



NIT No.: TPCODL/P&S/100000118/2021-22

**Procedure to Participate in Tender**

**Tender Enquiry No- TPCODL/P&S/100000118/2021-22**

<b>Tender Enquiry No.</b>	<b>Work Description</b>	<b>EMD (Rs.)</b>	<b>Tender Fee (Rs.)</b>	<b>Last Date for payment of Tender Fee</b>
TPCODL/P&S/ 100000118/2021-22	Supply of 11KV and 33KV Vacuum Circuit Breaker	2,00,000	5,000	22.10.2021

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

**Procedure to Participate in Tender.**

Following steps to be done before “Last date for Payment of Tender Fee” as mentioned above:

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

Beneficiary Name – TP Central Odisha Distribution Ltd.

Bank Name – STATE BANK OF INDIA

Branch Name – IDCO Towers, Bhubaneswar

Address – PO- Sahidnagar, Janapath, Bhubaneswar.

Branch Code – 7891

Account No – 10835304915

IFSC Code – SBIN0007891

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



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

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

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

Also it may be strictly noted that once date of “Last date for Payment of Tender Participation Fee” is lapsed no Bidder will be sent link from TPCODL E-Tender System (Ariba). Without this link vendor will not be able to participate in the tender. Any last moment request to participate in tender will not be entertained.

Also all future corrigendums to the said tender will be informed on Tender section on website <https://www.tpcentralodisha.com>.

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## **OPEN TENDER NOTIFICATION**

**FOR**

### **SUPPLY OF 11KV AND 33KV VACUUM CIRCUIT BREAKER**

**Tender Enquiry No.: TPCODL/P&S/1000000118/2021-22**

**Due Date for Bid Submission: 09.11.2021 [15:00 Hrs.]**

**TP Central Odisha Distribution Limited  
2<sup>nd</sup> Floor, IDCO Towers, Janpath, Bhubaneswar – 751022**



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## 1.0 Event Information

### 1.1. Scope of work

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

S. No.	Description	EMD Amount (Rs.)	Tender Fee (Rs.)
1.	Supply of 11KV and 33KV Vacuum Circuit Breaker	2,00,000	5,000

Note: Tender Fee is inclusive of GST

### 1.2. Availability of Tender Documents

Please refer "Procedure to participate in the e-tender".

### 1.3. Calendar of Events

(a)	Date of sale/ availability of tender documents from TPCODL Website	From 07.11.2021 onwards
(b)	Date by which Interested and Eligible Bidder to pay Tender Fee and confirm participation as mentioned in "Procedure to Participate in Tender"	22.10.2021
(c)	Last Date of receipt of pre-bid queries, if any	23.10.2021
(e)	Last Date of Posting Consolidated replies to all the pre-bid queries as received	28.10.2021
(f)	Last date and time of receipt of Bids	09.11.2021; 15:00 Hours
(g)	Date & Time of opening technical bids & EMD (Envelope-1 & 2)	Participating Bidders will get mail intimation from TPCODL E-Tender system (Ariba) when their Technical Bids are opened.
(h)	Date & Time of opening of Price bid of qualified bidders	Bidders will get mail intimation from TPCODL E-tender system (Ariba) when their Price Bids are opened

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

### 1.4 Mandatory documents required along with the Bid

- 1.4.1 EMD of requisite value and validity
- 1.4.2 Tender Fee of requisite amount
- 1.4.3 Requisite Documents for compliance to Qualification Criteria mentioned in Clause 1.7.
- 1.4.4 Drawing, Type Test details along with a sample of each item as specified at Annexure I (as applicable)
- 1.4.5 Duly signed and stamped 'Schedule of Deviations' as per Annexure III on bidder's letter head.



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- 1.4.6 Duly signed and stamped 'Schedule of Commercial Specifications' as per Annexure IV on bidder's letter head.
- 1.4.7 Proper authorization letter/ Power of Attorney to sign the tender on the behalf of bidder.
- 1.4.8 Copy of PAN, GST, PF and ESI Registration (In case any of these documents is not available with the bidder, same to be explicitly mentioned in the 'Schedule of Deviations')

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

### **1.5. Deviation from Tender**

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

### **1.6. Right of Acceptance/Rejection**

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

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

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

### **1.7 Qualification Requirement / Eligibility Criteria**

1. The bidder must have average annual turnover of Rs. 10 Crores in the last three financial years.  
*(Copy of Audited balance sheet and Profit and Loss Statement to be submitted).*
2. The bidder should have supplied and commissioned at least 100 nos. of 11kV or higher rating VCBs in the last three years.  
*(Copy of Work Order / Completion Certificate to be submitted).*
3. The bidder should have performance certificates for similar works for one year satisfactory performance from at least one reputed power utility for similar or higher voltage rating. The work against the issued certificate should be completed in last three years from the date of bid submission.  
*(Copy of Performance Certificate issued by client to be submitted).*
4. 100% subsidiaries of Global Companies are eligible to bid if the qualification requirements stated above are met independently or in combination with the parent Company.  
*(Self-Undertaking along with necessary documents to establish relationship as well as concurrence from parent organization to be submitted).*
5. 'Indian Companies in joint venture relationship with global OEM' or 'Authorized Indian Channel partner / Sales representatives of Global OEM' are also eligible to bid if the



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qualification requirements stated above are met independently or in combination with the OEM.

*(Self-Undertaking along with Authorization letter from OEM to be submitted)*

### **1.8. Marketing Integrity**

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

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

### **1.9. Supplier Confidentiality**

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

### **2.0 Evaluation Criteria**

- The bids will be evaluated technically on the compliance to tender terms and conditions
- The bids will be evaluated commercially on all-inclusive lowest cost for each line-item of tender BOQ as calculated in Schedule of Items [Annexure I]. TPCODL however, reserves 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 against each line item.
- Bidder has to mandatorily quote against each item of Schedule of Items [Annexure I]. Failing to do so, TPCODL may reject the bids.

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

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

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

### **3.0 Submission of Bid Documents**

#### **3.1 Bid Submission**

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

Bids shall be submitted in 3 (three) parts:



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

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

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

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

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

**Chief (Procurement & Stores)**

TP Central Odisha Distribution Limited  
2<sup>nd</sup> Floor, IDCO Towers, Janpath, Bhubaneswar-751022

**SECOND PART: “TECHNICAL BID”** shall contain the following documents:

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

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

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

**THIRD PART: “PRICE BID”** shall contain only the price details and strictly in format as mentioned in Annexure I along with explicit break up of basic prices, Taxes & duties, Freight etc. In case any discrepancy is observed between the item description stated in Schedule of Items mentioned in the tender and the price bid submitted by the bidder, the item description as mentioned in the tender document (to the extent modified through Corrigendum issued if





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any) shall prevail. Price Bid is to be submitted in soft copy through TPCODL E-Tendering system (Ariba) only. Hard copy of Price Bid not be submitted.

### **SIGNING OF BID DOCUMENTS:**

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

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

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

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

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

### **3.2 Contact Information**

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

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

### **Communication Details:**

#### **Package Owner**

Name: Imran Ahmad  
Designation: HoG-Procurement (Commercial Services)  
Contact No.: 9958294855  
E-Mail ID: [imran.ahmad@tpcentralodisha.com](mailto:imran.ahmad@tpcentralodisha.com)

#### **Escalation Matrix**

Name: Mr. Sudhakar Behera, GM  
Designation: General Manager - Procurement (Commercial Services):  
Contact No.: 9437282663  
E-Mail ID: [sudhakar.behera@tpcentralodisha.com](mailto:sudhakar.behera@tpcentralodisha.com)

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

### **3.3 Bid Prices**

Bidders shall quote for the entire Scope of Supply/ work with a break up of prices for individual items and Taxes & duties. The bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total price with taxes, duties & freight up to destination at various sites of TPCODL. The all-inclusive prices offered shall be inclusive of



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all costs as well as Duties, Taxes and Levies paid or payable during the execution of the supply work, breakup of price constituents.

**Applicable GST to be specified clearly.**

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

**3.4 Bid Currencies**

Prices shall be quoted in Indian Rupees Only.

**3.5 Period of Validity of Bids**

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

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

**3.6 Alternative Bids**

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

**3.7 Modifications and Withdrawal of Bids**

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

**3.8 Earnest Money Deposit (EMD)**

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

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

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

***The EMD shall be forfeited in case:***

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

**Or**

- b) The successful Bidder does not
- a) accept the Purchase Order, or
  - b) furnish the required Performance Security Bank Guarantee

**4 Bid Opening & Evaluation process**

**4.1. Process to be confidential**



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

#### **4.2. Technical Bid Opening**

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

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

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

#### **4.3. Preliminary Examination of Bids/Responsiveness**

TPCODL will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. TPCODL may ask for submission of original documents in order to verify the documents submitted in support of qualification criteria.

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

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

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

#### **4.4. Techno Commercial Clarifications**

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

#### **4.5. Price Bid Opening**

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

#### **4.6. Reverse 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



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such reverse auction events shall be as per the Acceptance Form attached as Annexure VI of this document. The bidders along with the tender document shall mandatorily submit a duly signed copy of the Acceptance Form attached as Annexure VI as a token of acceptance for the same.

## **5 Award Decision**

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

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

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

## **6 Order of Preference/Contradiction**

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

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

## **7 Post Award Contract Administration**

### **7.1. Special Conditions of Contract**

- After finalization of tender, TPCODL shall place a Rate Contract on the successful bidder(s). Rate contract shall be valid for a period of ONE year from the placement of Contract.
- Release Order (RO) shall be placed as per the requirement of TPCODL. Rate shall remain FIRM till the validity of Rate Contract.
- Business Associate (BA) shall submit applicable Performance Bank Guarantee as per GCC within 15 days of issuance of order. PBG applicable shall be 5% of Order Value. PBG submitted, shall be released after completion of applicable guarantee period plus one month.
- Any change in statutory taxes, duties and levies during the contract period shall be borne by TPCODL.
- TPCODL reserves the rights to short close the issued Release Order / Rate contract, in case of any quality issues.
- All the terms and conditions of TPCODL General Conditions of Contract for Supply Orders shall be applicable.



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## **7.2 Drawing Submission and Approval**

The relevant drawings and GTPs need to be submitted by BA within 10 days of receipt of Rate Contract. Drawing Approval in CAT-A shall be accorded by TPCODL within 7 days of submission of complete documents.

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

## **7.3 Delivery Timelines**

Delivery period shall be 8 weeks from the approval of GTPs and drawings or issue of Release Order, whichever is later.

## **7.4 Warranty Period**

As per technical specifications.

## **7.5 Payment Terms**

On delivery of the materials in good condition and certification of acceptance by certified official, Associate shall submit the Bills/ Invoices in original in the name of TP Central Odisha Distribution Limited to Invoice Desk. The payment shall be released within 30 days from the date of submission of certified bills/ invoices.

## **7.6 Climate Change**

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

## **7.7 Ethics**

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

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

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

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



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Any ethical concerns with respect to this tender can be reported to the following:

- 1) Chief Ethics Counselor – ravindra.singh@tpcentralodisha.com

## **8 Specification and standards**

As per Annexure.

## **9 General Condition of Contract**

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

## **10 Safety**

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

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**ANNEXURE I**  
**Schedule for Items**

S. No.	Description	Unit	Quantity (Nos)	HSN Code	Unit Rate (Rs.)	Applicable Taxes (Rs.)	All-Inclusive Unit rate (Rs.)	Total All-Inclusive Value (Rs.)
			(A)		(B)	(C)	(D=B+C)	(E=AxD)
1	11KV Indoor VCB Switchgear Panel Board	EA	2					
2	11KV 1250A Outdoor VCB	EA	93					
3	33 KV Outdoor VCB	EA	87					
<b>Total All-Inclusive Value for Tender BOQ (in Rs.)</b>								

**Authorized Signatory**

**Note:**

1. The quantities as mentioned above are indicative and for evaluation purpose only.
2. The bids will be evaluated commercially on the overall lowest cost for each line-item.
3. The unit price with GST in column no. (H), is landed price FOR TPCODL Bhubaneswar / Cuttack Locations. Exact delivery location shall be specified in the Release Order.
4. The bidders are advised to quote prices strictly in the above format. Failing to do so, bids are liable for rejection.
5. The bidder must fill each and every column of the above format. ***Mentioning "extra/inclusive" in any of the column may lead for rejection of the price bid.***
6. No cutting/ overwriting in the prices is permissible.



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**ANNEXURE II**  
**Technical Specifications**

Attached

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**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:**



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**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.)***

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

***Seal of the Bidder:***

***Signature:***

***Name:***



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**ANNEXURE V**

**Checklist of all the documents to be submitted with the Bid**

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

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

**Seal of the Bidder:**

**Signature:**

**Name**



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**ANNEXURE VI**

**ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT**

*(To be signed and stamped by the bidder)*

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

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

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

**Signature & Seal of the Bidder**



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**ANNEXURE VII**

Supply of Material as per Annexure I.

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**ANNEXURE VIII**  
**GENERAL CONDITIONS OF CONTRACT**

**Attached:** General Conditions of Contract for Supply Orders

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## ANNEXURE IX

### SAFETY POLICY AND SAFETY TERMS AND CONDITIONS

#### 1. Objective

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

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

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

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

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

#### 3. Definitions

- 3.1. **Order Manager:** Order Manager is the Tata Power representative, who has the ownership of the given job.
- 3.2. **Site Safety Management Plan:** It is the safety plan agreed between Contractor and Tata Power. It will contain the entire job specific safety requirement and will be signed by the contractor.
- 3.3. **Contractor:** An individual or a company that provides services to Tata Power under a signed contract.
- 3.4. **Emergency:** a serious, unexpected or dangerous situation requiring immediate action, which may result in loss of revenue/property, business discontinuity. In case of Emergency\*, services may be procured by selecting the qualified vendor based on the vendor category without the safety bid evaluation. It must be approved by MB level and above.
- 3.5. **Expert Service jobs:** Jobs which needs expert services of contractor which does not involve direct exposure to the potential risk or work which involves only supervisory work such as expert for turbine overhaul, expert for boiler overhaul, expert for pump and motor, expert for compressor overhaul.

