, cost of service executed as per schedule of quantities, cost of testing as per contract terms, cost of documentations including all relevant test certificates and other supportive documents to be furnished as per contract terms. The rates shall remain firm till actual completion of contract.

The Prices/Rates are inclusive of all taxes, levies, cesses 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 shall remain unchanged irrespective of TPCODL making changes in quantum in all or any of the schedules of items of contract.

5.3 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

- A. 5% of the Release Order/ Purchase Order price shall be paid as initial interest free advance on fulfillment of the following by the Associate:
 - a) Acceptance of PO/ LOI.
 - b) Submission of advance payment BG of 15% of the Release Order/ Purchase Order price which shall remain valid till the advance is fully adjusted.

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- c) Submission of Contract Performance Bank Guarantee of 5/10% of the RC/ PO price valid till 30 days after taking over of the works.
- B. 10% of the Release Order/ Purchase Order price shall be paid as interest free advance against approval of drawings under Category-1 of major drawings, Quality Plans, Pert Chart, Field Quality Plan, posting of Project Manager and commencement of the first mile stone of the work mutually agreed including C-3 Form, and submission of a true copy of 'Erection All Risk Insurance Policy' taken for the awarded jobs. The drawing list shall be mutually agreed at the time of award of work.
- C. 50% on account payment of the total of item wise cost of material Release Order/ Purchase Order shall be paid against receipt of material at site in good condition and certification by TPCODL along with bills complete in all respects viz. MDCCs etc.
- D. 20% on account payment of the actual executed value shall be paid against mechanical completion of erection on prorata basis against monthly bills and 70% on account of the actual executed value shall be paid against the service line item including composite line item. In case this milestone is not completed beyond 120 days for reasons attributable to TPCODL, the payment corresponding to supply part shall be released subject to submission of BG of equivalent amount by the BA valid for a period of further 12 months. If required, it shall be extended by the BA on request of TPCODL.
- E. 15% payment of the actual executed Release Order/ Purchase Order shall be paid after completion of acceptance test and Taking Over of the complete systems specified in the enquiry, including clearance of Electrical Inspection, compliance of final punch point and after reconciliation & adjustment of payments, if any, towards Quantities of materials issued from purchaser's stock and consumed by the contractor for expeditious completion of the job. In case this milestone is not completed beyond 120 days beyond schedule for reasons attributable to TPCODL, the payment corresponding to supply part shall be released subject to submission of BG of equivalent amount by the BA valid for a period of further 12 months. If required, it shall be extended by the BA on request of TPCODL.

The Contractor shall submit all Operation & Maintenance manuals and "As Built Drawings" etc. and shall also submit Equipment Warranty Bank Guarantee (EWBG) equivalent to 5/10% of actual executed contract price before the release of this last payment and return of CPBG. The validity of EWBG shall be for a period of 15 months from the date of taking over of the works or specified guarantee period in drawing/tender/technical specification documents etc. whichever is later. The associate shall also submit 'No Demand Certificate' at the time of receipt of full and final payment.

6.1 Pre-Requisites for Payment

- Associate should have completed execution of that part of contract, for which payment is sought, to the satisfaction of TPCODL's Engineer-in-Charge responsible for the contract and obtained certification for execution of the work.
- Associate has undertaken joint measurement of the work executed along with TPCODL's Engineer-in-charge

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- Associate's bills/invoices submitted have been certified by Engineer-In-Charge.

6.2 Bills & Invoices

Unless specified otherwise in the special conditions of contract, Associate shall raise not more than one invoice/contract per month for the services rendered in the prescribed Tax Format and the invoice shall be submitted within 15 days of the following month at Bill Inward Receipt Desk (BIRD) located at IDCO Towers, Janpath, Bhubaneswar.

All Bills shall be supported by joint measurement of work done, quality test report and a copy of wage sheet, if applicable (showing proof of having disbursed wages as per applicable law) and a copy of statement substantiating that statutory payments having been affected.

Bills/ invoices shall mention Associate's 'Sales, Service, WCT Tax Registration Number, PAN number as applicable.

Final bill submission after completion of project or execution of job must be within 30 days from the actual date of completion/execution of work awarded.

6.3 Payment & Statutory Deductions

Payment shall be released within 30 days from the submission of the bills. The associate shall submit "No Demand Certificate" in the format as per Annexure-D at the time of receipt of full and final payment. In case any non-compliance to contract conditions comes to TPCODL's notice, TPCODL will be entitled to deduct 30% of estimated wages plus 20% of wages as TPCODL's overheads. Associates would be obliged to provide the copy of monthly wage sheet in any case, failing which no payment shall be made. TPCODL at their sole discretion may deposit the PF etc. with statutory authorities. TPCODL will deduct the amounts of TDS as per statutory requirement under the income tax act and the DVAT Act and certificates (wherever applicable) will be issued to associate accordingly.

In case of non-submission of PAN No TDS @ 20% shall be deducted from all payable amounts for which no TDS certificate shall be issued. TDS once deducted as above shall not be revised in any condition.

6.3.1 Statutory Deductions

TPCODL will deduct the amounts of TDS, TCS as per statutory requirement under the income tax act, the Goods and Services tax act, BOCW Act, or any other applicable tax act and certificates (wherever applicable) will be issued to associate accordingly. For consumption of TPCODL's Water and Electricity by Associate for execution of Contract, Associate shall pay 0.5% & 1.0% respectively of contract value and it shall be deducted from the running bills. The Engineer-in-Charge as stated in the Order shall be responsible for certification of the work executed and the bills. Bills (including original) shall be submitted in triplicate at Bill Inward Receipt Desk (BIRD) located at IDCO Towers, Janpath, Bhubaneswar.

6.4 Guidelines for Raising Running/Final Bills

Contract Value Up to 5 Lakhs	One Final Bill
Contract Value More than 5 lakhs	Monthly Running Bill & One Final Bill

All Bills shall be processed only when all bank Guarantees are in place and before payments of Final Bill Associate have to furnish NDC.

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6.5 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.

6.6 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-D.

7.0 MODE OF PAYMENT

Payment shall be made through RTGS mode for which Business Associated shall submit the details of Bank Account and other details as per annexure K. 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.

The quantities of items indicated are estimated and preliminary. However, payments shall be made on the basis of actual quantity of work carried out and measured jointly by the Company and the Associate. Associates shall be responsible to organize joint measurements of works with TPCODL Engineer-in-Charge before raising any bill of work done. In the event Associate fails to do so, TPCODL at their sole discretion, may take measurements of work done and proceed as deemed fit and in such an event Associate's right to lodge any subsequent claim shall stand forfeited.

8.0 SECURITY CUM PERFORMANCE DEPOSIT

Associates shall submit within 15 days from the effective date of issue of PO/RC, Security cum Performance 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

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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 TPCODL indemnified always till completion of contracts.

9.2 Social Accountability

TPCODL expects its Associates to follow guidelines of best practices 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	25% relaxation in PBG for order value above 50 lacs else 50% relaxation	All limited and Open tenders
4	Turnover	25% relaxation in company turnover under qualifying requirement criteria	All Open Tenders

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****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).

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

9.4 Compliance to Labour Laws

Bidder needs to ensure compliance to applicable labour laws including timely disbursement of wages. In case wages are not disbursed as per the stipulated timelines, then TPCODL shall pay the wages to BA employees on behalf of BA. Apart from deducting the amount of wages paid, TPCODL shall deduct an additional service charge equivalent to 25% of the wages paid from the payment due to BA.

9.5 Compliance to Construction and Demolition Waste Management Rules & Environment (Protection) Amendment Rules

BA is liable to follow the Construction and Demolition Waste Management Rules- 2016, Environment (Protection) Amendment Rules- 2018 and Guidelines on dust mitigation measures in handling construction material and C&D wastes issued by CPCB.

Following are some main points of above Rules/Guidelines for Construction work, cable laying jobs etc.

1. Barricading to be provided at site to cover complete area.
2. Construction material and waste should be inside the closed area made by using barricading.
3. Water sprinkling/fine spray from nozzles to be done to suppress the dust.
4. The board of Dust mitigation measures shall be displayed at site for public viewing with required details.
5. Loose sand or soil and construction material that causes dust shall be covered.
6. Transport material that are easily wind borne need to be covered by a sheet made of either jute, tarpaulin, plastic or any other effective material.
7. All areas for storing C&D waste/construction material to be demarcated and preferably barricaded particularly those materials that have potential to be dust borne.
8. Grinding and cutting of building materials in open area shall be prohibited.
9. Construction material and waste should be stored only within earmarked area and road side storage of construction material and waste shall be prohibited.
10. No uncovered vehicles carrying construction material and waste shall be permitted.
11. Construction and demolition waste processing and disposal site shall be identified and required dust mitigation measures to be notified at the site.

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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

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circumstances the codes, specimen and standards prescribed by any government agency should not be violated.

11.0 SAFETY

All Associates shall strictly abide by the guidelines provided in TPCODL's Contractor Safety Management System (CSMS) as applicable at all stages during the contract period. Associate shall execute the contracts ensuring the following in and as order of priority:

- Safety of Human Beings.
- Safety of equipment/Assets.
- Timely Completion of Contract.

Safety related requirements as mentioned in our Contractor Safety Management System is attached as annexure L and is an integral part of this GCC.

12.0 INSPECTION/PARTICIPATION

12.1 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 within maximum of two weeks of 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.

12.2 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.

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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.

12.3 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.

12.4 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.

12.5 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.

13.0 MDCC & DELIVERY OF MATERIALS

13.1 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

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transit by sea. Gas seals or other materials shall be utilised 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 sub-contractors:

- 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.

13.2 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.

13.3 Consignee

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

13.4 Submission of mandatory documents on Delivery

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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

13.5 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.

14.0 GUARANTEE

14.1 Guarantee of Performance

Associates shall stand guarantee that the equipment and material supplied/service or work rendered 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

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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.

14.2 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 15 Months from the Date of Commissioning or 24 months from the date of delivery of final lot of supplies made, whichever is earlier.

14.3 Failure in Guarantee Period (GP)

If the equipment and material supplied/service or work rendered 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/service or work rendered under the contract 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/service or work 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.

14.4 Cost of repairs on failure in GP

The cost of repairs/rectification /replacement, apart from the actual cost of repairs/rectification/replacement is also inclusive of all associate costs of required transportation, site inspection /mobilization/dismantling and re-installation costs as applicable, to be borne by the 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.

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14.5 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.

14.6 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.

14.7 Support beyond the Guarantee Period

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

15.0 LIQUIDATED DAMAGES

Liquidated damages @1% of the total executed contract value per week or part thereof, for the period of delay in integrated completion, subject to maximum 10% of the value of the contract shall become leviable without prejudice to other rights of the TPCODL. This amount shall be recoverable from any amount due or becoming due to the Business Associates under this or any other contract. In specific cases, TPCODL reserves the right to apply LD only on the unexecuted portion of the supply and works for standalone use, provided full quantity is executed within a maximum 30% additional time. 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.

15.1 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.

15.2 Material Recovery

In case of any recoveries for materials or services (for material free issued by TPCODL and not reconciled by BA or for services claimed and paid in excess at the time of running bills), the total cost which shall be recovered from the BA, shall be the gross amount of material or services (i.e. including taxes) plus applicable taxes as prevailing at the time of such recoveries.

16.0 ASSIGNMENT OR SUBCONTRACTING

Associates shall not assign/subcontract/outsourced the schedule of activities of contract TPCODL enters with the associate, in part or full, without TPCODL's prior written approval.

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However outsourcing of materials/equipment/services by Associate to make the integrated product for which TPCODL's has placed the contract with the associate from suppliers, makes and agencies which have been mutually agreed upon during contract pre-award stage is permitted subject to following conditions.