- 3.6. Head of the Division:** Business in charge of the division who is overall custodian of the generating station or transmission division or distribution division.
- 3.7. Category A Vendor:** Vendor eligible to carry out Very High & High risk (as per Tata Power Hazard Identification and Risk Analysis Procedure) and /or Long-Term Contract related to operation and maintenance (O&M) of plant. Vendors must fulfil the requirement specified for Category A in Appendix 12-CSMF-5 of this document.
- 3.8. Category B Vendor:** Vendors eligible to carry out technical jobs, that are classified under Medium /low risk. Vendors must fulfil the requirement specified for Category B in Appendix 12-CSMF-5 of this document.
- 3.9. Category C Vendor:** Vendors eligible for to carry out low or very low risk administrative and office jobs. For this he must fulfil the requirement specified for Category C in Appendix 12-CSMF-5 of this document.
- 3.10. Category D Vendor:** All Consultants, Medical Practitioners or vendors taking job from Tata Power and working from their own premises (e.g. motor rewinding at vendor's shop floor, equipment sent for repair to vendor's works etc.) are classified as Category D Vendor
- 3.11. High Risk Jobs:** A Job or its activities are considered as Very High or High Risk when Order manager apply the "Tata Power Hazard Identification and Risk Analysis" procedure and found safety risk associated with are under Very High or High category. Indicative lists of jobs are given in appendix 15 of this document.
- 3.12. Medium Risk Jobs:** Jobs or its activities are considered as medium risk when Order manager apply "Tata Power Hazard Identification and Risk Analysis" procedure and found the same as Medium Risk.
- 3.13. Low Risk Jobs:** Any job or its activities are considered as Low or Very low risk while Order manager, calculate it by applying "Tata Power Hazard Identification and Risk Analysis" procedure and found it under Low or Very Low category.
- 3.14. Long Duration Jobs:** When the duration of job is 12 months or more, it is considered as Long duration job
- 3.15. High Value Jobs:** When the value of the job contract is Rs. One Crore or more it will be considered as High value job.



## 4. Responsibilities

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

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

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

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

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

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



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### **5.1 Vendor Registration**

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

- 1) [CSM-F1 –Safety Category Qualification Form](#)
- 2) [Safety Terms and Conditions](#)

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

### **5.2 Bid evaluation**

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

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

Otherwise the RFQ will be attached only with [Safety Terms and Conditions](#). Long term and low value jobs (see definition) are exempted from the CSCC process.

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



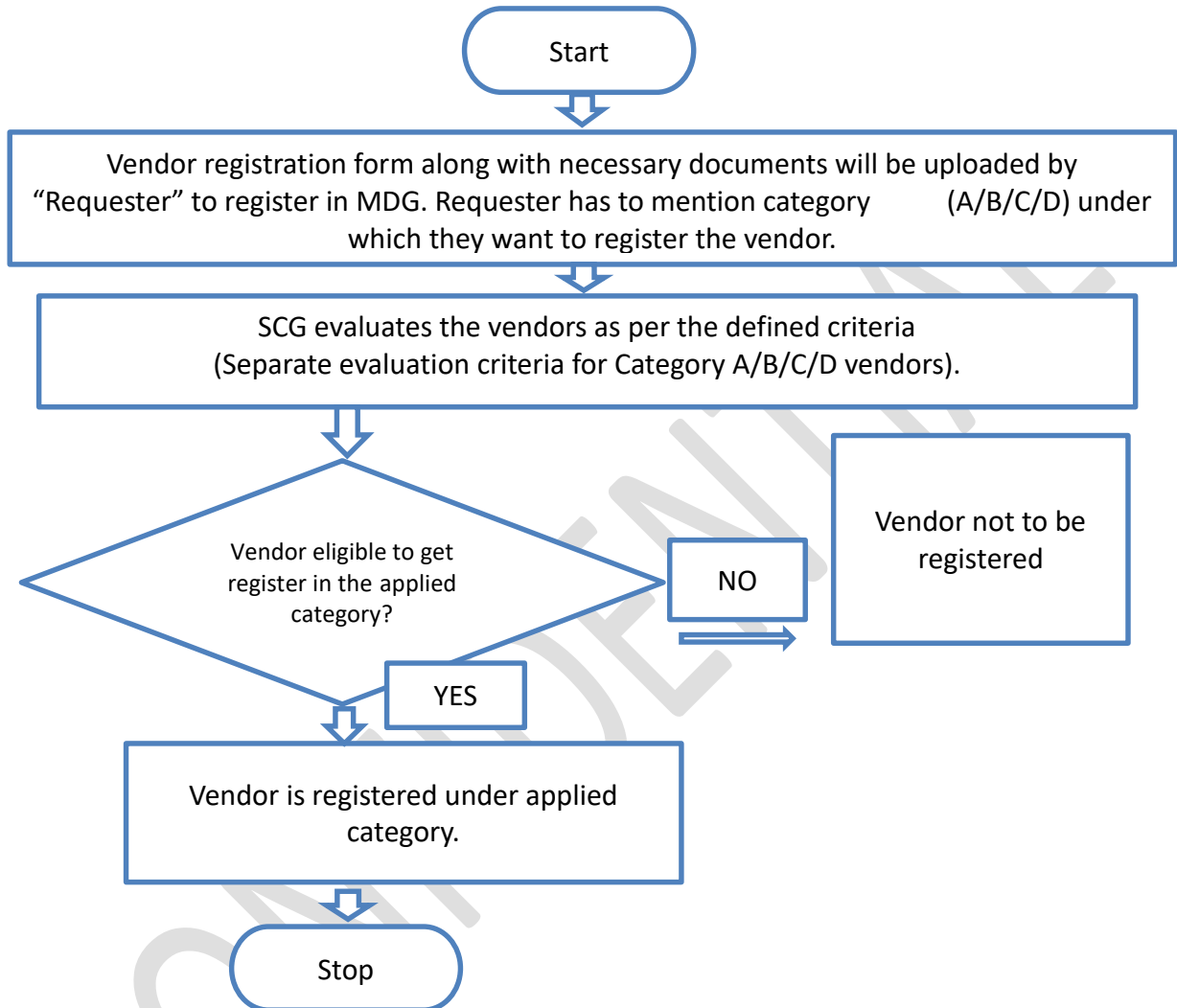
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### **5.3 Safety Performance Evaluation**

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

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## Appendix 1: Process Flow Chart for Vendor Registration





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

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

### Safety Category Qualification Form

**Please consider my application for**

**Category A Vendor: Vendor eligible to carry out Very High- and High-risk O&M jobs**

**Category B Vendor: Vendors eligible to carry out technical jobs, classified as Medium / low risk**

**Category C Vendor: Vendors eligible for to carry out low or very low risk administrative and office jobs**

**Category D vendor: All Consultants, Medical Practitioners or vendors taking job from Tata Power and working from their own premises.**

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

Signature :

Name and Designation :

Stamp of Organization :

### Appendix 3: Safety Terms and Conditions

Please refer the attached document [Safety Terms and Conditions](#).

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

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

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

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

**Safety Performance Evaluation report- CSM-F-3**

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

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

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

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





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

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

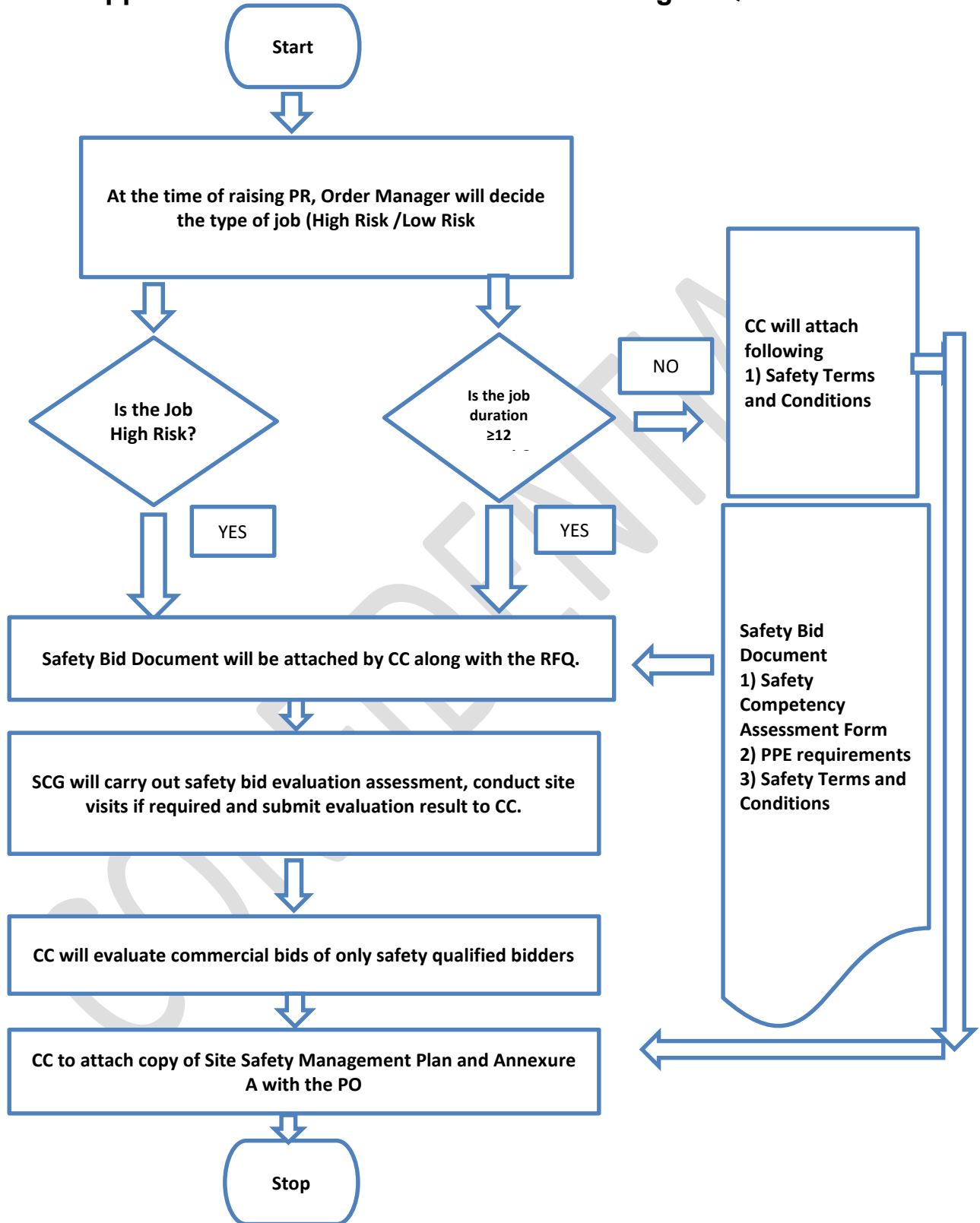


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100.	<ul style="list-style-type: none"><li>• First Time</li></ul>	3	Warning
101.	<ul style="list-style-type: none"><li>• Second Time</li></ul>	4	1000/-
102.	<ul style="list-style-type: none"><li>• Third Time</li></ul>	5	5000/-
103.	Serious Violation of House Keeping (after 1st or 2nd warning to be decided by Project Manager depending on the severity)	5	Rs.10000/- and above
104.	Repeat Violation of same nature	5	5 X Penalty for Violation
105.	Appointment of subcontractor without his Safety Bid Evaluation and/or without the permission of engineer in charge or Order manager.	5	5% of Contract Value

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## Appendix 6: Process Flow Chart for issuing RFQ and PO





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

Name of the Vendor/Bidder : -

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

Description of the Job : -

Request for Quotation (RFQ) No. :-

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

### 1. Proposed Manpower Deployment Schedule: -

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

#### Instructions to Bidder to fill:

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

Direct bidder employee

Partly Direct / Partly sub-contracted

Sub-Contracted

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

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

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

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

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

**3. Safety Records:**

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

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

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

**4. Job Safety Plan/ Method Statement:**

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

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

**5. Management System Certification: -**

Sr.	Certification	Yes / No	If Yes, Year of Certification	If No, Next date for Certification
	ISO 9001			
	ISO 14001			
	OSHAS 18001 / ISO 45001			
	Any other (please specify.....)			

Note: Please attach certificates to support above. In case not accredited for above but applied for, application letters may be attached.

**Appendix 8: CSM-F-8 PPE requirements**

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

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

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



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

### Site Safety Plan / Method Statement (Template)

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

Project/Job Name		
<b>Scope of work: -</b>		
Drawing References: -		
Detail of Sub contractors 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 role and responsibilities of all personnel involved in activity i.e. Site management staff including subcontractors' parties- Main contractor Project/Site Manager, Sub Contractor Site Manager, Project Engineer, Safety officer, Competent Supervisory Staff)

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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, contractors. Details of plant, tools and equipment to be used for the work, including the availability of relevant statutory documents, checks or inspections etc. Details of fencing, barriers, cones, chains, dangers notices, warning signs etc.*

**Tools required for work:**

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

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

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








1.				
2.				
3				
4				
5.				