In such cases where outsourcing is done by the Associate

- Shall ensure that outsourced suppliers comply with the technical and financial qualification requirements specified by TPCODL in the contract document
- Shall furnish all particulars about the proposed outsourcing agencies and the details of the goods/services/work outsourced to the Associate while seeking approval of TPCODL for inclusion for outsourcing. The Associate shall give approval or shall refuse approval in writing within thirty (30) days of receipt of such request. However the Associate shall not be entitled for any additional contract execution time whatsoever in lieu of the process for approval for outsourcing agencies, and shall be held responsible for any delay in the project execution time.
- Shall remain jointly and severally liable for any action, deficiency, and/or negligence on the part of his outsourcing agencies. The approval extended by the Associate to outsourcing agencies recommended by the Associate shall not discharge the later from his Contract obligations.

Shall submit to the Associate unpriced copies of purchase orders with technical specifications included in the orders, placed on outsourcing agencies as soon as the respective orders have been placed by the Associate.

17.0 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.

18.0 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.

18.1 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.

18.2 Geographical Data

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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.

18.3 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.

18.4 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.

18.5 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.

19.0 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

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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.

20.0 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.

21.0 LIABILITY & LIMITATIONS

21.1 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.***

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.

21.2 Limitation of Liability

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

22.0 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.

23.0 SUSPENSION Of CONTRACT

23.1 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 at least two business days written notice for contracts having contract completion period less than sixty days and at least seven business days' notice for all other contracts.

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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,

23.2 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 27 for breach/default of contract conditions.

23.3 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 24.3) 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.

24 TERMINATION OF CONTRACTS

24.1 Termination for Default/Breach of Contract

The contract / PO 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:

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- 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 24 (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 24 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:

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

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ii) 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.

iii) 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.

iv) 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.

v) 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.

24.2 Termination for convenience of Associate

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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. This convenience will be available to associate only after one year from the contract effective date. For this purpose, associate will provide a notice period of 90 days to TPCODL, Associate will have to pay TPCODL a 'termination convenience fee' equivalent to 5% of unexecuted contract value.

24.3 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.

25.0 DISPUTE RESOLUTION & ARBITRATION

In case of any dispute or difference the parties shall endeavor 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.

25.1 Governing law 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.

26.0 ATTRIBUTES OF GCC

26.1 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.

26.2 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.

26.3 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.

27.0 INSURANCE

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The Associate shall arrange accident insurance policy for his foreign experts/specialists/personnel deputed to Site and Associate's/his sub-Associates' manufacturing works as well as for his Indian engineers and supervisory staff. The Associate shall also take out for his Indian workmen, where applicable, a separate policy as required under Workmen's Compensation Act.

Associates shall be responsible to suitably insure their entire work-force (to the extent of at least meeting requirements under Workmen Compensation Act) Tools, Plant, Third party liability at the project site, All Risk comprehensive insurance for the entire works (insurance for free issue items will be in TPCODL scope) for total contract (PO/RO) value or any other such risks during execution of works, till the works are handed over to the company, in consultation with TPCODL and shall submit copies of such insurances to the Engineer-in-Charge for review / acceptance before commencing the work. Engineer-in-charge must ensure compliance to insurance requirement by Associate before commencement of works. TPCODL shall stand fully indemnified in this respect.

28.0 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.

29.0 TRANSFER OF TITLES

The title of ownership and property to all equipment, installations, erections, constructions materials, drawings & documents shall pass to the TPCODL after Commissioning and complete handing over-taking over.

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.

The Associate shall take all corrective measures arising out of discrepancies, errors and omissions in drawings and other information within the time schedule and without extra cost to the TPCODL.

The Associate shall also be responsible for any delay and/or extra cost if any, in carrying out engineering, and site works by other agencies arising out of discrepancies, errors and omissions stated in as well as of any late revision/s of drawings and information submitted by the Associate.

30.0 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-I. You can also log on to our website www.tpcentralodisha.com to provide your feedback according to the guidelines mentioned below:

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31.0 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

32.0 LIST OF ANNEXURES

S. No.	Subject	Annexure
1.	Performa for Bid Security Bank Guarantee	A
2.	Performa for Advance Payment Bank Guarantee	B
3.	Performa for Performance Bank Guarantee (CP cum EP)	C
4.	Performa for No Demand Certificate by Associate	D
5.	Performa for Indemnification on Statutory Compliance	E
6.	Performa For Application For Issuance of Consolidated TDS Certificate	F
7.	HR Service Level Agreement	G
8.	Under taking for competence of workmen	H
9.	Business Associate Feedback Form	I
10.	Acceptance Form For Participation In Reverse Auction Event	J
11.	NEFT or RTGS payment request form	K
12.	Contractor Safety Management System	L
13.	Vendor Appraisal Form	M
14.	Manufacturers Authorization Form	N

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ANNEXURE-A

PROFORMA FOR BID SECURITY BANK GUARANTEE

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 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)

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ANNEXURE-B

PROFORMA FOR ADVANCE PAYMENT BANK GUARANTEE

(On Rs.100/- Stamp Paper)

Note:

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

TP Central Odisha Distribution Limited

Bhubaneswar

Advance Payment B.G.No.....

Contract No.....dated.....

1. You have entered into a Contract No _____ with M/s. _____ (hereinafter referred to as "the Vendor") for the supply and delivery 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, you have agreed to make an advance payment of Rs. _____ (Rupees _____ only) being _____% (_____ percent) of the total value of the contract on "the Vendor" furnishing you with an irrevocable, unconditional and acceptable bank guarantee to be valid till the date of receipt of "the said equipment" covered by your above mentioned contract. For this purpose you have agreed to accept our 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 three months 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

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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)**
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 month 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 _____ 200_____

Witness

1. _____

Bank's rubber stamp

Banks full address

2. _____

Designation of Signatory

Bank official number

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ANNEXURE- C

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

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 three 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

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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 _____ 200__

Witness

1. _____

Bank's rubber stamp

Banks full address

2. _____

Designation of Signatory

Bank official number

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ANNEXURE-D

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.

Dated

Signature

Place

Name

Designation

(Company Seal)

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ANNEXURE – E

PROFORMA FOR “INDEMNIFICATION ON STATUTORY COMPLIANCES”

(To be submitted by the successful Bidder within seven days of award of work)

(Certificate No. CCP/001)

Name of the Project

Letter of Award / Contract No.

Dated

Name of the Associate

Scheme No. / Job No.

By this confirmation we, _____
(Associate) are formally bound to M/s. TPCODL towards any sum which may be imposed, levied or hereinafter recovered by the Provident Fund Organization under the provisions of the Employees of the Provident Fund and Miscellaneous Provisions Act 1952 in respect of employees employed by us.

We well and truly bind ourselves and our heirs executors administrators and representatives jointly severally and respectively for the above payment only to be paid to M/s. TPCODL.

AND WHEREAS we, _____ (Associate)
is making compliance of the Employees Provident Fund and Miscellaneous Provisions Act 1952, have entered into the above written bond for the indemnity to M/s. TPCODL against all losses from the acts or default of the said Associate in respect of compliance of the Provident Fund Act.

Similarly we hereby confirm that we have complied with all statutory and local laws and nothing is outstanding with regard to Local Sales Tax, Labour Laws, Local Municipal dues, Electricity dues etc. We have entered into the above written bond for the indemnity to M/s. TPCODL against all losses from the acts or default of the said Associate in respect of compliance of the Local Sales Tax Laws, Local Laws, Labour Laws, Local Municipal Dues, Electricity dues etc.

NOW THE CONDITION, of the above written bond is as such that if the Associate during the period of this contract commits any default or fails to make payment of Contributions in respect of his employees to the Employees Provident Fund Organization, he shall indemnify the Principal Employer M/s. TPCODL from all and every loss and damage caused to them from any act, omissions or negligence of the said Associate in respect of compliances under the Employees Provident Fund and Miscellaneous Provisions Act, 1952.

IN WITNESS to the above written bond we have here to set our hands, with our free consent.

Dated

Place

Signature

Name

Designation (Company Seal)

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ANNEXURE-F

**PROFORMA FOR APPLICATION FOR ISSUANCE OF CONSOLIDATED TDS
CERTIFICATE**

To be printed on the letterhead

To,

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

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ANNEXURE - G

SERVICE LEVEL AGREEMENT

(To be adhered to by Business Associates (BAs) in TPCODL on Human Resource Issues)

1.0 The following shall be adhered to by the Business Associates during his / its association with TPCODL:

Shall Abide by Tata Core Values:

- a) **Integrity** – We must conduct our business fairly, with honesty and transparency. Everything we do must stand the test of public scrutiny.
- b) **Understanding** – We must be caring, show respect, compassion and humanity to our colleagues and customers and always work for the benefit of the communities we serve.
- c) **Excellence** – We must constantly strive to achieve the highest possible standards in our day to day work and in the quality of services we provide.
- d) **Unity** – We must work cohesively with our colleagues across the group and with our customers and partners to build strong relationships based on tolerance, understanding and mutual co-operation.
- e) **Responsibility** – We must continue to be responsible and sensitive to the communities and environments in which we work and always ensuring that what comes from the people; goes back to the people many times over.
- f) **Agility**- We must work in a speedy and responsive manner and be proactive and innovative in our approach.

2.0 The Business Associate / his manager / supervisor who is responsible for managing the project site / performance contract etc. in TPCODL would also ensure adherence of these values by his employees / persons deployed by him in connection with his works undertaken in TPCODL.

3.0 The Business Associates are required to:

- a) Support and respect the protection of human rights and make sure that they are not complicit in human right abuses.
- b) Respect freedom of association and effective recognition of the right to collective bargaining.
- c) Not to resort to any form of forced and compulsory labour.
- d) Shall ensure abolition of child labour in his area of work.
- e) There is no discrimination in respect of employment and occupation in respect of his employees.
- f) Support precautionary approach to environmental challenges.
- g) Promote greater environmental responsibility by himself and his employees in his areas of work.
- h) Deploy and defuse environmental friendly technologies while carrying out the works.
- i) Work against corruptions in all its form including extortion and bribery by himself and his employees.

4.0 The Business Associates are required to adhere to all applicable Labour Laws with special reference to the following:

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- a) No person below the age of 18 years and no child labour will be engaged directly or indirectly for executing the work connected with the business of TPCODL.
- b) Minimum wages along with other statutory dues like PF, ESI, etc. as applicable to the workers shall be made within the prescribed period of 7th / 10th day of the following month.
- c) Deduction / deposit / record keeping and all other requirements under Employees PF Act 1952, Employees State Insurance Act 1948 and other applicable acts (if any) shall be adhered to.
- d) Only statutorily authorized deductions (if any) shall be made in accordance with the relevant statutes.
- e) All the provisions of Contract Labour (R&A) Act 1970 shall be complied with in respect of the workers engaged for TPCODL work. The work will be commenced only after completing necessary formalities for obtaining Labour License (if applicable).
- f) Necessary registers / records, filing of returns etc. shall be maintained for verification by Statutory / TPCODL authorities.
- g) Payment of wages shall be made only in presence of and with certification of authorized representative of TPCODL or shall be made in the form of cheque / bank transfer to the employee.
- h) During the period of contract, the Business Associate will arrange for deployment of his supervisor / manager for total supervision and control of the work and their manpower. All the activities related to their manpower e.g. attendance, leave, wage disbursement etc. will be done under the supervision & control of Business Associates, While adhering to the prescribed standard / norms of production / productivity & quality. During execution of the work, Business Associate shall engage only such qualified / skilled manpower as may be envisaged / required for ensuring level of production / service into the contract / work order.
- i) Clearances as follows shall be obtained from IR & Welfare Group:
 - i. Clearance for commencement (before start of the work).
 - ii. No Objection Certificate (after completion / before final settlement).
 - iii. Copies of PF / ESI Challans shall be deposited with IR & Welfare Group every month
- j) The Business Associate shall indemnify TPCODL from any liabilities under applicable Labour Statutes.
- k) The Business Associate shall ensure safety and health of his employees and shall also maintain hygienic working environment / condition in his area of work.
- l) The Business Associate and his employee shall abide by Laws of Land and shall not violate any applicable provisions.
- m) The Business Associate appreciates with and acquiesces to the right of TPCODL as principal employer to fulfil any of his legal obligations, if he fails to do so under applicable labour laws and deduct the same from his running bills / final payments / encashing security deposit / Bank Guarantee as the case may be. If there is any further shortfall TPCODL has the right to recover the same from the Business Associate.
- n) The Business Associate ensures that person employed by him adhere to the moral and legal conduct and shall not violate any standard conduct envisaged in the premise of

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TPCODL by all such as, Transparency, Safety, Discipline, Integrity etc. The Business Associate or his employees should refrain from corrupt practices, giving or taking bribe in connection with any TPCODL business.

5.0 The 'Statutory Compliance Enforcement System' in TPCODL is detailed below for adherence by all concerned. Business Associate Cell (BA Cell) will be the process owner for implementation of the system with the help of concerned Engineer I/c or Officer I/c.

- a) Statutory Compliance being a professed value in TPCODL Code of Conduct, the concerned Engineer / Officer in charges are requested to adhere to the provisions and advise respective Business Associates in their domain to comply in letter and spirit.
- b) Immediately after issuance of letter of intent, the authorized representative of the Business Associate will report to BA Cell for completion of statutory requirements.
- c) Normally, the work will be started only after 'Clearance for Commencement of Work (CCW)' is issued by BA Cell to the Business associate. However in exceptional exigencies in engineer I/c / Officer I/c may direct the Business Associate to start the work and inform BA Cell about the same. Statutory requirements in this case may be completed in parallel.
- d) First monthly bill will be released only after producing CCW to the finance department. Similarly closure of work and final settlement will be affected after issuance of no objection certificate from BA Cell group.

6.0 Requirements for 'Clearance for Commencement of Work' (CCW):

- a) Submission of filled up Form 'A' for database (Annexure-1).
- b) Copy of PF Code allocation letter.
- c) Copy of ESI Code allocation letter.
- d) Submission of duly filled up Form IV CL(R&A) act (In case more than or equals to 20 workers during the period of contract).
- e) Submission of duly filled up Form VI A (Notice of Commencement).
- f) Copy of insurance cover note under WC Act 1923 (if applicable).
- g) Copy of Contract Agreement.
- h) Copy of indemnity bond (if applicable).
- i) Affidavit with regard to payment of wages through cheque / bank transfer only.

7.0 Requirements during execution of work:

- a) Copy of receipt of application for license / license (if applicable).
- b) Copy of PF Challan (latest by 26th day of every Month).
- c) Copy of ESI Challan (latest by 26th day of every Month).
- d) Copy of Wage disbursement sheet / Bank statement.
- e) Filing / Maintenance of all statutory registers / reports / returns for inspection by Statutory/TPCODL authorities.
- f) Certification of wage disbursement by authorized representative of TPCODL.
- g) Copy of 'Labour Welfare Fund' deposit certificate / Challan.
- h) Insuring safe working practices at the work place.

8.0 Requirements for 'No Objection Certificate' (NOC) for closure of work:

- a) Submission of duly filled up Form VI A (Notice of Completion).
- b) Copy of Half yearly / Annual return for ESI / PF / CL(R&A).

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- c) Consolidated copy of wage sheet of last month indicating full & final settlement of all dues like retrenchment benefit, bonus, leave encashment etc. Copy of individual declaration by employees in Form X regarding termination of employment.
- d) Confirmation certificate regarding filling up of form for transfer / withdrawal of PF by the concerned workers.

In case any of the above are deviated / not complied with the Letter of Award/Order shall be liable to be withdrawn / cancelled.

Enclosure:

- 1) Form A
- 2) Form X
- 3) Form XI
- 4) Form VI A
- 5) Form XXIV

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FORM (A)

[To be submitted by the Business Associate to the Principal Employer within a week from LoA issuance]

A. Details of the Agency

1. Name of Agency :
2. Nature of work :
3. Local Address with Ph.No. :
(With Father's name) :
4. Permanent Address (Full) :
5. PF code no. & Place :
6. ESI Code no. & Place :
7. Name and address of :
Sub-contractor (if any)

B. Details of Work

8. Name of work (as specified in LOI/LOA) :
9. LOI/LOA Nos. & Dates :
10. Period of contract (Specify Dates) :
[Including Extension period, if any] :
11. Work Area [Department / Location] :
12. Name / Cell no. of Officer I/c :
13. Maximum No. of workers and staff to be engaged on any day during the year.
 - Supervisory Staff :
 - Workers :
14. Do you have any other contract in TPCODL : Yes/No
If yes, furnish details:

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15. Details of Workmen's compensation Policy, if applicable

Name of Insurance Company
.....Policy No Number of persons
covered Period of coverage: From To

If no, I hereby undertake the liability arising out of Workmen's Compensation Act and Rules made there under.

C. Details of workers to be engaged

No. of Workers

S. No.	Unskilled*	Semi-skilled*	Skilled*	Clerical / Supervisory

*** Number to be indicated**

I/We shall fulfill all obligations arising from and under all relevant law in force from time to time. I/We undertake to keep the TPCODL indemnified against any loss or liability arising out of failure of my / our abiding the relevant laws.

The name of my / our representatives is to enter the TPCODL Premises on my behalf.

Date:

**(Signature of the Business Associate
or his Authorized Representative)**

This Business Associate is / will be engaged in TPCODL.

(Signature and seal of

Officer I/c of the Work)

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Form X

Undertaking

I _____ hereby undertake that all the dues in respect of my employment with M/s _____ for the period of _____ to _____ have been settled and final payments including retrenchment benefit have been made to me in full.

(_____)

Date:

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Form XI

Undertaking

With reference to the contract job awarded by M/s TP Central Odisha Distribution Limited to M/s _____ vide work order No. _____ dated _____

I _____ on behalf of

M/s _____ hereby undertake:

1. that the dues in respect of the workmen/ employee(s) engaged by us for the said contract, payable as per the provisions of relevant statute pertaining to
 - i. wages/ salary
 - ii. PF & ESI, Bhubaneswar Labour Fund
 - iii. All other statutory obligation
 has been paid /settled in full and no amount/ compliance is due/ pending.

2. That in case any dispute / claim is raised by the concerned workers i.r.o. any dues / payments, M/s _____ will settle the same on it's own and such liability will be borne by M/s _____

3. That M/s _____ hereby indemnify M/s TPCODL from any future liability i.r.o. any statutory obligation in respect of said contract.

Date:

(_____)
Authorized Signatory

For M/s _____

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FORM- VI A

Notice for Commencement /Completion of contract work

I/We, Sh. / M/s _____ (Name and Address of the Contractor) hereby intimate that the contract work _____ (name of work) in establishment of the _____ (name and address of the Principal Employer) for which License No. _____ dated _____ has been issued to me/us by the Licensing Officer _____ (name of the Headquarters), has been commenced / completed with effect from _____ date / on date.

Signature of Contractor

With Office Seal

The Inspector

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FORM XXIV

[See Rule 82(1)]

Return to be sent by the Contractor to the licensing Officer (in duplicate)

Half -Yearly Ending _____

1. Name and address of the Contractor
2. Name and address of the Establishment
3. Name and address of the Principal Employer
4. Duration of Contract: From _____ to _____
5. No. of days during the half year on which
 - (a) the establishment of the principal employer had worked
 - (b) the contractor's establishment had worked
6. Maximum No. of contract labour employed on any day during the half –year:

Men	Women	Children	Total

7.
 - (i) Daily hours of work and spread over
 - (ii) (a) whether weekly holiday observed and on what day
 - (b) if so, whether it was paid for
 - (iii) No. of man – hours of overtime worked

8. No. of man days worked by

Men	Women	Children	Total

9. Amount of wages paid

Men	Women	Children	Total

10. Amount of deductions from wages, if any

Men	Women	Children	Total

Whether the following have been provided –

- (i) Canteen : _____
- (ii) Rest rooms : _____

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(iii) Drinking water : _____

(iv) Crèches : _____

(v) First Aid : _____

Signature of contractor

Place _____

Date _____

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ANNEXURE – H

UNDERTAKING FOR COMPETENCE OF WORKMEN

Name of Associate :

Tender No. :

Item :

With reference to the tender mentioned above, I/We _____,
 hereby undertake that the workmen/ employee(s) engaged by M/s
 _____ for the job against said tender shall be competent in all
 respect, commensurate to the nature of job.

Date:

 ()

Authorized Signatory

For M/s

Seal

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ANNEXURE-I

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)

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SECTION - A

(Please ✓ mark in the relevant box and give your remarks / suggestions / information for our improvement.).

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
		Do Not Agree	Slightly in Agreement	In Fair Agreement	Mostly in Agreement	Fully Agree	
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						

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S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
		Do Not Agree	Slightly in Agreement	In Fair Agreement	Mostly in Agreement	Fully Agree	
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						
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						

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SECTION - B

(Please rate the following parameters on a scale of 1 to 5, where 1 - Minimum; 5 - Maximum)

SN	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	Division / Sub-Division						
1.3	Projects/HOG						
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 relationship with its Business Associates						

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SECTION-C

Please ✓ mark in the relevant box and give your remarks / suggestions / information for our improvement.

SNo	Parameters	Certainly NO	Probably NO	Probably YES	Certainly 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
---	---	---	---	---	---	---	---	---	----

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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 have observed / experienced elsewhere in Indian/ International organization.

Recommendation	<i>Please tick (✓) your top 5 expectations out of the following 10 points listed below -</i>	
(Please list down improvement you expect from TPCODL)	<i>Timely payment</i>	
1	<i>Flexibility in Contracts/PO</i>	
	<i>Clarity in PO,s & Contracts</i>	
2	<i>Timely response to quarries</i>	
	<i>Timely certification of works executed</i>	
3	<i>Clarity in Specs, drawings, other docs etc.</i>	
	<i>Adequate information provided on website for tender notification, parties qualified etc.</i>	
4	<i>Timely receipt of material at site for execution</i>	
	<i>Performance Guarantee/EMD released in time</i>	
5	<i>Inspection & quality assurance support for timely job completion</i>	

We thank you for your time and courtesy!!

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ANNEXURE-J

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 outrightly 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

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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 _____

(Authorized 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 authorized 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-L

CONTRACTOR SAFETY MANAGEMENT SYSTEM

1. OBJECTIVE

The objective of the Contractor Safety Management System is to lay down clear guidelines for all Business Associates (including their associates, staff and agents) which would facilitate them to observe all statutory rules and regulations, comply with applicable standards of Central Electricity Authority (Measures relating to safety and electric supply) Regulations, 2010 & (safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations, 2011, TPCODL Safety Manual and Guidelines and thus, ensure creation of safe working environment for all stakeholders of our network.

2. SCOPE

All contracts (minor and major) will be subject to the provisions of this document.

Minor Contracts: Contracts which satisfy all the criteria listed under the head “Minor Contracts”.