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

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

**Attachment: - Specific Risk Assessment**

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

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


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

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

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

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

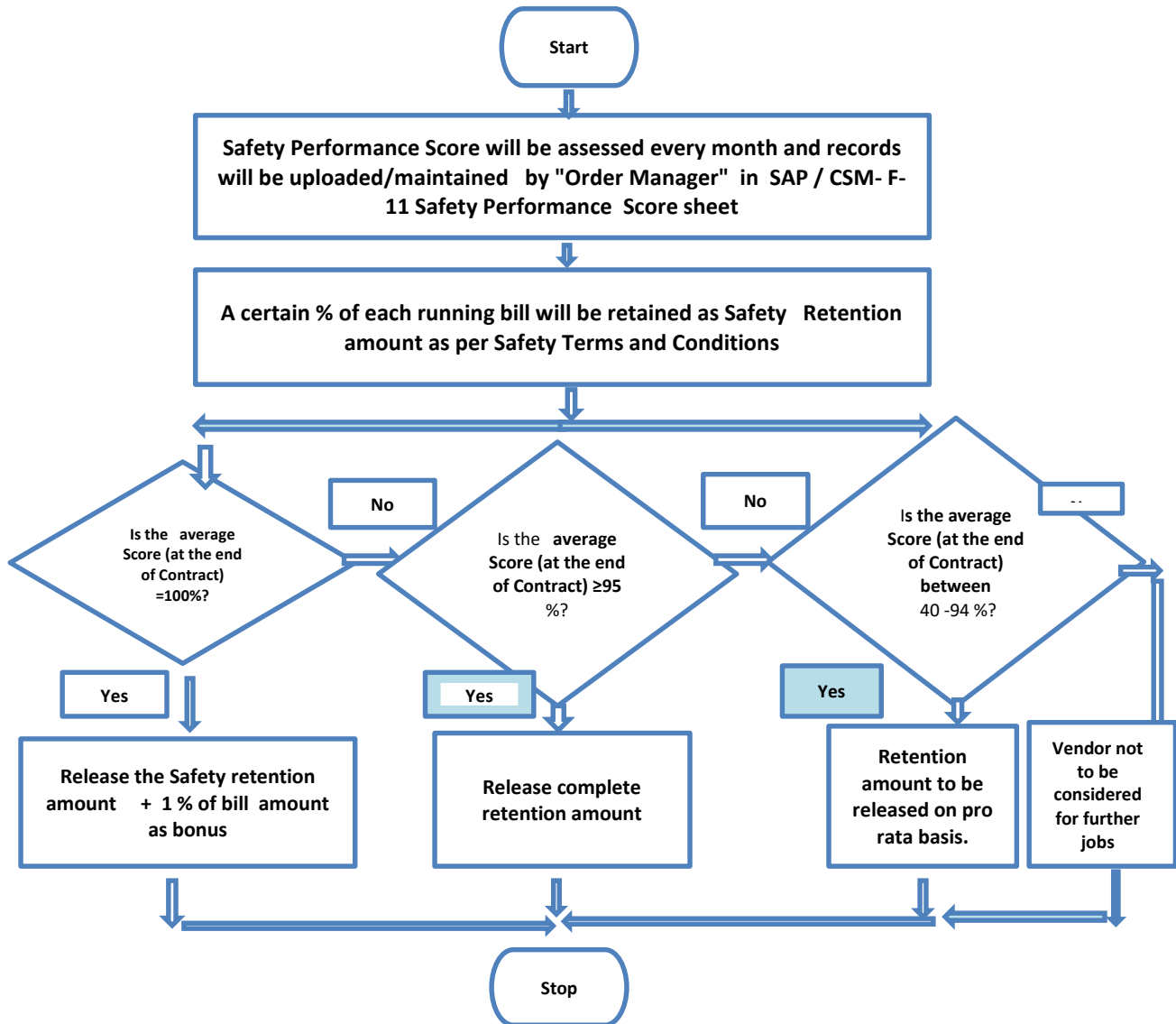
## 10.0 First Aid facilities and Nearby Hospitals Details

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

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

1. Please give a brief writeup / methodology of your organization planned to avoid impact of the COVID-19 pandemic at Tata Power working site.
2. Please give brief details of occupational health and hygiene related interventions planned by your organisation to ensure good health and fitness of workforce at Tata Power site.

## Appendix 10: Process Flow Chart for Safety Performance Evaluation





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### Appendix 11: CSM- F-11 Safety Performance Score

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



## Safety Performance Evaluation Criteria

### Lead Indicators

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

### Lag Indicators

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



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

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

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

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

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

### Evaluation Criteria for Category B

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

4	Check the Safety orientation & training process of Contractor	15		Annexure -12.3
5	Check the organizational structure for safety professionals & engineers / supervisors.	10		Annexure -12.4
6	Certified/skilled workers as a percentage of overall workforce	5		
	<b>Total</b>	<b>100</b>		

**Evaluation Criteria for Category C**

Sr. No	Description	Weight age (%)	Actual Score	Remarks
2	Check the Safety statistics of Contractor	40		Annexure - 12.2
3	Check the Safety orientation & training process of Contractor	20		Annexure - 12.3
	<b>Total</b>	<b>100</b>		

**Annexure 12.1: Evaluation Criteria for Category D:**

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

**Annexure 12.2**

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

### Annexure 12.3

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

### Annexure 12.4



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

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

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

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

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

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

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

**Annexure -13.1:**

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



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

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

### Appendix 14: CSM-F-11.1 CFSA Format

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



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



## Appendix 15: Indicative List of High-Risk Jobs

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

- 1) [High Risk Jobs- Generation](#)
- 2) [High Risk Jobs- T&D](#)
- 3) [High Risk Jobs- Renewable](#)

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

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



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### Indicative List of High-Risk Jobs - Renewable Cluster

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

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**ANNEXURE X**  
**TATA CODE OF CONDUCT**

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

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

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

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**ANNEXURE XI**  
**ENVIRONMENT & SUSTAINABILITY POLICY**



**CORPORATE ENVIRONMENT POLICY**

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

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

A handwritten signature in blue ink, appearing to read 'Praveer Sinha', with a horizontal line underneath.

(Praveer Sinha)  
CEO & Managing Director

Date: 15<sup>th</sup> 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: 15<sup>th</sup> June, 2018

**TATA POWER**  
Lighting up Lives!



The Tata Power Company Ltd		D-NPCE-SPEC-18
Date of Issue: 11/05/2019		SPECIFICATION FOR 11 KV INDOOR BREAKER Panel

**TECHNICAL SPECIFICATIONS  
FOR  
11KV INDOOR BREAKER PANEL**

**Tata Power Company Ltd.  
Network Planning and Regulatory Interface (NET),  
Distribution Support Services  
Dharavi Receiving Station, Matunga,  
Mumbai – 400 093**

Rev No.	Description	Prepared By & Date	Checked By & Date	Approved for Issue By & Date
R9	Specifications for 11kV Indoor Breaker Panel	AB	N.K	NCP
		06/02/2020	06/02/2020	06/02/2020

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## 1.0 Scope:

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at site/store and performance of 11kV, 1250 AMP VCB panels complete with all accessories. It is not the intent to specify completely herein all details of the equipments nevertheless the equipment shall be complete and operative in all respects and shall conform to the highest standard of engineering, design and workmanship of International Standards/IEC. The scope also covers installation, testing, commissioning of 11KV panels at site along with control cabling, SCADA interfacing and associated earthing, interpanel wiring. Supply, laying, dressing, termination and connection of control cables such as

- a) All control wiring related to Transformer, 11KV switchgear Switch Panel Board (2IC,6O/G,1BC,2BPT) 1Set=11Panels
- b) 11KV dummy panel(800mm) (If required)
- c) Power supply AC and DC source 11KV switchgear and SCADA equipment
- d) GATEWAY,RTU PANEL for DSS Prewired
- e) Interfacing of new SCADA with Tata Power SCADA-DMS.
- f) Erection Testing Commissioning of 11 KV 19 Pnl Board +Training for 5 manweek at factory +5 manweek at site(included in 11KV\_ETC) excluding travel & lodging boarding
- g) Complete integration of all 33 kV BCPUs, RTCC, Battery charger, ACDB, DCDB, Station RMU, Station transformer, Power Transformer, fire alarm system to the gateway and purchaser's master.

The Vendor shall be responsible for engineering and functioning of the complete system, meeting the intent and requirement of this specification and data sheets. Bidder should depute project manager at site for monitoring and co-ordinating commissioning activity.

## 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 2705/ IEC 60044-1 : Current Transformers
- b) IS 3156/ IEC 60044-2 : Voltage Transformers
- c) IS 3427/ IEC 62271 -200 : HV switchgear and control gear-AC Metal Enclosed switchgear and Control gear for voltages above 1kV and up to and including 52kV.
- d) IS 694-1990 : PVC insulated cables for working voltage up to and including 1100V
- e) IS 2629-1985 : Recommended practice for Hot Dip Galvanizing of Iron &Steel
- f) IS 2633-1986 : Tests for uniformity of zinc coating
- g) IS 5578-1984 : Guide for marking of insulated conductors
- h) IS 11353-1985 : Guide for uniform system of marking and identification of conductors and apparatus terminals.
- i)
- j) IEC 60060 : High-voltage test techniques.
- k) IEC 60137 : Bushings for Alternating Voltage above 1000V
- l) IEC 60255 -3 : Electrical relays - Single input energizing quantity measuring relays with dependent or independent time.
- m) IEC 60255-27 : Measuring relays and protection equipment-Part-27 Product safety requirement.
- n) IEC 60265-1 : High voltage switches - Part 1: Switches for rated voltages above 1



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- o) kV and less than 52 kV
- p) IEC 60282-1 : High voltage fuses
- q) IEC 60529 : Degrees of protection provided by enclosures (IP Code)
- r) IEC 60694/62271-1 : Common specifications for high voltage switchgear and control gear Standards.
- s) IEC 60947 : Low voltage switchgear and control gear
- t) IEC 61010-1 : Safety requirement for electrical equipment for measurement and Laboratory use.
- u) IEC 61233 : High Voltage alternating current Circuit Breaker- Inductive Load Switching.
- v) IEC 62052-11 : Electricity metering equipment (a.c.) - General requirements, tests and test Conditions.
- w) IEC 62053-22 : Static meters for active energy (Class 0.2 Sand 0.5 S).
- x) IEC62271-102 : HV switchgear and control gear-Alternating current disconnectors and earthing switches.
- w) IEC 62271 -100 : High voltage alternating current circuit breakers.
- x) IEC 61634 : High Voltage Switchgear and Control gear use and handling of SF6 in High Voltage Switchgear and Control Gear.
- aa) IEC 694 : Common clauses for medium voltage switchgear
- ab) IEC 298 / IS 3427 : Medium voltage switchgear in metallic enclosure
- ac) IEC 62271 / IS13338 : Medium voltage AC circuit breakers
- ad) IEC 265 : Medium voltage switches
- ae) IEC 129 : AC disconnections & earthing switches
- IEC 801 : Control and monitoring
- af) IEC 529 / IS 2147 : Degree of protection
- ag) IEC 255 : Protection Relays
- ah) IEC 44-1 / IS 2705 : Current Transformers
- ai) IEC 186 / IS 3156 : Voltage Transformers
- aj) IEC 282-1 : High voltage fuses

*Climatic Conditions of the Installation*

- a) Max. ambient temperature : 50 deg. C
- b) Max. daily average ambient temp. : 45 deg. C
- c) Min ambient temp. : 10 deg. C
- d) Maximum humidity : 95%
- e) Minimum humidity : 10%
- f) Average no. Of thunderstorm days per annum : 40
- g) Average annual rainfall : 1200 mm
- h) Average no. of rainy days per annum : 120
- i) Rainy months : June to Oct.
- j) Altitude above MSL not exceeding : 60 mtrs.
- k) Wind pressure : 195 Kg/Sq. m up to an elevation of 30 meters as per IS: 875-1975 and as per IEC

694

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

**3.0 General Technical Requirments:**

S. No.	Description	Requirement
<b>1.0</b>	<b>SWITCHGEAR PANEL</b>	
1.1	Architecture	Vacuum Insulated Metal Clad
1.2	No. of Phases	Three
1.3	Rated Voltage	12 Kv
1.4	Service Voltage	11 Kv

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1.5	Rated Frequency	50 Hz	
1.6	Rated Lightning Impulse withstand voltage	75 kVp	
1.7	One Minute Power Frequency Withstand Voltage	28 kV rms	
1.8	Rated short time withstand current	26.3 kA for 3 sec	
1.9	Peak withstand current rating	65.75 Ka	
1.10	Normal service condition	Indoor	
1.11	Internal arc Protection	IAC-A FLR as per IEC 62271-200, Shall withstand 26.3 kA for 1 sec.	
	Degree of Protection	IP 5X for HV Live parts degree of Protection. IP3X Degree of Protection for Operating fascia / IP2X for between compartments.	
<b>2.0</b>	<b>BUS BAR</b>		
2.1	Type	Extensible on both sides	
2.2	Bus bar continuous rated current	1250 A	
2.3	Bus bar material	Copper with Silver Coated contacts	
2.4	Rated short time withstand current	26.3 kA for 3 sec	
2.5	Max. permissible temperature rated normal Current	The maximum permissible current temperature for bus bar shall be as per IEC	
<b>3.0</b>	<b>CIRCUIT BREAKER FOR IC/OG (INCOMER AND OUTGOING FEEDER)</b>		
3.1	Application /Class	Indoor	
3.2	Type of circuit	Vacuum (VCB)	
3.3	No. of poles	3	
3.4	Rated Voltage	12 kV rms	
3.5	Rated Insulation Level	11 KV	
3.6	Lighting impulse	75 kV peak	
3.7	One minute power frequency withstand	28 kV rms	
3.8	Rated frequency	50 Hz	
3.9	Rates normal current	1250 A (Incomers & bus copler), 630 (Outgoing)	
3.10	Rated operating sequence	O-t-CO-T-CO (t=0.3sec, T= 3 min.)	
3.11	Max. Spring Charging Time of Motor	10 sec.	
3.12	Max. Power consumption of Trip & close coils	200 W	
3.13	Rated load breaking current (sym)	26.3 kA rms	
3.14	Rated short circuit withstand current	26.3 kA rms for 3 sec	
3.15	Rated short circuit making current	65.75 kA peak	
<b>5.0</b>	<b>OPERATING AUXILIARY VOLTAGES</b>		
5.1	For Protection relays	24V DC	
5.2	For Ant condensation Heaters	24V AC	
5.3	Spring Charging Motor (Universal Motor)	230V AC	
5.4	No. of spare auxiliary contacts with wiring	8NO + 8 NC	
<b>6</b>	<b>VOLTAGE TRANSFORMER</b>		
6.1	Location	Access from Front side of the panel and VT should be for incomer side	
6.2	Type	Plug In type, Dual ratio	
6.3	Ratio	11KV/ $\sqrt{3}$ / 110/ $\sqrt{3}$ -110/ $\sqrt{3}$	
6.4	Core Details	Core-I	Core-II
i)	Accuracy class	0.2S	3P
ii)	Burden	50VA	50 VA

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7	<b>CURRENT TRANSFORMER</b>	
7.1	For Metering and Protection	As per SLD
7.1.1	Ratio	
7.1.2	Burden & Class	
i)	Core –I	0.2S , 10VA; Isf < 5
ii)	Core –II	5P20, 10 VA
7.3	For Differential Protection	
i)	Ratio	400-800/5
ii)	Core- III	5P20, 10 VA

**4.0 General Construction:**

**4.1 Switchgear**

1. The High Voltage Switchboard shall be metal-clad and shall comprise of standard prefabricated, cold-rolled, sheet steel units assembled to form a rigid, freestanding, and dead-front structure. As a minimum, 2mm (14 SWG) sheet steel shall be used for all front and rear doors and covers, and 1.6mm (16 SWG) sheet steel for inter-panel partitions. Wherever required, stiffeners shall be provided to increase stiffness of large size doors and covers.
2. Vertical panels shall be assembled to form a continuous line-up of uniform height. Rear extension panels shall also be of full height.
3. The switchboards shall be totally enclosed and vermin-proof. If necessary, openings for natural ventilation shall be provided. These shall be louvered and provided with wire mesh having opening less than 1mm. The enclosure shall have complete protection against approach to live parts or contact with internal moving parts (IPH 6) as per IS:3427.
4. Each unit of the switchgear shall have necessary internal sheet metal barriers to form separate compartments for circuit breaker, bus bars, instruments and relays, cable connections etc. Compartments for cable connections shall allow cable termination and connection work with the switchgear energised.
5. Independent pressure relief devices shall be provided for all HV compartments, i.e. bus bar, cable and breaker compartments and each compartment shall have type test certificate for withstanding internal arc fault.
6. All identical equipment and corresponding parts shall be fully interchangeable.
7. Safety barriers or shutters shall be provided to permit personnel to work safely within an empty compartment with the bus bars energised.
8. The draw out carriage on the switchboard shall have three positions: "Service", "Test" and "Draw out" viz:
  - a) "Full in" or "Service" position - In this position both power and control circuits shall be connected. This shall be the normal operating position of the circuit breaker.
  - b) "Test" position - The power contacts shall be disconnected in this position but the control connections shall not be disturbed, it shall be possible to close and trip the breakers in this position.
  - c) "Draw out" Position - both power and control circuits shall be disconnected in this position.