Major Contracts: Contracts which satisfy any two or more criteria listed under the head “Major Contracts”

Criteria	Minor Contracts	Major Contracts
Value of Contract	< Rs. 1500000/- (less than Rs. Fifteen Lac)	>= Rs. 1500000/- (Equal or more than Rs. Fifteen Lac)
Period	Period less than 1 year	Any period
Working on energized electrical equipment	No	Yes
Working on height (above 1.8 Mtrs from ground)	No	Yes
Work involving construction activity	No	Yes
Working with hazardous goods or chemicals	No	Yes
Work involving danger to general public	No	Yes

Note: Exceptions for major and minor contract are – in house software development, supply of material or equipment but no direct or indirect installation of the same material, administration contracts (courier, water supply, printing, security, transport, etc.), minor civil work like plastering at ground level or flooring, etc. The facility management (housekeeping) contract will always be treated as a minor contract.

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3. INFORMATION REQUIRED AT TIME OF VENDOR REGISTRATION OR BEFORE COMMENCEMENT OF CONTRACT

- 3.1 Business Associate is required to fill the Safety Management System Questionnaire as per *annexure 1* and submit along with the vendor registration process / bid / tender document. The filled questionnaire will be scrutinized by Engineer In-charge / indenting group and recommend suitability of the BA with respect to safety requirements. The fulfilment of statutory requirements for vendor registration pertaining to labour laws etc. shall be done by BA Cell on being referred to it.
- 3.2 Business Associate is required to take suitable risk control measures mentioned against the identified Hazards and Risk document provided for all contracts as per *annexure 2*. The primary objective of this is to evaluate the understanding of the BA towards risk mitigation and employment of safe work procedures. BA is required to conduct the Hazard identification and Risk Assessment study as per the procedure and deploy more or other measures if deemed necessary.
- 3.3 Business Associate shall comply with **Statutory Requirements related to Safety and Occupational Health** and submit the "Safety Undertaking" as per *annexure 4*.

4. GENERAL SAFETY CONDITIONS REQUIRED TO BE FULFILLED BY BUSINESS ASSOCIATES

The requirements of the contractor safety management system applicable to the minor or major contracts related to various groups are as following –

- 4.1 Maintenance of Distribution Network – *Annexure 3.1*
 - 4.2 Distribution Projects – *Annexure 3.2*
 - 4.3 EHV Projects – *Annexure 3.3*
 - 4.4 Maintenance of Sub transmission network – *Annexure 3.4*
 - 4.5 Civil / Generation Projects – *Annexure 3.5*
 - 4.6 Meter Management Group (MMG), Revenue Recovery Group (RRG), Energy Auditing Group, AML, MRG, etc. – *Annex3.6*
 - 4.7 Maintenance and Operation of Street Light. – *Annexure 3.7*
1. Please note that hydra cranes used by any dept should be ACE Model No. FX 150 ACE SX 150, Escorts Model No. TRX 1550 or contemporary. Use of old generation hydra cranes like ACE 14XW or ACE 12 XW, etc are prohibited.

(Details as per Annexure attached)

Note: For minor contracts, the BA shall assign the duties of Safety Representative to the Work Supervisor. Work Supervisor will deliver all duties and responsibilities of Safety Supervisor as detailed in this document.

The Business Associate (BA) having major contract will appointing Safety supervisor, engineer / manager for the TPCODL work. The BA shall make all necessary arrangements for getting their workforce safety trained and competency checked from the concerned official of TPCODL before deployment in the field. BA Cell shall recommend the suitability after competency checked by Engineer In-charge and SAFETY group (or his representative) of TPCODL. After getting the clearance from concerned official, BA cell and receiving temporary I-card issued by TPCODL, Business Associate shall commence the working.

Safety Representative of Business Associates will formally become the nodal point for safety concerns for TPCODL. **BA shall not frequently transfer or terminate the services of any of the safety representatives appointed for TPCODL work site. BA needs to ensure**

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that Safety representative is available at all points of time; failing which the work being carried out in the interim (period when Safety representative is not available) shall be treated as working under improper supervision and due penal provisions shall be initiated against the BA. BA will be required to provide all applicable infrastructure and power to ensure smooth working of the safety representative to maintain a sound safety management system. **In all contracts safety representative will not be assigned any other activity at site apart from the works related to safety management. The duties are detailed in clause 5.5 of this document.** TPCODL will be auditing the facilities provided to the BA's safety team time to time.

The Safety Representative of the BA shall be required to meet and follow the instructions of the Engineer In-charge and SAFETY Group of TPCODL. He shall be responsible for providing the MIS and/or any other relevant information, as and when desired, within the stipulated time frame as per the requirements of TPCODL. Any non-conformance to safety will lead to the negative marking or issue of safety violation challan/ tokens which shall affect the monthly evaluation and performance of BA.

All contracts where BA has to depute vehicle for their staff and equipment to move from one location to other, the BA shall ensure that vehicle complies all required statutory clearances and requirement as per The Motor Vehicle Act, 1988 as well as TPCODL Road Safety Policy and are in good & safe state of working.

5. QUALIFICATION AND EXPERIENCE OF THE SAFETY AND SITE PERSONNEL

Qualification and experience required for the safety and site personnel are as following:

5.1 Safety Supervisor: It is mandatory that educational qualification of safety supervisor be ITI (of relevant trade) / Diploma (Any branch of engineering) and he has a working experience on electrical system / relevant field of work at least 5 yrs for ITI and 3 years for Diploma holder. Having formal experience of the safety systems will be an added advantage

5.2 Safety Engineer: It is mandatory that educational qualification of safety engineer be at least Diploma (relevant branch) and he has working experience on electrical system of at least 3 yrs. Having the formal experience of the safety systems will be an added advantage.

5.3 Safety Manager: The educational qualification of safety manager should be graduate engineer with working experience on electrical system / network of at least 3 yrs. OR Diploma in Industrial Safety with working experience of 05 years including at least 02 years on electrical network.

However, clause 5.1, 5.2 and 5.3 are not applicable for minor contracts. In such cases, BA shall assign the duties of Safety Representative to the Work Supervisor. Work Supervisor will deliver required duties of Safety Representative (as per clause 5.5) in addition to other duties without diluting the importance of safety.

5.4 Site Skilled Personnel: For all responsibility related to site activities and operations, the BA shall employ only qualified and skilled persons and shall comply the provisions of section 19 & 29 of Central Electricity Authority (Measures relating to safety and electric supply) Regulations, 2010. Persons holding valid approvals only by any Government approved agency or a competency assessment panel or a team set up by TPCODL

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shall be allowed to perform the High Risk / High Hazard activities (refer page 1). The skill / qualification required for the electrician and electrical supervisor are given in *annexure 5*. The contracts related to maintenance of Distribution Network, Distribution Projects, EHV Projects, maintenance of Sub-Transmission Network, MMG & EAG, maintenance and operation of street lights, shall preferably have at least 20 per cent of ITI qualified electricians in the first year of the contract. This figure shall preferably be incremented by 15 per cent every subsequent year.

Note: For the competency assessment may please refer the work instructions. An employee shall have to necessarily undergo the competency assessment check once in every eighteen months.

5.5 Requirements from the Safety Representative(s) of the Business Associate:

- 5.5.1 Safety training of 2 hrs/employee/month and one day of safety induction training to all new employees joining the BA will be conducted by the BA as per Safety training modules of TPCODL.
- 5.5.2 Safety Talk / tool box talk before start of shift to BA employees.
- 5.5.3 Ensuring the availability & proper usage of the standard safety equipment (PPE)
- 5.5.4 Periodic inspection of PPE to ensure their serviceability and maintaining the 10% buffer stock of standard PPEs.
- 5.5.5 Ensuring the adherence to standard operating procedures of TPCODL as mentioned in TPCODL Safety standard and O & M and concerned function's manual.
- 5.5.6 Safety inspections / audits as per the process of TPCODL
- 5.5.7 Working in close coordination SAFETY Group of TPCODL.
- 5.5.8 Reporting of unsafe acts, unsafe conditions, near miss, incident or accident to Engineer In-Charge and SAFETY Group of TPCODL immediately after its occurrence.
- 5.5.9 Regular HIRA at site and comply the control measures as stated in the detailed HIRA as per the *annexure 2*. Also deployment of JSA based checklist shall be ensured.
- 5.5.10 Ensuring compliance with safety and other laws as may be applicable and providing for safety assurance.

5.6 Training and Syllabus: The BA shall not deploy any person at work place / site or send newly recruited personnel directly to concerned official for competency assessment without Safety Induction Training.

5.6.1 All new BA employees have to necessarily undergo one and half days Safety training and Competency assessment at training centre of BA cell. This training will be conducted once in a week. After the completion of Safety training & Competency assessment I-card will be issued to all competent BA employees

5.6.2 BA is expected to initially train and judge the capability of the workman at his own end before further recommending the workmen for Competency assessment. If any BA workman sent for competency assessment. In case any BA workman fails in the Competency test at concerned official, it will be deemed that BA has not imparted sufficient training at his end and actual cost of training ₹ 7500/ BA employee/ failed attempt will be recovered.

5.6.3 The workers who have imparted Safety Training and issued I-Cards of TPCODL, are not deployed at TPCODL worksites/ voluntarily left the job by workers/ used somewhere else other than TPCODL by the BA, in that case Management reserves the rights to intervene and recover the actual cost of training i.e. ₹ 7500/BA employee. (*Exempted for attrition rate of BA workers less than or equal to 10% of total workforce deployed at TPCODL*)

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- 5.7 It is desired that Safety representative of the BA to impart the general safety training to each employee of duration 2 hrs per month. The training will be organized at BA level and the record to be sent to engineer in-charge and SAFETY group of TPCODL every month. Please refer schedule and syllabus in *annexure 6*.

List of Personal Protective Equipment (PPE) and Maintenance schedule: BA shall commence the project or any work only when the required PPE are made available to the team of employees involved in the work. Each PPE of BA shall be checked / inspected by the safety representative / supervisor at zone before the work start or as prescribed in the list. Safety representative shall regularly check the healthiness of each PPE allocated to lineman. Suitable record shall be maintained at zone. Defective PPE shall be immediately replaced or within 24 hours by the BA. In no case linemen or any other official of BA may be allowed to work with defective PPE. It is preferred that BA ensures minimum stock of each PPE at zone for immediate replacement with defective one. The PPE shall be IS / BS / CE marked and exactly as per the standard or specification mentioned in the *annexure 7*. Working without PPE / non-standard PPE shall be treated as safety violation and penalty as stated in section 6.0 of this document. If TPCODL finds that BA has not provided the adequate / appropriate PPE to their staff, TPCODL reserves the rights to stop the work and call the BA to provide appropriate PPEs at the risk. If the BA fails to provide the required PPEs at the risk then the same shall be provided by TPCODL at the actual cost of the PPE. The amount shall be charged to BA and same shall be first recovered from the current bill of BA or any future payment to be made to BA. In the event of any balance amount still left for recovery, the same shall be adjusted against retention amount or by invoking bank guarantee submitted by BA.

- 5.8 Safety Audit / Inspection & HIRA:** The BA shall get the required safety inspection / audit conducted by his technical team comprising of safety representative as per the *annexure 8*. The safety representative will be required to conduct the HIRA (Hazard Identification and Risk Assessment) as per *annexure 2* of the process and work undertaken at least two times in a year or every time if a new process / activity / machine is introduced or whenever an accident take place. The risk identified to be addressed suitably with –

- Engineering Control
- Management Control, and
- Personal Protective Equipment.

The safety representative of BA shall inform and educate for the identified risk and hazard control methods to employees, supervisor and engineer as well as the engineer in-charge and SAFETY group of TPCODL.

- 5.9 Safety Performance and Safety MIS:** The BA shall maintain good practice of safety all through the contract duration. Safety shall always be of paramount importance during the contract period. Safety performance will be monitored on yearly basis throughout the period and no relaxation will be given for bad performance. BA with good track record and excellent performance will be rewarded suitably as per clause 6.0 of this document. The BA has to provide monthly “Performance Report – Safety” to engineer in-charge and SAFETY group TPCODL this shall be part of monthly bill along with training details. Performance of the report is enclosed as *annexure 9*.