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9. The circuit breaker shall be lockable in "service" and "test" positions. Automatic safety shutters shall be provided to ensure the inaccessibility of all live parts after the carriage is drawn out.
10. There shall be a distinct overall door for the breaker compartment, which can be closed with the carriage in draw out position and it shall be lockable type. All openings on the door shall be with a provision of padlock.
11. All circuit breaker modules of the same rating shall be inter-changeable. Suitable interlocks shall be provided to prevent the following operations:
  - a) "Plugging in" or "drawing out" of a closed breaker.
  - b) "Plugging in" a breaker with the earthing switch closed.
  - c) "Closing" of the earthing switch with the breaker "plugged in".
  - d) Pulling out the auxiliary circuit plug with the breaker in the service position.
  - e) Pushing in the breaker to the service position, with the auxiliary circuit plug not in position.
  - f) All operations behind closed doors
  - g) Mimic to be provided on front fascia of panel
12. All hardware shall be corrosion-resistant. All joints and connections of the panel members shall be made by zinc-passivated, or cadmium-plated, high-quality steel bolts, nuts and washers, secured against loosening.
13. Suitable removable type eyebolts shall be provided for the lifting of the panel/shipping section. These bolts, when removed shall not leave any opening in the panels.
14. Switch board shall be designed for IP 5X. The covers and doors should only be opened when the part of main circuit contained in the compartment being made accessible is dead. Partitions of metal-clad switchgear and control gear shall be metallic and earthed. All the meters, detachable units of relays, relays and BCPUs shall be minimum IP4X (For Low voltage) or with an equivalent provision to completely protect it against dust ingress.
15. The overall dimension should not exceed 3.0 M X 1.0 M x 2.8 M (DXWXH). Dummy panel if required as per site conditions shall be included at the time of quoting.
16. All foundation equipment, anchor bolts etc. including the supporting channel shall be furnished by successful bidder along with despatch of panels. The bottom plates of the panels shall be fitted with removable gland plates not less than 3mm in thickness.
17. Indicating instruments and meters shall be at a suitable height so that the lettering on the dials can be easily read. Control switches/push buttons and relay resetting knobs shall be conveniently located for ease of operation. The center lines of the switches push buttons and indicating lamps shall be not less than 900 mm from the bottom of the panel. The center lines of relays, meters etc. shall be not less than 450 mm from the bottom of the panel. Isolating switch fuse units shall be provided at the panel for incoming AC and DC supplies. Push buttons shall be made of non-hygroscopic material with shrouds. All other insulator shall also be made of non-hygroscopic material.
18. All the HV design shall ensure conformity to IEC-62271-200 Appendix 'A' and must be Type tested for Internal Arc Test. It shall withstand 26.3 kA for 1 sec. The suppliers shall submit Type Test report from NABL accredited laboratory to prove the above. Auxiliary and control equipments installed on the panel shall be suitably protected against disruptive discharge from main circuit. Buses shall be insulated with heat shrinkable insulating sleeves, wherever bare conductor is employed.
19. All indicating lamps shall be of LED type and suitable for continuous operation at 85% to 110% of their rated voltage LED and replaceable from the front of the panel.  
The following indicating lamps with color shall be mounted over switchgear to indicate important status/alarm of breaker
  - Breaker ON----- Red
  - Breaker OFF ----- Green
  - DC Fail -----Amber,
  - Space Heater not healthy -----Blue
  - Spring Charge ----- Blue
  - Trip coil healthy----- White
  - Auto trip----- Amber
  - Breaker in service----- Red
  - Breaker in Test -----Service
 PT back charge AC lamps should be provided

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R ph Healthy LED -----RED  
Y ph Healthy LED ----- YELLOW  
B ph Healthy LED ----- BLUE

All colour caps shall be similar and interchangeable and all LEOs shall be of same type and ratings. The LED lamps shall be furnished 20% in excess of actual numbers required.

20. All grounding system, special tools and tackles, O & M manuals etc required for erection, operation, testing and maintenance of switch gear shall be supplied within the quoted price.
21. The offered equipment shall be brand new with state of art technology and proven field track record. No prototype equipment shall be offered. Vendor shall ensure availability of spare parts and maintenance support services for the offered equipment for at least for 15 years from the date of supply. Vendor shall give a notice of at least one year to us before phasing out the product/spares to enable the end user for placement of order for spares.
22. DC fail supervision relay (80) shall be provided on all control and relay panels. DC fail annunciation shall be provided on each panel and loss of DC & trip circuit fail alarm will be suitably annunciate at the panel as well as at the SCADA. All the relays and auxiliaries shall have DC auxiliary supply. Identification of components shall be in agreement with the indication on the wiring diagrams and drawings. If a component is of the plug-in type , an identification mark should be placed on the component and on the fixed part where it is to be plugged-in. Control cables are to be placed in trucking and it should be suitable to accommodate 20% wiring for future modifications. The disconnection type details are as follows
  - a. Control supply in individual bay has to be distributed through MCBs of suitable rating for individual control function like
    - Protection Relay
    - Trip circuit – shorting links
    - Close circuits
    - Spring charging circuit
    - Heating and lighting circuit
  - b. MCB shall be rated for 10kA short circuit rating. It shall be quick make, quick break, and independent manual type with trip free feature. The DC MCBs and AC MCBs ratings shall be separately mentioned and the panel having AC MCB of higher rating in lieu of DC MCB shall not be accepted. MCB shall have the following
    - Over current protection
    - ON/OFF Trip position indicators
    - Auxiliary contact block (wherever required)
23. Wherever CB contacts are to be multiplied, latch type relay shall be used for contact multiplication. Auxiliary contact multiplier relays shall be reputed make and selected on the basis of continuous Current carrying capacity and rated voltage. The fluctuation in voltage level shall be accounted for (+/-) 10% continuously.
24. Fuse failure relay and trip circuit supervision relay shall be suitably selected, considering burden and auxiliary voltage. External circuitry like compensating resistances will not be accepted. Separate Trip circuit supervision relay not required if it is part of numerical relay.
25. Each switchgear panel shall have 20% spare terminals. The terminals should be droppable type. All equipments mounted on front side of the panel shall have individual nameplates with equipment designation engraved. Alarms for Trip & non-trip should be separate. The termination links for cables shall be segregated in vertical plane. The bidder shall deliver to site completely assembled, wired , tested panels and only the interconnecting cables shall be connected at site. The Bay Control unit shall have the provision to communicate with the future data concentrator in IEC 60870 -5-103 VDW implementation without any additional hardware.
26. Feeder protection, and transformer differential protection relays shall be considered separately.

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27. CT, PT, TRIP, CLOSE CT links shall be different coloured coded for easily identification in breaker panels for all Incoming and Outgoing panels.
28. CT, PT, breaker name plate details shall be embossed on front, back side of breaker panel.
29. Separate doors section shall be provided for cable and bus compartment separately with handle arrangement.
30. LOTO lock arrangement shall be provided for Cable compartment, Bus compartment and breaker compartment separately.
31. Cable back charge indication shall be provided on Rear side of Cable compartment.
32. All TB's in breaker control panel shall be DISCONNECTING Type
33. Extender of breaker plug is required which is used for breaker test in removed position
34. Heaters or humidifiers to be provided in bus bar & cable compartment.
35. Space arrangement shall be provided for RUGGEDCOM Switches after every 5 breaker panel set.
36. All auxiliary relays like contact multiplier, Transformer Device relays, Lock out relay shall be fast acting numerical relays with flag indication.

#### **4.2 Partition & Shutters**

The shutter mechanism in the breaker cubicle shall operate automatically i.e. when the breaker truck is racked in or out. Shutters provided shall comply with IP2X.

#### **4.3 Circuit Breaker**

- a. Vacuum circuit breakers shall be used in the switchboard. Breaker transport trolleys required for cassette mounted breakers shall be provided for each switchboard.
- b. The breaker shall be of class M2,E2[w/o auto reclosing duty],C2. The breaker shall be encapsulated with no live part exposed within breaker chamber.
- c. Vacuum circuit breakers shall be designed to have low switching-over voltage levels and with a long switching life. The interrupter shall be leak-free.
- d. The breakers shall have at least 4 normally open (NO) and 4 normally closed (NC) spare auxiliary contacts for purchaser's use. If these are not available, auxiliary relays shall be used to multiply the auxiliary contacts of the breakers.
- e. The breakers shall have a motor-operated, spring-charged mechanism. It shall also be possible to charge the springs manually. The closing spring shall get re-charged (for subsequent closing) soon after a closing shot and prior to breaker tripping. In case the limit switch fails to cut out the spring charging motor with the springs fully charged, the motor shall be automatically decoupled.
- f. The control circuit shall be suitable for local as well as remote control. Breakers shall be trip-free and shall have an anti-pumping device. The breaker operating duty shall be 0-0.3"-CO-3"CO.
- g. Operating Mechanism: Electric power operating mechanism shall be motor wound spring charged stored energy type. However, manual-operating mechanism may be of the spring charging stored energy type or the spring assisted type. For circuit breakers with electrical power operating mechanism, provision shall also be made for manual spring charging. Closing time of circuit breakers with manual operating mechanism shall be independent of the speed of the operating handle.
- h. All stored energy operating mechanism shall be equipped with following features.
  - Failure of springs, vibrations or shocks shall not cause unintended operation of breaker or prevent intended tripping operation.
  - Closing of circuit breakers shall be prevented unless the spring is fully charged.
- i. All electrical power operating mechanisms shall be suitable for remote operation and shall be equipped with following features.
  - Provided with universal motor operable on AC or DC control supplies.
  - Provided with emergency manual charging facility. The motor shall be automatically, decoupled (mechanically) once the manual-charging handle is inserted.

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- Closing operation of circuit breaker shall automatically initiate charging of the spring for the next closing operation without waiting for tripping of circuit breaker.
  - Closing operation shall be completed once the closing impulse is given and the first device in the control scheme has responded even though the control switch / Push Button is released provided no counter trip impulse is present.
- j. Circuit breaker trip and closing coils in case of electrically operated breakers and trip coil in case of mechanically operated breakers and circuit breaker indication shall be suitable for satisfactory operation on a control supply system indicated in data sheets/job specification.
  - k. All circuit breakers shall be provided with mechanically operated emergency trip device. This device shall be available on the front of the panel. Mechanically operated 'closing' device shall be provided for all breakers. However mechanical closing shall be inhibited for all circuit breakers in service position.
  - l. The breakers shall be provided with anti pumping & trip free provision. Each breaker shall be also provided with an operation counter.
  - m. Line PT shall be mounted in a separate draw out carriage. In case of truck mounted breaker, line PT shall be provided in a separate panel
  - n. The complete breaker assembly should have inter-changeability with breakers of identical ratings.

#### **4.4 BUS BARS AND CONNECTORS**

1. The switchboard shall comprise of 3-phase bus bars which shall extend through all units of the switchgear line-up. The main bus bars shall have uniform cross-section throughout their length, and shall be sized to carry continuously the rated current specified in the data sheet.
2. Bus bars shall be of high conductivity electrolytic copper supported on insulators made of non hygroscopic, non inflammable material with tracking index equal to or more than that defined in Indian standards.
3. Bus bars shall be housed in a separate chamber and shall be accessible for inspection. Wire guards shall be provided inside the enclosure to allow visual inspection of bus bars, to avoid accidental contact when the cover is removed.
4. Both bus bars and the supports shall be adequately sized and braced to withstand the specified short-circuit current for 1 second. Dynamic stresses shall be calculated on the basis of the specified peak short-circuit current. All bus supports shall be of non-carbonising material, resistant to acids and alkalis.
5. Bus bars shall be insulated by using heat-shrinkable sleeves. The sleeves shall be rated to withstand the system line-to-line voltage for 1 minute. This shall be verified by a type test in which the line voltage will be applied between the sleeved main bus bar and an aluminium foil wrapped closely around the insulation over a length of at least 500mm.
6. All bus bar joints and all tap-off connections from the main horizontal bus bars shall be provided with removable FRP shrouds.
7. Bus bars shall be prominently marked with Red, Yellow and Blue colour rings for easy phase identification at regular interval and at every power tap off point.
8. The thermal design of the bus bars shall be based on installation of the switchgear in poorly ventilated conditions. The cooling air volume shall take into account only the bus bar enclosure.
9. The hot spot temperature for bus bars including joints at design ambient temperature shall not be formed and shall be as per IEC for normal operating conditions.
10. Only zinc passivated or cadmium plated high tensile strength steel bolts, nuts and washers shall be used for all bus bar joints and supports.
11. The current rating as defined for switchboard and components in data sheet/job specification are for design ambient temperature at site conditions and for being inside the cubicle at fully loaded condition. The vendor shall suitably derate the nominal rating to suit the above condition.
12. It shall be possible to earth all busbar sections in make-proof way.

#### **4.5 CURRENT TRANSFORMERS**

1. Current transformers shall be cast-resin insulated. The primary and secondary terminals shall be marked indelibly and easily approachable for termination and testing etc.
2. Current transformers shall conform to IS: 2705. The short-time rating shall be equal to that of the switchboard. They shall be mounted on the stationary part of the switchboard. Protective CTs shall have an accuracy class of 5P and an accuracy limit factor greater than 10. CTs for instruments shall have an accuracy class of 0.2S and an accuracy limit factor less than 5.0. One leg of the CTs shall be earthed.
3. Separate CTs shall be provided for Differential and Restricted Earth fault protection.
4. All CTs shall be star connected. Interposing CT (ICT) shall be provided (if required) for differential protection of transformers having star-delta connection.
5. Proper access to each set of CTs shall be provided for repair / maintenance.

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6. The polarity of the primary and secondary windings of each transformer shall be clearly indicated at the respective terminals and in addition labels shall be fitted in a readily accessible position to indicate the ratio, class duty of each transformer. The CT ratios shall be as per the details specified in this specification's, secondary shorting shall be done by black colour 2.5 sq mm black wires.
7. The TTB should be provided for metering core with droppable links for future PQM and Energy meter requirement.
8. The TTB details are as follows: 50 Amps, Screw type, front connection screw type disconnecting type.
9. All the wires should be connected from top and bottom side and fixed top mounted on door.

#### **4.6 VOLTAGE TRANSFORMERS**

1. Voltage transformers shall be cast-resin insulated The voltage transformers shall conform to IS: 3156. The voltage transformers shall be of draw out type, and shall be provided with 4 pole miniature circuit breakers with auxiliary contacts on the secondary side.
2. The draw out mechanism shall disconnect the V.T. from the bus bars. The primary connection shall be disconnected before the VT become accessible. Neutral point of the star connected VTs both on the primary and secondary sides shall be earthed in test position also
3. The VTs shall have an over-voltage factor of 1.9 for 30 seconds, and an accuracy class of 0.2S from 10% to 120% of normal voltage. VT selected shall be compatible with system grounding.
4. The primary rated voltage shall be equal to the rated voltage  $V$  of the system, or  $V/\sqrt{3}$ , if the VT is connected between phase and neutral.
5. If not otherwise specified, the secondary voltage shall be 110 V, or  $110 / \sqrt{3}$  V. The burden and class of accuracy shall be as specified in SLD. For directional relays, either a 3-phase 5-limb VT, or 3 single-phase VTs with secondary windings connected in open delta shall be provided.
6. A separate truck should be provided for easy racking/unracking in the VT unit.
7. VPIS 2NO+2NC shall be present in each Outgoing feeder with 230V (+or-)10% DC aux voltage.
8. PT back charging lamp shall be provided on backside of individual breaker panel.

#### **4.7 PROTECTION METERING & CONTROL**

- a) All the Bays (Incomer / Outgoing feeder switchgears) shall be provided with Integrated Bay Control, Protection & metering Unit (BCPU).
- b) The BCPUs shall communicate at station level on IEC 61850 protocols and with local and existing remote master on IEC-104 protocol.
- c) The BCPU shall support fibre-optic port (In and Out) for fault-tolerant fibre optic ring or RJ-45 port for making star connection at switch. Also the BCPU should support centralized parameterization and DR files downloading from remote.
- d) The BCPUs shall have capability to communicate with multiple masters on independent network and shall be IEC61850 compatible.
- e) Web browsing feature should be available in BCPU.
- f) Provision of TTB to be made with respect to future revenue meter installation. All the 0.2S CL metering CTs/PTs (Bus PT) to be wired upto TTB for revenue meter installation. The meter size is 300X180X180.
- g) The 10 Nos. flag relays combiflex RXME1 fast acting type to be provided in the 11KV panels for transformer trouble identifications.
- h) Bidder to provide all necessary configuration, testing, health monitoring tools (Hardware & Software) for the proposed system.
- i) All droppable type links of Connect well (CDTTS) or elmax to be provided in the panels.
- j) The Multi Function Meters shall be Communicable to RTU on Rs485 MODBUS. This can be eliminated by taking analog data from BCPU, current can be viewed in the BCPU itself. And huge cabling work can be avoided. Aux supply shall be 220 V DC
- k) The buses to be supported with suitable insulators in order to avoid the vibrations.
- l) Overall design should be such that the Bay Control function is handled by the individual relays provided on the respective bays.
- m) Adequate spare DI /DO provision of BCU should be there for future station miscellaneous signals.



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- n) Separate AC and DC MCB of 16 A to be provided for AC and DC for individual bus section.
- o) Extendable Circuit Breaker Test Plug for test purpose length of 10 Mts
- p) Individual Earthing bus shall be extended from main earth bus in each breaker panel for which all peripherals body earthing are connected through green colour 2.5 sqmm wire.

#### **4.8 PQM Meter**

PQM meters shall be provided in 11kV incomers. Separate droppable links shall be provided in Metering circuit and space on front door to be provided. Power Quality Meter make are A-Eberle, METRUM, UNIPOWER etc. Communication Port as per the BCPU's communication port. The PQM meter needs to be connected in switch network so that data can be transferred to the central system

#### **4.9 DETAIL FUNCTION REQUIREMNET**

- 1) For Details related to the BCPU bidder to refer chapter BCPU.
- 2) The offered BCPU shall have feeder protective elements having software algorithm based on sampling of energized currents, analog to digital conversion and numerical handling.
- 3) The BCPU shall support over current / Earth fault protection function. (50/51 Ph & N) With definite time or inverse time over current characteristic. The inverse characteristics shall as per IEC which should include normal inverse, very inverse, extremely inverse, long inverse curves and shall be soft ware selectable at site.
  - 3a) BCPU should have minimum 2 nos. independent selectable setting groups.
  - 3b) Circuit Breaker failure protection: BCPU should have a feature of circuit breaker failure protection, which generates another trip signal if the breaker fails to trip on fault, which can be wired to upstream breaker trip coil.
- 4) The BCPU shall have minimum 3 PT inputs and 4 CT inputs with ring type lugs termination facility, which can be used as 3 Nos. over current and 1 Earth fault. BCPU shall be suitable for both residually connected CT input as well as CBCT input. BCPU shall have 2 CT inputs separately for NCT in 11, 33 KV INCOMERS
- 5) BCPU shall have configurable binary input, which can be used to develop blocking based scheme and minimum five nos. of freely configurable output contacts. BCPU shall have adequate BIs and BOs required for Local and Remote monitoring and control. BCPU shall be modular & expandable to accommodate the required BIs and BOs for monitoring and control. Separate contact outputs shall be used for remote control (SCADA open/Close) and Trip functions.
- 6) The Input shall have galvanic isolation. The trip out put contact should be capable of controlling the circuit breaker and shall be programmable for either hand reset or self reset.
- 7) The BCPU enclosure shall be dust tight having degree of protection minimum as IP5X.
- 8) The BCPU must have facility for local settings and control through front keypad from relay itself. Relay should have facility of online relay setting i.e. it should be possible to alter setting without switching off breaker.
- 9) The offered BCPU shall have LCD display for monitoring and control, settings, status, measurement and fault data & indication. It shall also have Fixed function LEDs for fault trip, relay healthy, control supply ON & Relay out of service.
- 10) BCPU shall have comprehensive self-diagnostic feature with indication of relay failure on relay front and alarm should be generated without tripping the feeder. However, while diagnostic algorithm runs, it must not interfere in the main protective relay circuit and allow working of main protective circuit continuously.
- 11) The BCPU shall support FDR (Fault disturbance Recording) for minimum 5 Nos. of latest fault trip records.

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- 12) The BCPU shall support metering function (of CL 0.5) for Energy ( tri vector parameters) , and panel metering ( Line currents, voltage , PF etc) . The Energy Measurements shall be as per 3-wattmeter method. Bidder shall mention the accuracy of all analog measurements. Decision of considering Multifunction meter will be based on the accuracy provided by the BCPU.
- 13) No separate earth bus shall be required for the BCPUs. It shall be possible to connect the relay earth to the common earth bus in the substation.
- 14) The offered relay must be immune to any kind of electromagnetic interference. Vendor to submit all related type test reports for the offered model along with the offer.
- 15) The relay should conform to the requirements of IS:3231 / IEC60255 standards with respect to features/ construction/design etc.
- 16) The relay shall have built in communication facility for hooking the relay on MMI / upstream communication system. Manufacturer of relays having their own Substation Automation System shall be preferred. So that they shall be possible to provide a system solution also if required in future.
- 17) BCPU software should be supplied along with relays for viewing and downloading measurement, fault records and to carry out easy settings of relays locally.
- 18) BCPUs shall be suitable for flush mounting type and consisting of multifunctional draw out type modules.
- 19) [BCPU should have direct connectivity to the Copper ground bus of the](#) Switchgear.
- 20) CONFORMAL Coating should be provided on all types of BCPU relays.

#### **4.10 AUXILIARY SWITCHES AND CONTACTORS**

Auxiliary switches shall be provided on all circuit breakers, disconnectors and earthing switches for local, remote & SCADA indication, control and interlocking. With each circuit-breaker, disconnecting device, and earthing device, there shall be supplied all necessary auxiliary switches, contactors and mechanisms for indication, protection, metering, control, interlocking, supervisory and other services. All such auxiliary switches shall be enclosed in dust free housing. Not less than four spare auxiliary switch ways shall be provided with each circuit breaker, disconnectors and earthing switches. All auxiliary switches shall be wired up to a terminal board on the L.V panel of the switchgear whether they are in use or not in the first instance and shall be arranged in the same sequence on all equipment.

Switches shall be provided to interrupt the supply of current to the tripping mechanisms of the circuit breakers directly, once the operation of the latter has been completed. All such switches and mechanisms shall be mounted in approved accessible positions clear of the operating mechanism and shall be adequately protected. The contacts of all auxiliary switches shall be strong and shall have a positive wiping action when closing. Direct acting auxiliary switch contacts shall be used in conjunction with busbar protection schemes in case of duplicate busbars.

If sufficient aux. Contacts are not available, the contacts shall be multiplied by using suitable latching relays (bi stable relays) so that the failure of DC supply shall not cause a mal-operation or undefined position of circuit breakers, disconnectors or earth switches. If any discrepancy between the aux. Contacts and latching relay contacts, this shall be monitored and alarmed locally and for remote indication.

#### **4.11 TERMINAL BLOCKS**

- a) The terminal blocks shall be 1100 V grade, 10 A rated, one piece moulded, complete with insulated barriers, stud type terminals, washers, nuts and lock nuts and identification strips. The terminal blocks for CT shall be of disconnecting type. Markings on the terminal strips shall correspond to wire numbers on the wiring diagrams. The terminal blocks shall be fully enclosed with easily removable covers and made of moulded non- inflammable plastic material.
- b) A minimum clearance of 250 mm between the first row of terminal blocks and the associated cable and plate shall be ensured. Also the minimum clearance between two rows of terminal blocks shall be 150mm.

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- c) All spare contacts and terminals of the panel mounted equipment and devices shall be wired to terminal blocks. All the TB's shall be of single Decker type.  
The bidder shall further refer to Cl. 34.5 of Document no- W03- Aut- Gen-61850-01 (Automation Philosophy for new grids based on IEC-61850 protocol).

#### **4.12 ANTI-CONDENSATION HEATERS**

- a) Strip type space heaters of adequate capacity shall be provided in breaker compartment, cable compartment and bus compartment in each panel to prevent moisture condensation on the wiring and panel mounted equipment. Space heaters shall be rated for 240 V, 1 phase, 50 Hz supply. Heaters inside the panels shall not be mounted close to the wiring or any panel mounted equipment. Heaters shall be complete with either miniature circuit breakers nor with isolating switches, HRC fuse on phase and link on the neutral of the heater supply.
- b) An adjustable type thermostat shall be provided in the heater control circuit with temperature range of 0° - 90° C. The indication shall be provided for monitoring the healthiness of Space heater.
- c) Heater shall have humidity control and shall be arranged to cut off when cubicle internal temperature / humidity exceeds safe value. ' Heater ON' indication shall be also provided. Also, door limit switch and internal lighting shall be provided for LV compartment.

#### **4.13 INTERIOR LIGHTING AND RECEPTACLES**

- a) Each panel shall be provided with a compact fluorescent lighting fixture rated for 240 V, 1 phase, 50 Hz supply for the interior illumination of the panel during maintenance. The fitting shall be complete with switch-fuse unit and the Switching of the fitting shall be controlled by the respective panel door switch.
- b) Each panel shall be provided with a 240 V, 1 Phase, 50 Hz, 15 A, 5 Pin receptacle with switch. The receptacle with switch shall be mounted inside the panel at a convenient location.

#### **4.14 POWER AND CONTROL SUPPLIES**

- a) Each control panel shall be provided with necessary arrangement for receiving, distributing, isolating and fusing of DC and AC supplies for various control, signalling, lighting and space heater circuits. The incoming and sub-circuits shall be separately provided with MCBs. Supply monitoring arrangement shall be provided. Selection of the MCB ratings shall be such as to ensure selective clearance of sub-circuit faults. Potential circuits for relaying and metering shall also be protected by MCBs.
- b) If auxiliary voltages other than those specified are required, then necessary arrangement shall be made by the bidder within the panel to obtain the desired voltages by providing step-down transformers and inverter/converter, etc. However it is desired that no other control voltage shall be prevalent in the panel.
- c) All fuses shall be HRC cartridge type conforming to relevant standards, mounted on plug-in type fuse bases and cover with locking arrangement for fuse link. All accessible live connection to fuse bases shall be adequately shrouded. Fuses shall have operation indicators for indicating blown fuse condition. Fuse carrier base shall have imprints of the fuse rating and voltage.

#### **4.15 PANEL WIRING**

- a) Panels shall be supplied completely wired internally to equipment and terminal blocks and ready for the Purchaser's external cable connections at the terminal blocks. Panel wiring shall be securely supported, neatly arranged by lacing and tying, readily accessible and connected to equipment terminals and terminal blocks. Flame retardant, plastic wiring channels/troughs with strap on plastic covers shall be used for this purpose. When panels are arranged to be mounted adjacent to each other all inter-panel wiring and connections between panels shall be provided by

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the Bidder.

b) All wiring shall be carried out with 1100 V grade, single core stranded copper conductor wires with PVC insulation. Extra flexible wires shall be used for wiring of devices mounted on moving parts such as swinging panels and doors. The minimum size of the stranded copper conductor used for panel wiring shall be as follows

- i) All circuits except CT and PT circuits: 2.5 mm<sup>2</sup> per lead grey colour
- ii) CTcircuits: 4 mm<sup>2</sup> per lead with colour coded PT circuit : 2.5 mm<sup>2</sup> colour coded

The terminals are marked with the terminal number in accordance with the schematics and terminal diagram. The terminals do not have any function designation and are of the tension spring, screw type and plug-in type for interpanel wiring.