- 5.10 Pre – Employment Medical Check-up and Fitness of employees engaged for the critical works:** The BA shall submit the health fitness certificate for all those workers involved in climbing the pole or working at height for following diseases:

5.10.2 Epilepsy

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- 5.10.3 Colour blindness
- 5.10.4 Deafness
- 5.10.5 Vertigo & height phobia

Every year BA will give an undertaking stating that all the employees are fit to work and have not developed aforesaid diseases. The Record of such medical check-ups shall be submitted to BA Cell before issue of temporary identity card. The records shall be maintained at BA Cell. All such medical check-ups shall be repeated once in a year for all workers involved in climbing the pole or working on electrical network.

6. REWARD AND PUNITIVE MEASURES

6.1 To support the enforcement of good SHE & DM practices by the Business Associate and to eliminate repeated or continuing safety violations, use of appropriate reward and punitive measures shall be made. Each unsafe act or violation of the safety guidelines as described in the Safety Manual of the TPCODL will be audit criteria of this system. Broadly the measures identified are following:

- 6.1.1 Working without PPE/ Safety Gadgets
- 6.1.2 Working without proper tools and tackles, barricading, Poor condition of Crane / Hydra / Vehicle, using without certification / Licence, Incompetent driver/ Helper
- 6.1.3 Working without creation of effective safety zone
- 6.1.4 Improper Supervision at worksite, Lineman/ Supervisor working without competency
- 6.1.5 Working without adherence to PTW process or authorization/ not adherence to SOPs / W.I. of TPCODL.
- 6.1.6 Improper Working at height equal to or above 1.8 mtrs without taking proper fall protection measures/ Poor condition of Ladder

6.2 Measures of Reward and Punitive Measures

The Engineer In-Charge, NSO, SC, ASOs, CSI / SIs and SHE &DM group will conduct the surprise audits of the work / project and if any non-conformance is found the same will be booked and entered in the format "Safety Violation Record" annexure 10. The flow of the information is given below:

Safety Violation Escalation & Monitoring process	
Action	Responsibility
Safety Violation form has been filled and counter foil sent to SAFETY team for information. The main form is to be given to BA supervisor / Engineer in-charge. <i>(Automatically generated if Site audit done through Mobile App.)</i>	Engineer In-charge/ NSO / SC / SAFETY Group /CSI/ ASO/ Any authorised TPCODL official.
↓	
Entry of the violation in the master record and sending the information to concerned Manager, HoG, HoD, Head and Chief (O &S). <i>(Automatically generated if Site audit done through Mobile App.)</i>	SAFETY Group
↓	
Forwarding the information Centralized Account Payable (CAPS) for amount deduction from the current bill of the BA,	Engineer In-charge

if any.	
↓	
HoG (Safety – II) & HoG (Safety & Quality – Commercial) and CAPS to generate the MIS of the violations and the amount deducted.	SAFETY Group
↓	
The pool of the amount generated after the deduction to be utilized in safety welfare of BA employees.	SAFETY Group with approval of CFO/Chief (O & S) /CEO&MD

The safety violations have been rated from 1 to 5 (figure 6.3) as per the gravity of the violation. If the same violation is repeated it may escalate into a higher penalty. If a particular Business Associate employee violates safety norms three times, he shall not be allowed to work in TPCODL for a period of one year from the date of the 3rd violation.

6.3 Safety Violation Escalation Matrix

6.3.1

Consequence of Safety Violation Observed (Not related to Incident/ Accident)		Violation				
S.No.	Safety Violation	1st	2nd	3rd	4th	Subsequent Violations
1	Working without PPE (Helmet/Gloves/Safety Harness/ Safety Shoes etc.)	A	B	C	D	Will attract the same penalty as applicable in the 4th violation.
2	Improper Working at Height	A	B	C	D	
3	Working without proper tools and tackles	A	B	C	D	
4	Poor condition of Crane/Hydra/ Vehicle/Incompetent driver/ Helper	A	B	C	D	
5	Violation of SOP/ WI	B	C	D	E	
6	Working without adherence to PTW process or authorization/ Safety Zone	C	D	E		
Legend	Action to be taken	Responsibility		Penalty Amount (in Rs.)		The number of violations are to be calculated cumulatively over the contract period and not on monthly basis.
A	Warning letter	Engineer Incharge		Nil		
B	Levy of Penalty	Engineer Incharge		2,000		
C	Memo to BA & Levy of Penalty	Head of Group		4,000		
D	Memo to BA & Levy of Penalty	Head of Department		10,000		
E	Memo to BA, Levy of Penalty and termination of Contract	Head of Department		1,00,000		
Figure 6.3 (1a)-Penalty Matrix for Safety violation (Applicable for Minor Contracts)						

Figure 6.3 (1a)-Penalty Matrix for Safety violation (Applicable for Minor Contracts)

Consequence of Safety Violation Observed (Not related to Incident/ Accident)		Violation				
S.No.	Safety Violation	1st	2nd	3rd	4th	Subsequent Violations
1	Working without PPE (Helmet/Gloves/Safety Harness/ Safety Shoes etc.)	B	C	D	D	Will attract the same penalty as applicable in the 4th violation.
2	Improper Working at Height	B	C	D	D	
3	Working without proper tools and tackles	A	B	C	D	
4	Poor condition of Crane/Hydra/ Vehicle/Incompetent driver/ Helper	B	C	D	E	
5	Violation of SOP/ WI	C	D	E		
6	Working without adherence to PTW process or authorization/ Safety Zone	C	D	E		

Legend	Action to be taken	Responsibility	Penalty Amount (in Rs.)	The number of violations are to be calculated cumulatively over the contract period and not on monthly basis.
A	Levy of Penalty	Engineer Incharge	5,000	
B	Memo to BA & Levy of Penalty	Engineer Incharge	10,000	
C	Memo to BA & Levy of Penalty	Head of Group	25,000	
D	Memo to BA & Levy of Penalty	Head of Department	50,000	
E	Memo to BA, Levy of Penalty and termination of Contract	Head of Department	1,00,000	

Figure 6.3 (1b)-Penalty Matrix for Safety violation (Applicable for Major Contracts)

Figure 6.3 (1b)-Penalty Matrix for Safety violation (Applicable for Major Contracts)

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Once the BA reaches the “BLACK” (color – “5”) category, i.e. highest level of safety violation, “Termination” notice to BA will be issued from the office of the Head of Department (equivalent to GM/ Sr. GM level) and further, *if required*, continuation / extension of contract will only be initiated by Functional Chief / Head of the department (equivalent to Sr. GM / Chief level) and approved by CEO & MD. Till the extension, the contract will remain suspended.

TPCODL encourages the reportage of the safety violation during the contract work by BA. Any TPCODL employee can register a safety violation against the BA in the “Safety Violation Form” *annexure 10*. Initially the observer has to fill the form and handover the counterfoil (lower portion) of the document to the supervisor of the BA, inform the site engineer of TPCODL and send the top portion of the Safety Violation Form to SAFETY group for the further necessary action against the BA. **The cumulative nos. of Safety Violations pertaining to any particular BA shall be calculated on yearly basis.**

Safety violations resulting in incident / accident will be treated as per gravity of the injury / fatality and its impact as well as type i.e. minor or Major. Consequences of incident / accident are shown in the matrix (figure 6.3(2) for major and 6.3(3) for minor) below. In case of any accident, findings and recommendations of Accident Enquiry Committee will be final and binding and will supersede the arbitration clause of GCC.

Consequence Of an Incident / Accident (In case of <u>MAJOR</u> contract)		Incident / Accident				Action Required
Sl. No	Type of the injury	1st	2nd	3rd	4th	
1	Slight injury (First Aid Case)	F (Strengthening of process through continuous improvement in the work procedure)				Take risk reduction measures
2	Minor injury (No or Hospitalization less then 48 Hrs)	F	G	G	H	
3	Major injury (Bone injury or burn or Hospitalization more then 48 Hrs)	G	G	H	I	
4	Single fatality	J	K			Intolerable
5	Multiple fatalities (Two or more fatalities during one event)	K				
Legend	Action to be taken	Responsibility		Penalty (in Rs.)		The number of violations are to be calculated cumulatively over the contract period and not on monthly basis.
F	Memo to BA and levy of penalty	Engineer Incharge		5,000/-		
G	Memo to BA and levy of penalty	Head of Group		20,000/-		
H	Memo to BA and levy of penalty	Head of Group		50,000/-		
I	Memo to BA and levy of penalty	Head of Department		2,00,000/-		
J	Memo to BA and levy of penalty	Head of Department		5,00,000/-		
K	Memo to BA, levy of penalty, termination of contract and black listing of BA	Functional Head		10,00,000/-		
Figure 6.3 (2) - Penalty Matrix for Incident / Accident in Major Contracts						

Figure 6.3 (2) - Penalty Matrix for Incident / Accident in Major Contracts

(For example: In major contracts, if there is first incidence of major injury say bone injury (Cat. 3) where worker was hospitalized for more than 48 hrs then a penalty of amount Rs.20000/- will be deducted from the current bill produced for the payment. This penalty will be similar for first two incidents. However, it will increment to next higher category i.e. Rs. 50,000/- on subsequent incidents as per the above matrix)

Consequence Of an Incident / Accident (In case of <u>MINOR</u> contract)		Incident / Accident				Action Required
Sl. No	Type of the injury	1st	2nd	3rd	4th	
1	Slight injury (First Aid Case)	L (Strengthening of process through continuous improvement in the work procedure)				Take risk reduction measures
2	Minor injury (No or Hospitalization less then 48 Hrs)	L	M	M	N	
3	Major injury (Bone injury or burn or Hospitalization more then 48 Hrs)	M	M	N	O	
4	Single fatality	P	Q			Intolerable
5	Multiple fatalities (Two or more fatalities during one event)	Q				

Legend	Action to be taken	Responsibility	Penalty (in Rs.)	<i>The number of violations are to be calculated cumulatively over the contract period and not on monthly basis.</i>
L	Memo to BA and levy of penalty	Engineer Incharge	5,000/-	
M	Memo to BA and levy of penalty	Engineer Incharge	10,000/-	
N	Memo to BA and levy of penalty	Head of Group	25,000/-	
O	Memo to BA and levy of penalty	Head of Department	1,00,000/-	
P	Memo to BA and levy of penalty	Head of Department	3,00,000/-.	
Q	Memo to BA, levy of penalty, termination of contract and black listing of the BA	Functional Head	5,00,000/-	

Figure 6.3 (3) - Penalty Matrix for Incident / Accident in Minor Contracts

(For example: In minor contracts, if a worker meets with a non-fatal accident say bone injury (Cat. 3) where he was hospitalized for more than 48 hrs then a penalty of amount Rs. 10,000/-, will be charged from the current bill produced for the payment. This penalty will be similar for first two incidents. However, it will increment to next higher category i.e. Rs. 25,000/- on subsequent incidents as per the above matrix.)

In case of single or multiple fatalities described under legends J&K of 6.3(2) and P&Q of 6.3(3), the concerned BA may be debarred from extension of contract or participate in new contract. In such event the approval of Chief (O & S) will be necessary for extension or award of new contract to concerned BA.

6.3.2 COMPENSATION FOR BA PERSONNEL

In the event of any untoward incident/ accident, the Business Associate shall ensure prompt medical assistance such as treatment, sickness benefit, etc. is provided to the victim(s) as per the Employees' Compensation Act, 1923 or Employees' State Insurance Act, 1948, as applicable. Also, the BA will be required to take adequate measures for compensating the victim(s) or his/her/their kin as follows:

I. For Death or Permanent / Total Disablement

The BA shall take an insurance coverage of at least Rs. 15 lakhs for each engaged employee, to cover any incidence of Death or Permanent / Total Disablement (Permanent/Total Disability shall be considered as defined under Employees' Compensation Act, 1923). In the event of any such unfortunate incident, the BA would ensure that adequate compensation is paid immediately to the family of the victim(s) from his own resources. This compensation shall be covered under the insurance policy subscribed by the BA mentioned earlier and the arrangement should be such that it would get reimbursed to the BA by the insurance agency subsequently.

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II. For Permanent Partial Disablement and Temporary Total Disablement

The compensation in this case will be as per provisions of the Employees' Compensation Act, 1923 or Employees' State Insurance Act, 1948, as applicable.

Accordingly, the BA shall obtain a suitable Insurance Policy on award of Contract and submit documentary evidence of the policy to the BA Cell before commencement of work. The BA shall ensure that the Insurance policy is active at all times and all employees are covered in all respects till the conclusion of contract period or till working with TPCODL. The BA shall submit a copy of the policy after periodic renewals to the BA Cell.

However, on occurrence of such unfortunate incident, if it is found that the victim(s) is/are not covered under any insurance policy, the BA shall be liable to pay the entire sum of Rs. 10 lakhs from his own resources.

Further, in case of an accident resulting in Death or Permanent / Total Disablement while on duty, the appointed BA Nodal Officer will ensure that the BA complies with all statutory provisions and benefits i.e. PF, Compensation, Gratuity etc., and that all these are made available to the employees' nominee(s) as per the stipulated timelines.

6.3.3 TPCODL rewards the BA with good track record of safety management. It is proposed that BA complying with Contractors Safety Management, Safety Manual and Safety process will be rewarded suitably as per the procedure, rule and regulations of the TPCODL. In any case major accident is reported during an assessment period BA will not be eligible for this reward scheme. Assessment of contracts will be once in year. Generally the assessment cycle is calendar year and guidelines will be declared time to time.

Abbreviations Used in the Document

TPCODL	TP Central Odisha Distribution Limited
BA	Business Associate
HIRA	Hazard Identification & Risk Assessment
JSA	Job Safety Analysis
EHV	Extra High Voltage
SAFETY	Safety, Occupation Health, Environment & Disaster Management
MMG	Meter Management Group
EAG	Energy Audit Group
PPE	Personal Protective Equipment
SOP	Standard Operating Procedures
CSI/SI	Circle Safety In-charge / Safety In-charge
ASO	Area Safety Officer
NSO	Nodal Safety Officer
SC	Safety Coordinator
HoG / HoD	Head of Group / Head of Department
AGM / GM / VP	Assistant General Manager / General Manager / Vice President

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CFO / Chief (O & S)/ CEO & MD	Chief Finance Officer / Chief (Operating & Safety) / Chief Executive Officer & Managing Director
COS	Corporate Operation Services
CAP	Centralized Account Payable System
PTW	Permit To Work
GCC	General Conditions of Contract.

- END -

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Annexure 1 (Refer Para 3.1)

Business Associate Safety Management System Questionnaire

Certification				
The information provided in this questionnaire is a summary of the company's occupational health and safety management system.				
Company Name:				
Turnover and experience:		Name of top officer:		
Date:		Position		
Contract Details				
Contract Name			Contract Number:	
Business Associates Safety Management System Questionnaire		Marks	Yes	No
Score achieved				
<i>Safety Policy and Management</i>				
- Is there a written company Safety policy?		1		
- If yes provide a copy of the policy, if No please refer Note 1.				
- Does the company have an Safety Management system		1		
- If yes provide details, if No please refer Note 1.				
- Is there a company Safety Management System manual or plan?		2		
- If yes provide a copy of the content page(s), if No please refer Note 1.				
- Are Safety and occupational health responsibilities clearly identified for all levels of Management and staff?		2		
- If yes provide details, if No please refer Note 1.				
<i>Safe Work Practices and Procedures</i>				
- Has the company prepared safe operating procedures or specific safety instructions relevant to its operations and relevant work as per contract?		1		
- If yes provide a summary listing of procedures or instructions, if No please refer Note 2.				

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Certification				
- Comments				
- Is there a register of injury or accident? - If yes provide a copy (format)	1			
- Is there a documented incident or accident investigation procedure? - If yes provide a copy of a standard incident report form, if No please refer Note 2. - Comments	1			
<i>Safety Training</i>				
- Describe how occupational health and safety training is conducted in your company If No please refer Note 1.	2			
- Is a record maintained of all training and induction programs undertaken for employees in your company? - If yes provide examples of safety training records, if No please refer Note 2.	1			
- Are regular safety inspections / audits are undertaken at worksites? -If yes provide details (formats), if No please refer Note 3.	1			
- Is there a procedure by which employees can report hazards at workplaces? - If yes provide details if No please refer Note 1.	1			
<i>Safety Monitoring</i>				
- Is there an officer / supervisor responsible for monitoring workplace / worksite safety?	1			

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Certification				
- If yes provide details				
<i>Safety Performance Monitoring</i>				
- Are employees regularly provided with information on company health and safety performance?	1			
- If yes provide details				
- Has the company ever been convicted of an occupational health and safety offence?	NO Marks (Negative mark ONE for each case)			
- If yes provide details				
- Has there been any major accident of employee at TPCODL site in past	NO Marks (Negative mark ONE for each case)			
- Has there been any fatal accident of employee at TPCODL site in past. - (Note: Bid evaluation committee has to take cognizance of the incident and shall evaluate the bid only after formal approval of competent authority i.e. CTO. - In case of yes please refer Note 4.	NO Mark (Negative mark FIVE for each case)			
Minimum of 75% marks is required for qualification.		Total Marks achieved		
<i>Company Reference</i>				
1. Name of company 2. Name of company				

Note

1: If company does not have formal procedure on Safety Management System than vendor may submit proposed Safety road map along with safety action plan and brief safety policy on his letter head signed by head of the organization.

2: The vendor may submit the same in the Safety Action Plan.

3: The vendor may utilize the same format of TPCODL or on request SAFETY group will assist the vendor in developing the audit system. For other points also vendor may take the assistance of SAFETY group for development of Safety management system.

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4: The vendor may submit the Safety Improvement Plan and Safety Action Plan for his employees based on following points.

- i. Action plan for enhancing safety awareness*
- ii. Action plan for safety training of employee*
- iii. Action plan for increasing safety audit in field*
- iv. Action plan for provision and utilization of safety PPE.*
- v. Action plan for fatality reduction.*
- vi. Action plan for enhanced supervision at site*
- vii. Action plan for making employee more responsible and accountable for safety.*
- viii. Action plan for availability and utilization of all required tool and equipment.*
- ix. Safety Improvement done in last two years, specially highlighting those which have been taken after the fatal accident along with results.*
- x. Safety initiatives planed or started recently.*
- xi. Any other point.*

Based on above points and documentary evidences vendor will be required to submit a detailed report in support of his bid. The bid evaluation committee and competent authority will scrutinize the facts and the evidence submitted. If found satisfactory competent authority i.e. CTO may accord his approval for bid opening otherwise his tender shall be disqualified.

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Annexure 2 (Refer Para 3.2 and 5.8)

Risk Assessment Form

Business Associate:
Scope of the work:
BA's Representative:
Telephone:
Signature:
Date:

Specific Task/Activity	Potential Hazards/Consequences	Class of Risk	Control Measures
Working at Height	Fall from height	2	1. Mandatory usage of JSA checklist prior to start of work 2. Use appropriate ladder 3. Use full body safety harness having double lanyard. 4. Use Electrical Safety Shoes if working on electrical network otherwise use safety shoes. 5. Use Safety helmet. 6. Use PPE as per the annexure 7 of this CSM document 7. Refer Work instruction related to Working at Height for other details 8. Use of metal scaffold to be ensured in height work (cup lock type) 9. Deploy competent workforce who are medically fit

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Specific Task/Activity	Potential Hazards/Consequences	Class of Risk	Control Measures
Working on electrical equipment / network	Electric flash / electrocution	3	1. Mandatory usage of JSA checklist prior to start of work 2. Use Electrical Safety Shoes while working on electrical network. 3. Use Electrical Safety gloves of appropriate voltage rating. 4. Use face shield / visor attached with helmet. 5. Use Safety helmet. 6. Use PPE as per the annexure 7 of this CSM document 7. Mandatory usage of Insulated tools & tackles on electrical system 8. Mandatory compliance for Lock Out & Tag out system. Refer Work instruction related to Working on electrical equipment / network for other details
Excavation / Civil work	Collapse of soil, Fall in excavated pit leading to Injury	2	1. Use safety shoes. 2. Use Safety helmet. 3. Use PPE as per the annexure 7 of this CSM document 4. Hard Barricading of the worksite. 5. Refer Work instruction related to excavation / civil work for other details
Material lifting & Mechanical Erection work	Fall of material/object, Topple of crane,	2	1. Mandatory compliance of crane checklist 2. Visual condition check of lifting tools and tackles such as wire rope sling, belt sling, chain, pulley block, D-shackles, etc. shall be ensured. 3. The operator's physical fitness and alertness should be judged by sup. / EIC. 4. Use PPE as per the annexure 7 of this CSM document 5. Refer Work instruction related to Material lifting & Mechanical Erection work
Road Safety	Road Accidents	3	1. Mandatory compliance of TPCODL Road Safety policy W07(COR-P-12)

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Specific Task/Activity	Potential Hazards/Consequences	Class of Risk	Control Measures
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Note: This information for the general indication purpose. The detailed risk assessment shall be conducted before start of the work by the authorized representative of the BA. The report of same shall be submitted to engineer in-charge along with annexure 4 of the CSM document.

Guidelines for filling the Risk Assessment Form

- *Specific Task/Activity* - The documentation of each major task associated with the contract.
- *Potential Hazards* - The identification of hazards associated with each activity or task to be carried out.
- *Class of Risk* - Each hazard should be evaluated as a level of risk, described as Risk Class 1, 2 or 3 defined above.
- *Control Measure* - The identification and documentation of actions required to eliminate or reduce the hazards that could lead to accident or injury.

Hazard / Risks shall be classified according to the following schedule:

- Class 1: Potential to cause injury treatable with first aid
- Class 2: Potential to cause death or permanent injury
- Class 3: Potential to cause more than one or more lost time injuries.

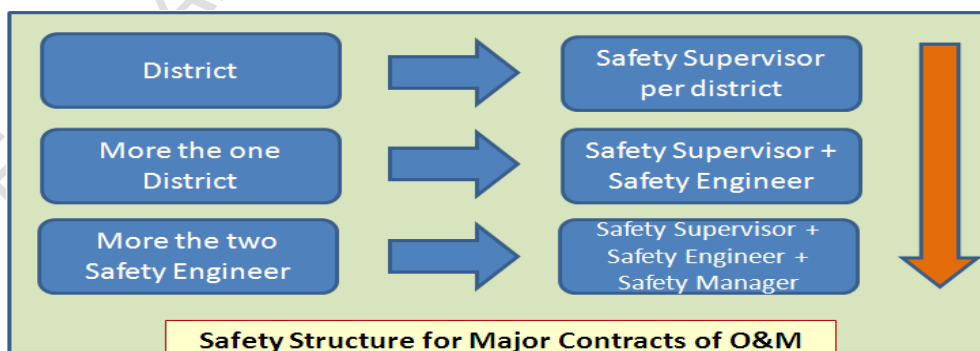
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Annexure 3.1 (Refer Para 4.0)

General Safety Conditions for the Maintenance of Distribution Network Contracts:

A BA awarded a contract (O&M) work of maintenance of distribution network will be required to fulfil the following conditions:

- BA shall provide Safety Policy and safety objectives of their company.
- BA shall comply with all statutory requirements like: applicable acts, regulations, codes of practice, OHSAS Standards, etc.
- BA shall provide the filled safety management questionnaire as per Annexure 1
- BA shall conduct a job risk assessment and provide information as per Annexure 2
- BA shall abide by Safety manuals, guidelines of TPCODL.
- BA shall provide its organisation structure & responsibilities in terms of Safety Management to TPCODL.
- BA shall document the work practices and procedures in terms of Safety Management.
- BA shall ensure safety training and induction program for the employees
- BA shall conduct safety audits & inspections as per TPCODL procedures provided by SAFETY group.
- BA shall provide and ensure the proper usage of the safety equipment (PPE) as per the TPCODL approved list in *annexure 7*.
- BA shall ensure periodic inspection of PPE to ensure its serviceability as per the specification given by TPCODL.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by TPCODL.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident or accident to engineer in-charge and SAFETY team of TPCODL.
- BA shall provide safety performance and Safety MIS (*annexure 9*) to engineer in-charge and 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 shall ensure to depute a Safety Supervisor for managing a complete safety management system in a district. In case the BA has been awarded work in more than one district, then the following safety structure will be adopted.