- c) Longitudinal troughs extending throughout the full length of the panels shall be provided for inter panel wiring, for AC and DC supplies, PT circuits, annunciator circuits and other common services . Interconnections to adjacent panels shall be brought out to a separate set of terminal blocks located near the slots or holes meant for taking the interconnecting wires. Arrangements shall permit easy inter-connections to adjacent panels at site and wires for this purpose shall be provided by the bidder looped and bunched properly inside the panels.
- d) If accidental short circuiting of certain wires is likely to result in malfunction of equipment, such as closing or tripping of a breaker or positive and negative wires, these wires shall not be terminated on adjacent terminal blocks. The unused instrument space on the front or rear of the panels shall be kept clear of wiring, to facilitate addition of devices without rewiring associated portion of the panels.
- e) Wire terminations shall be made with soldieries crimping type of (ring type lugs for all CT & PT circuits and pin type lugs for other circuits) tinned copper lugs which firmly grip the conductor and insulation. Insulated sleeves shall be provided at all the wire terminations. Engraved core identification plastic ferrules, marked to correspond with panel wiring diagram shall be fitted at both ends of each wire. Ferrules shall fit tightly on the wires and shall not fall off when the wire is disconnected. Lock in type ferrule shall be provided. There should be provision of cable tray for laying of BCPU looping cable on the top of the switchgear LT compartment.
- f) Bidder shall be solely responsible for looping all protection relays upto the BCU/BCPU or DC as per the requirement. Network cable required to communicate BCU/BCPUs with DC shall be under bidder's scope. Looping and networking cable shall be CAT-5 type. The Bidder shall be solely responsible for the completeness and correctness of the internal wiring and for the proper functioning of the connected equipment. In case the cables are to be routed through trenches, necessary metal clad conduits shall be used.
- g) Internal wiring to be connected to external equipment shall terminate on terminal blocks. The terminal blocks for CTs and VTs shall be provided with test links and isolating facilities. The CT terminal blocks shall be provided with short circuiting and earthing facilities. Change of CT cores should be possible by linking & delinking of terminals. Switchgear shall have 20% terminals as spare terminals in each panel & should be uniformly distributed in all the terminal blocks and shall be wired.

#### **4.16 CABLES TERMINATION :**

- 1) There should be provision of connecting two nos 11KV ,3CX400 sq mm ,XLPE back to back with necessary clearances. There should be proper approach for manpower to work inside the cable compartments of incomer and outgoing section. Ample space for connection for these cables shall be provided at the rear of the switchboards.
- 2) In order to avoid accidental contact in the cable compartment while carrying out inspection by opening the rear cover, a removable expanded metal barrier shall be provided in the cable compartment.
- 3) Unless otherwise specified, the power cable shall enter the switchboard from the bottom.
- 4) Non-magnetic cable gland plates shall be provided for feeders wherever single core cables are used.
- 5) The switchboard shall be supplied complete with supports for clamping outgoing and incoming

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cables. The head-room available between cable gland plate and terminal lugs shall not be less than 800 mm for 33 kV cables.

- 6) In case the standard panel depth cannot accommodate the specified no. of cables, a rear extension panel of full height shall be provided. An earth strip shall also be brought to this extension panel.
- 7) Unless otherwise specified, all power cables shall enter the switchgear from the bottom.
- 8) A rear viewing window shall be provided on the cable chamber rear cover to inspect cable connection without opening rear cover. The material of this window shall be the same as that used in breaker chamber.

#### **4.17 LABELS**

- a) All equipment mounted on front and rear side as well as equipment mounted inside the panels shall be provided with individual labels with equipment designation engraved. Also on the top of each panel on front as well as rear side, large and bold nameplates shall be provided for circuit/ feeder designation. The labels shall be mounted directly below the respective equipment.
- b) All front mounted equipment shall be provided, at the rear also with individual labels engraved with tag numbers corresponding to the ones shown in the panel internal wiring to facilitate easy tracing of the wiring.
- c) Each IED and meter shall be prominently marked. All relays and other devices shall be clearly marked with manufacturer's name, type, serial number and electrical rating data.
- d) Labels both external & internal shall be made on non-rusting metal preferably Aluminium anodized one. Labels shall have white letters on black background. The lettering size shall be 6 mm for panel designation and minimum 3mm for device labels. The label designations shall be subject to the Purchaser's approval.
- e) Each switch shall bear clear inscription identifying its function e.g. 'BREAKER' 'S2A' etc. Similar Inscription shall also be provided on each device whose function is not otherwise defined. If any switch device doesn't bear this inscription, separate name plate giving its function shall be provided for it. Switch shall also have clear inscription for each position indication e.g. 'Trip-Neutral-Close', 'ON-OFF', 'R-Y-B-OFF' ETC.
- f) Section differentiation marking, bus differentiation and phase differentiation marking shall be provided a visible colour coding as per Indian coding will be preferred.

#### **4.18 EARTHING**

- a) All panels shall be equipped with a separate earth bus securely fixed along with the inside base of panels. When several panels are mounted adjoining each other, the earth bus shall be made continuous and shall be bolted with two bolts. Provision shall be made for future extension of the earth bus. Provision shall be made on the earth bus bars of the end panels for connecting the same to the earthing grid.
- b) An earthing conductor of 40x10 sq mm Cu (minimum) shall be provided extending the whole length of switchgear and control gear to sustain the Rated short time withstand current. Each equipment mounted in the panel shall be directly earth pad to this earth bus by distinct connections. Bidder shall provide separate electronic earthing for all LED's. Separate earth bus bar to be run along switchgear for protection earthing of relays and communication equipments and LEDs and shall be insulated from the frame. Two bolts shall be provided for connecting the earthing conductor.
- c) All metallic cases of relays, instruments and other panel mounted equipments shall be connected to the earth bus by independent copper wires of size not less than 4.0 sq.mm for VT and CT secondary neutral or common lead shall be earthed at one place only, preferably at the terminal blocks where they enter the panel. The colour coding for earthing wires shall be given. Bidder shall provide separate electronic earthing for all IEDs.
- d) Looping of earth connections, which would result in loss of earth connection to the other devices when the loop is broken, shall not be permitted. However, looping of earth connections between equipment to provide alternative paths to earth bus shall be provided.

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h) Individual Earthing bus shall be extended from main earth bus in each breaker panel for which all peripherals body earthing are connected through green colour 2.5 sqmm wire.

#### **4.19 PAINTING**

All sheet steel work shall be phosphated in accordance with the IS: 6005 "Code of practice for phosphating iron and steel". It should follow the seven tank process. Oil, grease, dirt and swarf shall be thoroughly removed by emulsion cleaning. Rust and scale shall be removed by pickling with dilute acid followed by washing with running water rinsing with a slightly alkaline hot water and drying. After phosphate, thorough rinsing shall be carried out with clean water followed by final rinsing with dilute dichromate solution and oven drying. The phosphate coating shall be sealed with application of two coats of ready mixed, stoved type zinc chromate primer. The first coat may be "flash dried" while the second coat shall be stoved. Thereafter an established painting procedure like electrostatic painting shall be followed for powder coating the panel. The colour shade shall be RAL 7032 (Grey).

#### **4.20 GALVANIZING**

- a) All galvanizing shall be carried out by the hot dip process, in accordance with IS 2629/ ISO 1460 amended to date. However, high tensile steel nuts, bolts and spring washers shall be electro galvanized to service condition four. The zinc coating shall be smooth, continuous and uniform. It shall be free from acid spots and shall not scale, blister or be removable by handling or packing. 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.
- b) After galvanizing no drilling or welding shall be performed on the galvanized parts of the equipment except that nuts may be threaded after galvanizing.
- c) To avoid the formation of white rust, galvanized material shall be stacked during transport and stored in such a manner as to permit adequate ventilation. Sodium dichromate treatment shall be provided to avoid formation of white rust after hot dip galvanization. The galvanized steel shall be subjected to tests as per IS-2633/ BS 729 amended to date.

### **5.0 NAME PLATE AND MARKING**

All the components and operating devices of the switchgear shall be provided with durable and legible nameplates containing all technical parameters. Name plate shall be embossed with "PO no. with date", "PROPERTY OF TATA POWER ". "CODE NUMBER", along with the following information :

- i) Manufacturer's Name
- ii) Type designation or serial no.
- iii) Applicable rated values
- iv) No. of the relevant standard .

The name plate of each functional unit shall be legible during normal service. The removable parts, if any shall have a separate nameplate with the data relating to the functional units they belong to, but this nameplate need only be legible when the removable parts is in removed position.

### **6.0 TESTS**

All the Routine, acceptance and Type tests shall be carried out in accordance with the relevant IS/IEC standards. All routine/acceptance tests shall be witnessed by the Purchaser/ his authorized representative. All the components should also be type tested as per the relevant standards. All meters and metering elements in BCU shall also be routine and type tested as per the relevant standards and shall further be tested at site by the successful bidder. For Type test of Numerical relays, control IEDs, and communication equipment, and Factory acceptance test, For

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type tests of meters, relevant IS has to be followed Following tests shall be necessarily conducted on the switchgear in addition to the others specified in IS/IEC.

**Bidder shall also be responsible for conducting point to point testing of all gateway configurations on the site (SAT) after the installation.**

**Bidder shall ensure integrated FAT of switchgear along with SCADA at one location along with RTU functional tests.**

#### **For Breaker panels**

##### **Type Test**

- a) Verify the Insulation level of the equipment including at power frequency test voltage on auxiliary circuits .
- b) Temperature Rise tests
- c) Test to prove the capability of the main circuit and earthing circuit to be subjected to the rated peak and the rated short-time withstand currents.
- d) Test to prove the making and breaking capacity of the included switching devices .
- e) Test to prove the satisfactory operation of the included switching device and removable parts.
- f) Test to Prove the Protection of persons against approach to live parts and contact with moving parts.
- g) Test to verify the protection of person against dangerous electrical effects.
- h) Electromagnetic compatibility Tests
- i) Dielectric Test
- j) Internal Arc Test
- k) Measurement of the resistance of the main circuits
- l) Dielectric Test on cable testing circuits.
- m) Short-time withstand and Peak withstand current test
- n) Test after erection on site.
- o) Verification of Degree of Protection.
- p) The PD Test (Value shall be less than 5pC).
- q) Rack in Rack out operation of breaker
- r) Dielectric test of earth switch
- s) STC,making and breaking of earth switch

##### **Routine Test**

- a) Dielectric tests on the main circuit
- b) Dimensions and visual checks
- c) Mechanical operation tests
- d) Tests on auxiliary and control circuits
- e) Tests of auxiliary electrical, devices.
- f) Measurement of the resistance of the main circuit
- g) Partial discharge measurement

**Test after Erection on Site**

- a. Voltage test of the Main Circuit

**For Current Transformer**

**Routine Test**

- a) Verification of terminal marking and Polarity
- b) Power frequency dry withstand test on Primary Windings.
- c) Power frequency dry withstand test on Secondary windings
- d) Over Voltage inter-turn tests.
- e) Partial Discharge Measurement
- f) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class.
- g) Burden measurement

**Acceptance Tests**

- a) Verification of terminal marking and Polarity
- b) Power frequency dry withstand test on Primary windings.
- c) Power frequency dry withstand test on Secondary windings
- d) Over Voltage inter-turn tests.
- e) Partial Discharge Measurement
- f) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class.

**Type Test**

- a) Short time current Test
- b) Temperature rise Test.
- c) Lightning impulse tests for voltage transformers for service in electricity exposed installation
- d) High Voltage power frequency wet withstand voltage tests on outdoor current transformers.
- e) Determination of errors or other characteristics according to the requirements of the appropriate designation or accuracy class.

**For Voltage Transformer**

**Routine Test**

- a) Verification of terminal marking and Polarity
- b) Power frequency dry withstand test on Primary windings.



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- c) Power frequency dry withstand test on Secondary Windings
- d) Partial Discharge Measurement
- e) Determination of errors or other charters tics according to the requirements of the appropriates designation or accuracy class .
- i) Burden measurement

#### **Optional Tests.**

The following optional tests where applicable, shall be carried out by mutual agreement between the purchaser and bidder.

- a) Chopped Lighting impulse test as a type test.
- b) Short Circuit withstand capability test as a type test.
- c) Commissioning test on new CT up to and including 36 kV.

#### **Acceptance Tests.**

- a) Verification of terminal marking and Polarity
- b) Power frequency dry withstand test on Primary windings.
- c) Power frequency dry withstand test on Secondary windings
- d) Partial Discharge Measurement
- e) Determination of errors or other charters tics according to the requirements of the appropriates designation or accuracy class.

#### **Type Test**

- a) Temperature rise Test.
- b) Lightning impulse tests for voltage transformers for service in electricity exposed installation
- c) High Voltage power frequency wet withstand voltage tests on outdoor current transformers upto and including 245 kV.
- d) Determination of errors or other characteristics according to the requirements of the appropriates designation or accuracy class.

#### **For Circuit Breaker.**

##### **Type tests**

- a) Dielectric tests.
- b) Measurement of the resistance of the main circuit
- c) Temperature-rise tests
- d) Short-time withstand current and peak withstand current tests
- e) Additional tests on auxiliary and control circuits.
- f) Mechanical Operating tests at ambient temperature
- g) Short circuit making and breaking tests .
- h) Verification of Degree of Protection.
- i) Tightness Test
- j) EMC Test
- k) Mechanical test
- l) Short line fault tests
- m) Out of phase making and breaking test
- n) Electrical Endurance Tests
- o) Double earth fault tests
- p) Capacitive Current switching tests .

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q) Duty Cycle Test

**Routine tests**

- a) Power frequency voltage withstand dry tests on the main circuit
- b) Voltage withstand tests on control and auxiliary circuits
- c) Measurement of the resistance of the main circuit
- d) Mechanical operating tests
- e) Design and visual checks
- f) Dielectric tests
- g) Dynamic contact resistance measurement (Signature Tests)

**For Relays**

Type Tests for Numerical Relays/ Devices:

- 1. Dielectric Withstand Test: IEC60255-5
- 2. High Voltage Impulse Test, class III: IEC 60255-5  
(5 kV peak; 1.2/50 us; 0.5 J; 3 positive and 3 negative shots at interval of 5 sec.)
- 3. DC Supply Interruption: IEC 60255-11
- 4. AC Ripple on DC Supply: IEC 60255-11
- 5. Voltage Dips and Short Interruptions: IEC 61000-4-11
- 6. High Frequency Disturbance: IEC 60255-22-1, class III
- 7. Fast Transient Disturbance: IEC 60255-22-4, class IV
- 8. Surge Withstand Capability: IEEE / ANSI C 37.90.1 (1989)

**Special Type Test**

- 1. Tests to verify protection of the equipment against external effects due to weather.
- 2. Tests to verify the protection of the equipment against mechanical damage.
- 3. Tests to assess the effects of arcing due to an internal fault. It shall withstand fault current of 26.3 kA for 1sec.
- 4. Tests to detect certain defects in the solid insulation of the equipment by the measurement of partial discharges.