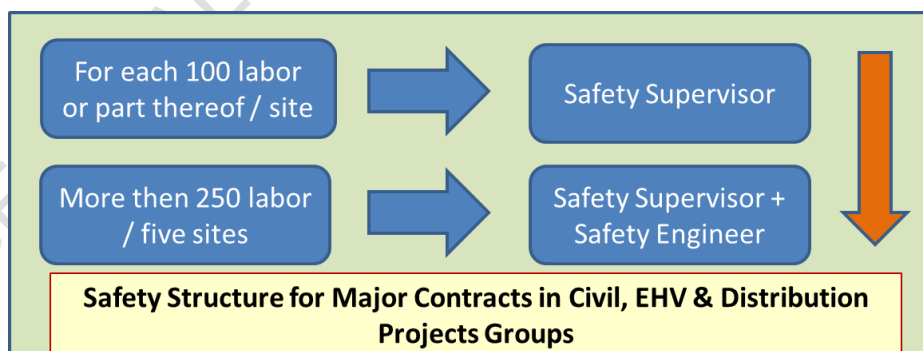
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Annexure 3.2 (Refer Para 4.0)

General Safety Conditions for the Distribution Projects Major Contracts:

A BA awarded a major contract work of TS&P in area of a circle will be required to fulfil the following conditions:

- BA shall provide Safety Policy and safety objectives of their company.
- BA shall comply with all statutory requirements like: applicable acts, regulations, codes of practice, OHSAS Standards, etc.
- BA shall provide the filled safety management questionnaire as per Annexure 1.
- BA shall conduct a job risk assessment and provide information as per Annexure 2
- BA shall abide by Safety manuals, guidelines of TPCODL.
- BA shall provide its organisation structure & responsibilities in terms of Safety Management to TPCODL.
- BA shall document the work practices and procedures in terms of Safety Management.
- BA shall ensure safety training and induction program for the employees
- BA shall conduct safety audits & inspections as per TPCODL procedures provided by SAFETY group.
- BA shall provide and ensure the proper usage of the safety equipment (PPE) as per the TPCODL approved list in annexure 7.
- BA shall ensure periodic inspection of PPE to ensure its serviceability as per the specification given by TPCODL.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by TPCODL.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident or accident to engineer in-charge and SAFETY team of TPCODL.
- BA shall provide safety performance and Safety MIS (*annexure 9*) to engineer in-charge and 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 shall ensure to depute a Safety Supervisor for managing a complete safety management system in the area. In case the BA has been awarded work in more than one circle, then the following safety structure will be adopted.



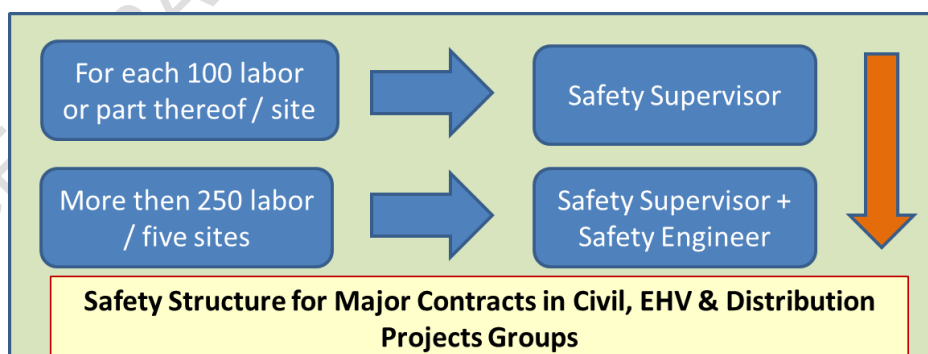
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Annexure 3.3 (Refer Para 4.0)

General Safety Conditions for the major EHV Projects Contracts:

A BA awarded a major contract work of EHV projects will be required to fulfil the following conditions:

- BA shall provide Safety Policy and safety objectives of their company.
- BA shall comply with all statutory requirements like: applicable acts, regulations, codes of practice, OHSAS Standards, etc.
- BA shall provide the filled safety management questionnaire as per Annexure 1
- BA shall conduct a job risk assessment and provide information as per Annexure 2
- BA shall abide by Safety manuals, guidelines of TPCODL.
- BA shall provide its organisation structure & responsibilities in terms of Safety Management to TPCODL.
- BA shall document the work practices and procedures in terms of Safety Management.
- BA shall ensure safety training and induction program for the employees
- BA shall conduct safety audits & inspections as per TPCODL procedures provided by SAFETY group.
- BA shall provide and ensure the proper usage of the safety equipment (PPE) as per the TPCODL approved list in annexure 7.
- BA shall ensure periodic inspection of PPE to ensure its serviceability as per the specification given by TPCODL.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by TPCODL.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident or accident to engineer in-charge and SAFETY team of TPCODL.
- BA shall provide safety performance and Safety MIS (*annexure 9*) to engineer in-charge and 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 shall ensure to depute a Safety Supervisor for managing a complete safety management system in the area. In case the BA has been awarded work in more than one circle, then the following safety structure will be adopted.
- BA shall refer Construction Safety Manual in TPCODL Safety Manual for details.



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Annexure 3.4 (Refer Para 4.0)

General Safety Conditions for the Maintenance of Sub – Transmission Network Contracts:

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:

- BA shall provide Safety Policy and safety objectives of their company.
- BA shall comply with all statutory requirements like: applicable acts, regulations, codes of practice, OHSAS Standards, etc.
- BA shall provide the filled safety management questionnaire as per Annexure 1
- BA shall conduct a job risk assessment and provide information as per Annexure 2
- BA shall abide by Safety manuals, guidelines of TPCODL.
- BA shall provide its organisation structure & responsibilities in terms of Safety Management to TPCODL.
- BA shall document the work practices and procedures in terms of Safety Management.
- BA shall ensure safety training and induction program for the employees
- BA shall conduct safety audits & inspections as per TPCODL procedures provided by SAFETY group.
- BA shall provide and ensure the proper usage of the safety equipment (PPE) as per the TPCODL approved list in annexure 7.
- BA shall ensure periodic inspection of PPE to ensure its serviceability as per the specification given by TPCODL.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by TPCODL.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident or accident to engineer in-charge and SAFETY team of TPCODL.
- BA shall provide safety performance and Safety MIS (*annexure 9*) to engineer in-charge and 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 shall ensure to depute a Safety Coordinator for managing a complete safety management system in the area. In case the BA has been awarded work in more than one area power system, then the following safety structure will be adopted.



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Annexure 3.5 (Refer Para 4.0)

General Safety Conditions for the major contract work in Civil / Generation Projects:

A BA awarded a major contract work of / in civil or Generation project will be required to fulfil the following safety conditions:

- BA shall provide Safety Policy and safety objectives of their company.
- BA shall comply with all statutory requirements like: applicable acts, regulations, codes of practice, OHSAS Standards, etc.
- BA shall provide the filled safety management questionnaire as per Annexure 1
- BA shall conduct a job risk assessment and provide information as per Annexure 2
- BA shall abide by Safety manuals, guidelines of TPCODL.
- BA shall provide its organisation structure & responsibilities in terms of Safety Management to TPCODL.
- BA shall document the work practices and procedures in terms of Safety Management.
- BA shall ensure safety training and induction program for the employees
- BA shall conduct safety audits & inspections as per TPCODL procedures provided by SAFETY group.
- BA shall provide and ensure the proper usage of the safety equipment (PPE) as per the TPCODL approved list in annexure 7.
- BA shall ensure periodic inspection of PPE to ensure its serviceability as per the specification given by TPCODL.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by TPCODL.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident or accident to engineer in-charge and SAFETY team of TPCODL.
- BA shall provide safety performance and Safety MIS (*annexure 9*) to engineer in-charge and 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 shall ensure to depute a Safety Supervisor (for workforce upto 100 at site) / a safety engineer (for workforce upto 250 at site) / safety manager (for more than two safety engineers) for managing a complete safety management system at the project site. In case the BA has been awarded more than one major contracts, then the following safety structure will be adopted.
- BA shall refer Construction Safety Manual in TPCODL Safety Manual for details.



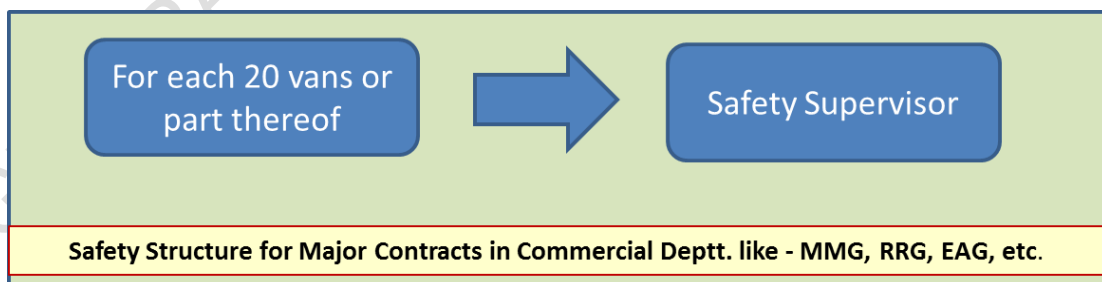
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Annexure 3.6 (Refer Para 4.0)

General 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 and safety objectives of their company.
- BA shall comply with all statutory requirements like: applicable acts, regulations, codes of practice, OHSAS Standards, etc.
- BA shall provide the filled safety management questionnaire as per Annexure 1
- BA shall conduct a job risk assessment and provide information as per Annexure 2
- BA shall abide by Safety manuals, guidelines of TPCODL.
- BA shall provide its organisation structure & responsibilities in terms of Safety Management to TPCODL.
- BA shall document the work practices and procedures in terms of Safety Management.
- BA shall ensure safety training and induction program for the employees
- BA shall conduct safety audits & inspections as per TPCODL procedures provided by SAFETY group.
- BA shall provide and ensure the proper usage of the safety equipment (PPE) as per the TPCODL approved list in annexure 7.
- BA shall ensure periodic inspection of PPE to ensure its serviceability as per the specification given by TPCODL.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by TPCODL.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident or accident to engineer in-charge and SAFETY team of TPCODL.
- BA shall provide safety performance and Safety MIS (*annexure 9*) to engineer in-charge and 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 shall ensure to depute a Safety Supervisor for managing a complete safety management system for the work as per the following safety structure.
- The BA for the RRG work shall depute one Safety supervisor.



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Annexure 3.7 (Refer Para 4.0)

General Safety Conditions for the major contract work in O&M of street light group:

A BA awarded a major contract work in operation and maintenance of street light group will be required to fulfil the following safety conditions:

- BA shall provide Safety Policy and safety objectives of their company.
- BA shall comply with all statutory requirements like: applicable acts, regulations, codes of practice, OHSAS Standards, etc.
- BA shall provide the filled safety management questionnaire as per Annexure 1
- BA shall conduct a job risk assessment and provide information as per Annexure 2
- BA shall abide by Safety manuals, guidelines of TPCODL.
- BA shall provide its organisation structure & responsibilities in terms of Safety Management to TPCODL.
- BA shall document the work practices and procedures in terms of Safety Management.
- BA shall ensure safety training and induction program for the employees
- BA shall conduct safety audits & inspections as per TPCODL procedures provided by SAFETY group.
- BA shall provide and ensure the proper usage of the safety equipment PPE as per the TPCODL approved list in annexure 7.
- BA shall ensure periodic inspection of PPE to ensure its serviceability as per the specification given by TPCODL.
- BA shall ensure the adherence to standard operating procedures or guidelines laid down by TPCODL.
- BA shall ensure reporting of any unsafe act, unsafe conditions, near miss, incident or accident to engineer in-charge and SAFETY team of TPCODL.
- BA shall provide safety performance and Safety MIS (*annexure 9*) to engineer in-charge and 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.
- Each BA shall ensure to depute a Safety Supervisor for managing a complete safety management system for the work awarded as per the below structure.



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Annexure 4 (Refer Para 3.3)

Safety Undertaking 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 awarded by TPCODL and shall be valid till the date of termination of the said contract by either parties. 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 TP Central Odisha Distribution Limited (TPCODL) so as enable TPCODL to achieve its goal of Zero 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 TPCODL specifically. , failing which TPCODL 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.

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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 as in skill and experience required in *annexure 5* of this document, but any such replacement shall be only with the prior concurrence of TPCODL .
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 TPCODL 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 TPCODL / 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 TPCODL or to which TPCODL 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 TPCODL for any near miss or safety violations, accidents, which are attributable to fault of Contractor.

DEPONENT

VERIFICATION

Verified at Bhubaneswar on this _Day of _____20__ that the contents of the above affidavit are true and correct and nothing material has been concealed therefrom

DEPONENT

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Annexure 5 (Refer Para 5.4)

SKILL / QUALIFICATION REQUIRED FOR ELECTRICIAN AND ELECTRICAL SUPERVISOR

Skill / Qualifications Required for Electrician (*Certificate of Competency Class-II*):

1. Formal education in ITI – Wireman/ Electrician trade.

OR

2. Working experience of minimum three years of practical wiring.

OR

3. Have completed three years apprenticeship course through Apprenticeship Advisor, Govt. of Odisha / other state Govt. in the trade of Lineman / Wireman / Electrician.
4. A candidate must have attained the age of Eighteen years.

Skill / Qualifications Required for Electrical Supervisor (*Certificate of Competency Class-I*):

1. Have at least five years' experience of practical wiring after passing the certificate of competency class-II i.e. electrician.

OR

2. Recognized Degree or Diploma or equivalent qualification in Electrical Engineering from any Technical institute / College or University recognized by the Board.

AND

Must have completed the training/job in rectifying the common defects in electrical line and power installation for a period of one and three years after passing Degree or Diploma respectively

OR

3. Possessing the valid certificate of certificate of competency class – 1 (Electrical Supervisor)

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Annexure 6 (Refer Para 5.6)

Training Module for BAs Worker & Supervisor

Training for BA Supervisor

Duration – 02 Hrs / Month

Methodology: Lecture and Practical Demonstration of Safety Zone Creation

Session: 1

Topic: Electrical Safety Aspects

Sub Topics:

1. Learning specifics of HT & LT Network of zone
2. Major type of HT / LT / service lines / street light maintenance works
3. Understanding the need of Safety
4. Understanding the safe process of maintenance :
 - Planning of the maintenance job
 - Availability of men, material & machine, PPEs, Safety gear and approved PTW
 - Briefing of the job by the supervisor of the TPCODL
 - Identification of Risks associated with the maintenance work and planning for controlling measures by TPCODL supervisor
 - Creation of safety zone by TPCODL supervisor and satisfying that the network is dead – Use of Neon Tester, Shorting Chain and Safety Tagging
 - Start of the work – Right person for the right job
 - Alert supervision
 - Completion of the job – Check points
 - Energization of network
 - Actions to be taken in case of some accident

Session: 2

Topic: Use of Electrical Testing Equipment

Methodology: Lecture and Practical Demonstration

Sub Topics:

1. Meggar, Hi Pot, Clamp On Meter, Neon Tester, Discharge Rod, Line tester etc.

Session: 3

Topic: Awareness of Electrical Safety Aspects

- A. Understanding the need of this Training and Safety
- B. Learning specifics of HT & LT Network
- C. Major type of work to be carried out in zones
- D. Switching Operations (Do's & Don'ts) including Street Light Switching
- E. Working on Height (*practical demo also*)
- F. Understanding the Safe Process of Maintenance / Working:
 - Planning of the job
 - Availability of men, material & machine, PPEs, Safety gear and approved PTW
 - Briefing of the job by the supervisor
 - Permit to Work
 - Safety Tagging and Lock Out Tag out

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- Identification of Risks associated with the work to be carried out and planning for controlling measures by proper supervision
- Concept of “**Safety Zone**”
- Identification and use of Neon Tester, Shorting Chain, Clamp On Meter, Hi Pot, Meggar etc.
- Completion of the job – Check points
- Accident Theory & Incident Reporting
- Actions to be taken in case of some accident

Session: 4

Topic: Identification, Demonstration and Usages of Tools, PPEs and other Safety Gears and demonstration of working on HT pole

Session: 5

Topic: Practical demonstration of Safety Zone creation

FREQUENCY

Regular Safety Training Program

- It will be conducted for all field & supervisor staff of BA in such a manner that all BA Personnel attend at least two hours safety training during every month.

One Day Induction Safety Training Programs:

- This training will be for the new BA's personnel, who have been cleared by the Cross Functional Panel to undergo Safety training and who are likely to be deployed at various work sites of TPCODL by the BA, as a part of AMC / Work Contract.

Duration / Periodicity:

- Duration and periodicity has been defined above. However, this is subject to change at the discretion of TPCODL.

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Annexure 7 (Refer Para 5.7)

LIST OF PERSONAL PROTECTIVE EQUIPMENT AND TESTING FREQUENCY

Sl. No.	Name of PPE	IS / EN Standard	Testing Frequency	Remarks	Ref Brand & Model
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.		BATA (Model No.- Endura L/C) Liberty (Model No. – 7198-01 HT Barton Black – Warrior)
02	HDPE Safety helmet with chin strap and ratchet type for adjustment.	IS:2925-1984	Monthly and visual check every day for any crack in shell.		Karam (PN Safetech) Joseph Leslie Accent Industries Honeywell
03	Full body harness (Safety belt)	EN 361	Monthly and visual check every day of the bends and the harness.		Karam (PN Safetech) Joseph Leslie Accent Industries
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.	Make Sparian / Sumitech / CATU supplied with inner cotton glove with over glove of split leather.
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.	Karam (PN Safetech) Joseph Leslie Accent Industries Honeywell
06	Fire Proof jacket for chest protection		Monthly and visual check every day.		
07	Safety Chain for shorting cum earthing.	As per TPCODL standard	Weekly and visual check before every work.	Made of brass, Total length – 5.5 meters and made of 12 SWG.	

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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 TPCODL.
3. Safety Representative of the BA has to 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. TPCODL 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. Refer picture of each PPE given in next page.

Pictures of PPE 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.	IS:2925-1984	
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	

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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	Fire Proof jacket for chest protection		
07	Safety Chain for shorting cum earthing.	As per TPCODL standard	
08	Reflective jacket to each workmen	As per TPCODL standard	

Note : Picture shown are for indicative purpose only. Actual product may differ.

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Annexure 8 (Refer Para 5.8) LIST OF AUDITS TO BE CONDUCTED

Audits	Responsibility	Freq.	Ref. Doc.
Permit to Work & Field Audit	BA Safety Representative	Weekly	F04 (COR P - 12)
Tool Bag & PPE's Audit		Weekly	F06 (COR P - 12)
First Aid Box Maintenance Record		Fortnightly	F08 (COR P - 12)
Fire Extinguisher Record (Applicable for the BA involved in major construction works and have storage of flammable material at worksite)		Monthly	F09 (COR P - 12)
Safety Talk Register		Weekly	F18 (COR P - 12)
Site Safety Audit		Daily	F29A (COR P - 12)

Note:

1. (BA Safety Representative has to use the formats as per Safety process COR – P – 12 of TPCODL)

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Annexure 9 (Refer Para 5.9)

PERFORMANCE REPORT – SAFETY

FOR THE MONTH OF.....

Name of BA :

Name of the Project and Purchase order No:

Date of commencement of work:

Man Hour Worked in this month (No. of employees X 8 Hrs + Overtime):

Cumulative Man Hour worked:

Total Number of Minor Injury (this month): Minor Injury (Total)

Major Injury (this month): Major Injury (Total):

Detail of the Incident / Sub Standard Acts and Condition

Activity	This Month	Cumulative (Total)	Day Lost (this month)	Days Lost (Cumulative)
No. of the Incident				
No. of lost time injuries				
No. of dangerous occurrences				
No. of near miss reported				
Substandard Act/Conditions observed			Attach details of observation of this month	
Safety Violation Notice received (from TPCODL) (both in numbers and in Rs.)	No.	No.	No. of violation letter received and compliance report for the TPCODL.	
	Rs.	Rs.		

Note: Cumulative means total from date of commencement of work according to the contract.

Detail of the Accident / Near Miss Incidents:

Date and Time	Type of the incident	Name of Employee	Brief Description	Corrective and Preventive actions recommended

Details of the Safety Violations:

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Date and Location	Brief Description	Name of employee involved	Action Taken

Detail of the Safety Talk / Tool Box Talk / Safety Training

Date and Location	Topic (s)	Total Number of employees (Worker / Supervisor)	Number of participants (Worker / Supervisor)

Detail of the Safety Meeting

Date and Location	Number of participants	Topics discussed	Major Observations / Innovation

Detail of the Safety Inspection /Audit: (as per TPCODL site audit checklist F29A(COR-P-12))

Date	Area / Location	Major Observations	Recommendations	Action Taken

Any other Safety, Occupational Health, Environment & Disaster Management Promotional Activity (During this month):

Date	Location	Activity	Level of Participation	Number of participation

Signature of the BA Safety Representative
HoG

Signature of ZM /

Name, E. No. and Date

Name, E. No. Date.

Note: The original form to be deposited with Engineer in-charge and a copy to SAFETY group on or before 5th of every month along with bill. List of training of the current month and status of PPE to be also mentioned individual wise.

BA may include additional lines if required. The TPCODL may revise the format as and when deemed required.

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ANNEXURE-M
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 (PROPRIETORY) 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 DRAUGHTSMEN	:
	8.3	COLLABORATION DETAILS (IF ANY)	:
		8.3.1 DATE OF COLLABORATION	:
		8.3.2 NAME OF COLLABORATOR	:

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		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	:
		UTILISED	:
		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.)	:

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	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 RECOGNISED 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 ORANISATIONAL DETAILS		:

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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. GST Registration No	

* 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.

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ANNEXURE-N

MANUFACTURER AUTHORIZATION FORM

(To be submitted on OEM's Letter Head)

Date:

Tender Enquiry No.:

To,

Chief (Procurement & Stores)

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