However, in case any type test is not carried out at In-house laboratories, the same shall be decided for acceptance as per the mutual agreement between the Purchaser and Bidder.

**7.0 TYPE TESTS 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 NABL laboratories as per the relevant standards. Type test should have been conducted in certified Test Laboratories during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TATA POWER LTD.

**8.0 PRE-DESPATCH INSPECTION**

Equipment shall be subject to inspection by a duly authorized representative of the Purchaser. Inspection may be made at any stage of manufacture at the option of the purchaser and the equipment if found unsatisfactory as to workmanship or material is liable to rejection. The bidder shall grant free access to the places of manufacture to the Purchaser's representatives at all times when the work is in progress. Inspection by the Purchaser or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the

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specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by the Purchaser. Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by Tata power
- c) Invoice in duplicate
- d) Packing list
- e) Drawings & catalogue
- f) Hard copy of drawings
- g) Guarantee / Warrantee card
- h) Delivery Challan
- i) Other Documents (as applicable)

### **9.0 INSPECTION AFTER RECEIPT AT STORES**

The material received at the Purchaser's 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.

### **10.0 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 Purchaser up to a period of at least 60 months from the date of commissioning or 66 months from the date of last supplies made under the contract whichever is later, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the " Security cum Performance Deposit" as the case may be. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.

### **11.0 PACKING**

Bidder shall ensure that all equipment covered under this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit. Packing should be separate for each site, which will help smooth transportation of the same to each site.

### **12.0 TENDER SAMPLE**

Not Applicable

### **13.0 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. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer/sub-supplier's works to carry out inspections.

### **14.0 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.

### **15.0 MANUFACTURING ACTIVITIES**

The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each

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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

## 16.0 SPARES, ACCESSORIES & TOOLS

### 16.1 SPARES:

Bidder should quote unit rates for following mandatory spares along with the bid. However, the exact quantity of these shall be as per the BOQ attached with the tender.

- a) Trip Coil
- b) Closing coil
- c) Spring charging motor
- d) T-N-C Switch
- f) Local/remote selector switch
- g) Tulip/ Finger contact
- h) Indication lamps
- i) Auxiliary switches
- j) LED for cable charge indication.

In addition to above bidder shall submit recommended list of spares for 5 years of operation, if any with unit prices and recommended quantity.

### 16.2 SPECIAL TOOLS & GAUGES:

A list of complete set of special tools and gauges required for erection & maintenance and installation procedure should be submitted. The Bidder shall give an assurance that special maintenance tools & tackles and spares will continue to be available through the life of the equipment, which shall be 25 years minimum. However, the supplier shall give a minimum of 12 months notice in the event of plan to discontinue manufacture of any component used in this equipment.

Any special maintenance tools & tackles apparatus, parts or tools shall be subject to the same specification, tests and conditions as similar material supplied under the Contract. They shall be strictly interchangeable and suitable for use in place of the corresponding parts supplied with the plant and must be suitably marked and numbered for identification. Spanners and other maintenance equipment provided under this contract shall not be used for the purpose of erection.

## 17.0 DRAWINGS

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

- a) Completely filled-in Technical Parameters .
- b) General description of the equipment and all components including brochures
- c) General arrangement drawings
- d) Single Line Diagram
- e) Bill of material
- f) Type Test Certificates
- g) Experience List
- h) Foundation fixing drawings.

Sr. No	Description	For Approval	For information	Review	Final Submission
1	Technical Parameters	√			√
2	General Arrangement drawings	√			√
3	Single Line Diagram	√			√
4	Typical Mimic diagram	√			√
5	Schematic / inter logic diagrams	√			√

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6	Bill of Material	√		√
7	Foundation Plan & loading details	√		√
8	Manual/Catalogues/drawings for DC, BCU meters, relays, switches, lamps etc.		√	√
9	Control and Operational Philosophy of Automation		√	√
10	Input/output List		√	√
11	Cable Schedule & interconnection diagram		√	√
12	Programming language manual		√	√
13	Details of the Communication protocol & interoperability list for the future interfacing.		√	√
14	Equipment wise detailed circuit diagram		√	√
15	Electronic earthing scheme		√	√
16	Configuration diagram with functional write up		√	√
17	I/O mapping		√	√
18	3 nos. of working drawings		√	√
19	3 nos. of as-built drawings		√	√
20	Relay co-ordination scheme		√	√
21	Installation / commissioning manual		√	√
22	Instruction for Use		√	√
23	Transport Shipping dimension drawing		√	√
24	QA & QC Plan	√	√	√
25	Routine, Acceptance & Type Test Certificates	√	√	√

### 18.0 GUARANTEED TECHNICAL PARTICULARS

S.No	Description	Units	Units As Furnished by Bidder
1	<b>SWITCHBOARD</b>		
a)	Architecture		
b)	Applicable standard		
c)	Dimensions (In mm) WXD <sub>X</sub> H		
d)	Internal Arc Protection		
e)	Normal Service conditions		
f)	Service Voltage	KV	
g)	Rated Voltage	KV	
h)	Rated capacity	MVA	
i)	Rated power frequency withstand voltage (rms)	KV	
j)	Rated impulse withstand voltage(1.2, 50us)	KVP	
k)	Rated Short time withstand current	KA	
l)	Rated Peak withstand current	KA	
m)	Busbar material		
n)	Main busbars insulation		
o)	Busbar rated continuous current	A	
p)	Max current Density for Bus bar	A/sq mm	
q)	Max. Permissible temp. rise at rated normal current		
r)	LOTO lock arrangement shall be provided for		

	Cable compartment, Bus compartment and breaker compartment separately		
s)	Separate doors section shall be provided for cable and bus compartment separately with handle arrangement		
t)	Degree of Protection for enclosure / Partitions / for meters, relays and BCU		
u)	CT, PT, breaker name plate details shall be embossed on front door panel		
v)	Extendable Circuit Breaker Test Plug for test purpose length of 10 Mts		
2	<b>CIRCUIT BREAKER</b>		
a)	Standard		
b)	Type		
c)	No of poles		
d)	Rated load breaking current (sym)	KA	
e)	Rated short circuit withstand current	KA	
f)	Rated short circuit making current	KA	
g)	Isolation		
h)	Rated Voltage	KV	
i)	Service voltage	KV	
j)	Rated frequency	HZ	
k)	Rated Insulation Level		
i)	Lightning impulse withstand voltage	KVP	
ii)	One min. power frequency withstand voltage	KV (rms)	
l)	Rated operating sequence		
m)	Opening time	msec	
n)	Arcing time	msec	
o)	Total break time	msec	
p)	Making time	msec	
q)	Temperature Rise		
3	<b>OPERATING AUXILIARY VOLTAGES</b>		
a)	Control and signalling voltage		
b)	Spring Charging Motor (Universal Motor)		
c)	Heater and lighting circuits		
d)	No. of spare auxiliary contacts		
4.1	<b>CURRENT TRANSFORMER</b>		
a)	Type		
b)	Short circuit withstand		
c)	Location		
d)	Ratio		
e)	Burden & Class (Metering and Protection)		
i)	Core –I		
ii)	Core –II		
iii)	Core-III		
f)	Ratio		
g)	Burden & Class (Differential)		
i)	Core- I		
ii)	Make of CTs		
5	<b>VOLTAGE TRANSFORMER</b>		
a)	Make		
b)	Location		
c)	Mounting arrangement		
d)	Ratio		
e)	Burden & Class		
i)	Core- I		
ii)	Core –II		
iv)	Ramp provided for rack in/rack out		
6	Protection , Control, Metering & Communication		

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7	MIMIC Diagram on Relay		
8	Provision of flag indications and contacts for remote annunciation for Self powered backup relay for incomers		
9	Electrically reset type, High speed relay for tripping.		
10	Anti-pumping Relay		
11	Makes for Auxiliary Relays		
12	Provision of DC fail Relay for each panel		
13	PT back charging lamp shall be provided on backside of individual breaker panel.		
14	<b>OTHERS</b>		
a)	Cable charge indication		
b)	TNC Switch		
c)	Local/Remote switch		
d)	Indication Lamps CB ON/OFF		
e)	Indication Lamps CB Auto Trip		
f)	Indication Lamps for CB Test /Service positions		
g)	Spring charged indication		
h)	Trip ckt. supervision scheme		
i)	MCB for AC		
j)	MCB for DC		
k)	MCB for space heater		
l)	MCB for VT's		
m)	Trip alarm scheme with hooter, Accept/Reset PB etc		
n)	Panel anti-condensation heater with thermostat.		
o)	Panel illumination lamp with switch		
p)	15 A, 3 pin socket.		
q)	Makes of indicating lamps		
r)	Makes of MCB		
s)	Wiring of breaker auxiliary contacts up to terminals		
t)	Makes for Fuses / Fuse bases		
u)	CB handling trolley		
14	<b>BCPU (Bay Control and Protection Units)</b>		
14.1	BCPU Functions (as per IEC/IEEE/ANSI/NEMA)		
14.2	Accuracy class of internal energy meter		
14.3	Input / Output capacity per BCPU		
14.4	System Frequency		
14.5	Rated current		
14.6	Auxiliary Voltage		
14.7	Timing Accuracy		
14.8	Sampling Rate:		
14.9	Sequential Events & Recorder memory		
14.10	Environment		
14.11	Ingress Protection		
14.12	Protection functions for BCPU		
14.13	Additional separate protection if any		
14.14	Feeder protection, and transformer differential protection relays shall be considered separately		
15	<b>Software tools</b>		
15.1	Communication Ports		
15.2	Protocols		
15.3	Recording		
15.4	Level & security of Operation		
15.5	Time Synchronisation		

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15.6	Adherence to standards		
15.7	Control function		
15.8	Password protection		
15.9	Configuration tool		
15.10	Integrated checks		
16	<b>Data Concentrator (Gateway)</b>		
16.1	Data Concentrator (Gateway)		
16.2	Communication		
16.3	CPU		
16.4	Protocols		
16.5	Complete integration		
16.6	Ports		
16.7	Time Synchronization		
16.8	Internal Power supply module		
16.9	Panel degree of protection		
17	Commissioning activity		
17.1	Integrated FAT considered		
17.2	Deputation of Project Manager at site considered		
18	PQM Meter	PQI-DA SMART	Incomer panels
19	Guarantee	48 months from the date of commissioning or 60 months from the date of last supplies made under the contract, whichever is later	
20	Delivery	8 weeks from Drawing approval or 12 weeks from PO	

**19.0 SCHEDULES OF DEVIATIONS**

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

**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:

Sr. 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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**20.0 SUB-CONTRACTORS**

The supplier shall ensure that any sub-contractors appointed by him under the Contract follow the Quality Assurance requirements of this specification. The supplier shall assess the sub-contractor's Quality Assurance arrangements prior to his appointment to ensure compliance with the appropriate ISO standard and the specification. Auditing of the sub-contractor's Quality Assurance arrangements shall be carried out by the supplier -and recorded in such a manner that demonstrates to the TATA POWER the extent of the audits and their effectiveness. Contractor Safety Management 1 TO 6 Steps to be followed by main vendor who will ensure same is followed by sub contractors for installation, testing and commissioning. Bidder shall ensure no sub-contract to be given to any third party for SCADA / BCPU integration /commissioning.

**21.0 Warranty**

Vendor shall warrant that the equipment including software, hardware, firmware and associated documentation are free of defects in material and workmanship and from defects or faults in design, in so far as the equipment fails to meet the requirements of this technical specification, for a period of **60 months** from the date of supply **and 48 months** from final acceptance by the purchaser after completion of 30 days trouble free operation whichever is the earliest. With respect to defects in equipment part, vendor's liability is to make good by replacing the faulty equipment. It is the responsibility of the vendor to replace the faulty equipment within 7 working days. After replacement of the faulty equipment, the purchaser will return parts that are defective to the vendor. The vendor will cover the cost associated with the shipping of defective or failed items during warranty period. The new equipment, parts shall be delivered to the purchaser's facility CIF (Cost, Insurance, and Freight) free of charge. With respect to software, the purchaser will notify the problem to the vendor, including a detailed description of the deficiency and associated condition. Vendor shall guide the purchaser for corrective action. If the same is not resolved, the vendor shall depute his personnel to attend the same within 24 hours from the time of reporting the problem. The system vendor will be fully responsible to resolve any such deficiency reported by the purchaser. With respect to third-party software and consumable parts supplied, the vendor shall make reasonable effort to obtain the best warranties possible from the sub-vendor thereof and assign to the purchaser any such warranties to the extent that such warranties may be assigned to the purchaser. Vendor may consider longer warranties than included in these specifications. Vendor shall extend all warranties /guarantees to the purchaser, provided by sub- vendors, of duration longer than that in this specification.

**22.0 Upgrades and Modifications**

- 1) Vendor shall continuously keep the Purchaser informed of all Software and Hardware upgrades as & when these are released.
- 2) Vendor shall supply upgrades of all installed software (both own and third party) for a period of five years from the date of system acceptance without any commercial implication.
- 3) Vendor shall rectify all design defects and software bugs at no extra cost for a period of 5 years from the date of system acceptance.
- 4) Vendor shall provide lifetime support (15 years) for the system, even if no upgrades are implemented. The system referred to above includes Vendor's own as well as third party components.
- 5) Vendor shall port the supplied software onto upgraded hardware (as per Vendor's standard offerings) without additional Software License Fees.

**23.0 TRAINING**

The vendor shall include in his offer Training for Tata Power engineers. The training shall cover development, integration, installation and commissioning of both software & hardware components of the system. The training shall have two parts

- 1) Training at Vendor's / Collaborator's Works(Before project commence) - 5 man-weeks
- 2) Training at Site - 10 man-weeks

Bidder shall indicate per man-week rates for addition / deletion if any.

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The vendor shall provide Classroom as well as hands-on training on the system. All required training materials such as system catalogs, test instruments, demo equipment, and simulation jigs, etc. shall be provided by the vendor. The training shall equip the Purchaser's engineers for installation, commissioning, operation and post-warranty maintenance of hardware, software (Operating System, Administration and Applications), protocols and all third party systems.

## 24.0 COMPLETENESS OF CONTRACT

The bidder without extra charges, although not specifically mentioned herein, but necessary or useful for similar equipment and their efficient performance shall provide all fittings or accessories. The bid shall clearly indicate if any additional equipment or parts would be necessary to give a complete offer and if so the details and the prices shall be included in the bid.

## 25.0 BCPU:

### 1. Scope:

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at site/store and performance of BCPU relays with complete with all accessories. It is not the intent to specify completely herein all details of the equipments nevertheless the equipment shall be complete and operative in all respects and shall confirm to the highest standard of engineering, design and workmanship of International Standards/IEC.

The Vendor shall be responsible for engineering and functioning of the complete system, meeting the intent and requirement of this specification and data sheets. Bidder should depute project manager at site for monitoring and co-ordinating commissioning activity.

### 2. Glossary

- |          |   |
|----------|---|
| a) BCPU  | :Bay Control Panel Unit                   |
| b) IEC   | :International Standard Organization      |
| c) IS    | :Indian Standards                         |
| d) CT    | :Current Transformer                      |
| e) PT    | :Potential Transformer                    |
| f) CBCT  | :Core Balanced Current Transformer        |
| g) LCD   | :Liquid Crystal Display                   |
| h) LED   | :Light Emitting Diode                     |
| i) SCADA | :supervisory control and data acquisition |
| j) POL   | :Phase Over Load                          |
| k) EF    | :Earth Fault                              |
| l) IDMT  | :Inverse Definite Minimum Time            |
| m) HMI   | :Human Machine Interface                  |
| n) BI    | : Binary Input                            |
| o) BO    | : Binary Output                           |

### 3. Applicable Standards

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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.

- y) IEC 60060 : High-voltage test techniques.
- z) IEC 60255 -3 : Electrical relays - Single input energizing quantity measuring relays with dependent or independent time.
- aa) IEC 60255-27 : Measuring relays and protection equipment-Part-27 Product safety requirement.
- bb) IEC 60265-1 : High voltage switches - Part 1: Switches for rated voltages above 1 kV and less than 52 kV
- cc) IEC 60282-1 : High voltage fuses
- dd) IEC 60529 : Degrees of protection provided by enclosures (IP Code)
- ee) IEC 60694/62271-1 : Common specifications for high voltage switchgear and control gear Standards.
- ff) IEC 60947 : Low voltage switchgear and control gear
- gg) IEC 61010-1 : Safety requirement for electrical equipment for measurement and Laboratory use.
- IEC 255 : Protection Relays

#### 4. Climatic Conditions of the Installation

- l) Max. ambient temperature : 50 deg. C
- m) Max. daily average ambient temp. : 45 deg. C
- n) Min ambient temp. : 10 deg. C
- o) Maximum humidity : 95%
- p) Minimum humidity : 10%
- q) Average no. Of thunderstorm days per annum : 40
- r) Average annual rainfall : 1200 mm
- s) Average no. of rainy days per annum : 120
- t) Rainy months : June to Oct.
- u) Altitude above MSL not exceeding : 60 mtrs.
- v) Wind pressure : 195 Kg/Sq. m up to an elevation of 30 meters as per IS: 875-1975 and as per IEC 694

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

### 5.0 Detail BCPU Function Requirement

- 1) The offered BCPU shall have feeder protective elements having software algorithm based on sampling of energized currents, analog to digital conversion and numerical handling.
- 2) The BCPU shall support over current / Earth fault protection function. (50/51 Ph & N) With definite time or inverse time over current characteristic.
- 3) The inverse characteristics shall as per IEC which should include normal inverse, very inverse, extremely inverse, long inverse curves and shall be soft ware selectable at site.
  - 3a) BCPU should have minimum 2 nos. independent selectable setting groups.
  - 3b) Circuit Breaker failure protection: BCPU should have a feature of circuit breaker failure protection, which generates another trip signal if the breaker fails to trip on fault, which can be wired to upstream breaker trip coil.
- 4) The BCPU shall have minimum 3 PT inputs and 4 CT inputs with ring type lugs termination facility, which can be used as 3 Nos. over current and 1 Earth fault. BCPU shall be suitable for both residually connected CT input as well as CBCT input. BCPU shall have 2 CT inputs separately for NCT in 11, 33 KV INCOMERS
- 5) BCPU shall have configurable binary input, which can be used to develop blocking based scheme and minimum five nos. of freely configurable output contacts. BCPU shall have adequate BIs and BOs required for Local and Remote monitoring and control. BCPU shall be modular & expandable to accommodate the required BIs and BOs for monitoring and Control. Separate contact outputs shall be used for remote control (SCADA open/Close) and Trip functions.
- 6) The Input shall have galvanic isolation. The trip out put contact should be capable of controlling the circuit breaker and shall be programmable for either hand reset or self reset.
- 7) The BCPU enclosure shall be dust tight having degree of protection minimum as IP5X.
- 8) The BCPU must have facility for local settings and control through front keypad from relay itself. Relay should have facility of online relay setting i.e. it should be possible to alter setting without switching off breaker.
- 9) The offered BCPU shall have LCD display for monitoring and control, settings, status, measurement and fault data & indication. It shall also have Fixed function LEDs for fault trip, relay healthy, control supply ON & Relay out of service.
- 10) BCPU shall have comprehensive self-diagnostic feature with indication of relay failure on relay front and alarm should be generated without tripping the feeder. However, while diagnostic algorithm runs, it must not interfere in the main protective relay circuit and allow working of main protective circuit continuously.
- 11) The BCPU shall support FDR (Fault disturbance Recording) for minimum 5 Nos. of latest fault trip records.
- 12) The BCPU shall support metering function (of CL0.2) for Energy (trivector parameters), and panel metering ( Line currents, voltage, PF etc). The Energy Measurements shall be as per 3-wattmeter method.

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Bidder shall mention the accuracy of all analog measurements. Decision of considering Multifunction meter will be based on the accuracy provided by the BCPUs.

- 13) No separate earth bus shall be required for the BCPUs. It shall be possible to connect the relay earth to the common earth bus in the substation.
- 14) The offered relay must be immune to any kind of electromagnetic interference. Vendor to submit all related type test reports for the offered model along with the offer.
- 15) The relay should conform to the requirements of IS:3231 / IEC60255 standards with respect to features/ construction/design etc.
- 16) The relay shall have built in communication facility for hooking the relay on MMI / upstream communication system. Manufacturer of relays having their own Substation Automation System shall be preferred. So that they shall be possible to provide a system solution also if required in future.
- 17) BCPUs software should be supplied along with relays for viewing and downloading measurement, fault records and to carry out easy settings of relays locally.
- 18) BCPUs shall be suitable for flush mounting type and consisting of multifunctional draw out type modules.
- 19) BCPUs should have direct connectivity to the Copper ground bus of the switchgear installation.
- 20) BCPUs relay PCB's and other electronic devices should be CONFORMAL coated.
- 21) BCPUs should have minimum of 16 Binary Inputs and 10 Binary Output Channels for Substation and other Aux. Signals.
- 22) The BCPUs Differential relay shall have biased current differential numerical protection with REF, and Directional O/C & E/F protection. It should include the following features:
  - 1) Vector group compensation.  
CT ratio correction.  
Biased differential protection.  
High-set. Element of suitable setting range  
2nd and 5th Harmonic restrains.
  - 2) Transformer trouble alarm/ Trip e.g. Buchholz / PRD / Winding Temp / Oil Temp etc. shall be taken as binary inputs in the differential BCPUs as a common input indicating "Transformer trouble". However, auxiliary Flag relays shall be provided independently for Transformer trouble and trip along with the panel.

6.0 Tata Power Approved Relays

Application	Make-1 Siemens	Make-2 ABB	Make-3 Schneider	Make-4 Areva
Transformer Differential Relay	7UT61	RET620	-----	MICOM P642

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Feeder protection Relay	7SJ66 , 7SJ63	REF615/REF620	-----	-----
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7.0 *Communication softwares of BCPU*

Relay	Make	Software
VAMP255	Schneider	VAMPSET 2.2.177
REF615	ABB	PCM 600 2.7
		PCM600 2.6
REF620	ABB	PCM 600 2.6
REF630	ABB	PCM 600 2.5
		PCM 600 2.6
7SJ63	Siemens	P-Set 04.67.01
7SJ66	Siemens	Digsi 4.92
7UT61	Siemens	Digsi 4.92

Note: 1. All higher version software should be capable of communicating with old version relay or support should be provided in terms of providing appropriate software/Firmware .

2. For Siemens and ABB relays - New relays to install in panels with old version relays. In such case, separate configuration file would be required as per the existing scheme. ABB/Siemens to provide few configuration files as per the schemes commissioned (respective DSS existing scheme configuration files to be shared with OEM)
3. For Siemens relay the vendor should supply Digsi software installed laptops as single laptop does not support multiple Digsi version

8.0 *Tests*

All routine/acceptance tests shall be witnessed by the Purchaser/ his authorized representative. All the components should also be type tested as per the relevant standards. All meters and metering elements in BCU shall also be routine and type tested as per the relevant standards and shall further be tested at site by the successful bidder. For Type test of Numerical relays, control BCPU's relevant IS has to be followed. Following tests shall be necessarily conducted specified in IS/IEC.

**Bidder shall also be responsible for conducting point to point testing of all gateway configurations on the site (SAT) after the installation**

1. Dielectric Withstand Test: IEC60255-5
2. High Voltage Impulse Test, class III: IEC 60255-5  
(5 kV peak; 1.2/50 us; 0.5 J; 3 positive and 3 negative shots at interval of 5 sec.)
3. DC Supply Interruption: IEC 60255-11
4. AC Ripple on DC Supply: IEC 60255-11
5. Voltage Dips and Short Interruptions: IEC 61000-4-11

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- 6. High Frequency Disturbance: IEC 60255-22-1, class III
- 7. Fast Transient Disturbance: IEC 60255-22-4, class IV
- 8. Surge Withstand Capability: IEEE / ANSI C 37.90.1 (1989)

9.0 General Technical Parameters of BCPU

S N.	Description	Specification
1.0	Approved vendors	SIEMENS/ABB/ALSTOM/SCHNEIDER
1.1	System Frequency	50 Hz
1.2	Rated current	5A
1.3	Auxiliary Voltage	24V DC +/- 20%
1.4	Timing Accuracy	10 μs or better
1.5	Sampling Rate	Disturbance events should be recorded up to 2 seconds at 8 kHz sampling rate and 5 seconds at 1 kHz sampling rate.
1.6	Sequential Events & Recorder Memory	Latest 1000 entries should be stored
1.7	Environment	Shall be suitable for continuous operation over a temperature range of 10°C to 50°C in accordance with IEC 60255-6.. <b>The relays internal PCB board should coated with conformal coating.</b>
1.8	Ingress Protection	IP-54
1.9	Protection functions for BCPU	<p>POL &amp; EF with Hiset1,Hiset2, IDMT Breaker failure Trip circuit supervision Synchro check / energizing check, Negative Sequence Current, VT supervision relay and Trip circuit supervision relay, Integrated CB failu.re protection, Configurable LEDs shall also be provided to indicate the BCPU operation and the alarm/status change of a bay equipment e.g. Phase Fault operated/ Earth Fault operated/ CB Open/ CB Close/ Spring charged etc., Auto Reclose (79) Protection, synch-check facility.</p> <p>Configuration of all input and output logical signals and binary inputs, Analog Inputs and relay outputs for all built-in functions and signals shall be possible both locally and remotely. BCPU must have broken conductor and fault locator facility</p>

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		Electrically reset type high speed, heavy duty relay (master trip 86) shall be used for tripping on operation of BCPU. Tripi coil hall be provided with independent potential free conta.cts from different fused DC supplies. The trip relay shall be supervised. Trip relay should be such that on resetting its flag should be automatically reset.
1.10	Protection functions for BCPU	Transformer protection, Differential protection
1.11	Software tools	<p>A user-friendly engineering and disturbance handling tool shall be available.</p> <p>It shall be possible to retrieve/download the disturbance records and parameterization of all BCPUs through Gateway/Master.</p> <p>It shall be possible to access the BCPU remotely from theMaster Station for configuration / maintenance activity. The bay control shall have multilevel passwords to safeguard bay control, logic, and automation settings.</p> <p>User friendly on-line monitoring facility of real time data shall be provided to maintenance engineer for monitoring/analyzing the real time status of the process, program logic from the engineering station (Configuration tool – Laptop).</p> <p>BCPU should support all BO's as per attached IO list. BCPU should possess minimum 16 No BI's and 8 No BO's</p>
1.12	Breaker Health Monitoring	BCPU should support Breaker Health monitoring feature like opening time, closing time, $\bar{I}^2t$ , etc.
1.13	Group Setting	BCPU should support Group setting change control from remote as well as local.

## 1. HMI (Front Display):

- 1.1. The intuitive user interface and the various communication interfaces allow easy control and monitoring of the switchgear units, simple and comprehensive setting as well as access to readings of extensive recordings.
- 1.2. It shall be possible to equip the BCPU with a large HMI for local control, visualization of single line diagrams with analog, alarms and overview of service status (Breakers and Isolators).
- 1.3. The graphical display shall be easily configured by means of symbol library.
- 1.4. The HMI shall include LEDs for status indication and at least 15 configurable LEDs for alarm indication.
- 1.5. The front display shall be able to work in harsh environment, and temperature up to 70°C.



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1.6. Vendor to deliver the HMI display, which shall not blacken out after in use of the BCU life time.

**2. Communication Ports:**

- 2.1. A galvanic isolated front port shall be available for connection of a personal computer for configuration.
- 2.2. At least 2 No. Fiber optic port IN and OUT, for fault tolerant fiber-optic ring ,RJ-45 port for making star connection at switch.
- 2.3. 2 Nos. IP ports are required and each port would have capability of communicating minimum 8 no. of SCADA masters simultaneously.

**3. Protocols:**

- 3.1. IEC 61850-8-1, communication protocol shall be available. The BCPU shall meet the IEC 61850 standard in every respect. Interoperability and interchangeability and with other manufacture’s BCPU and tools will be preferred.
- 3.2. Data exchange is to be realized using IEC 61850 protocol with a redundant managed switched Ethernet communication infrastructure.
- 3.3. All the BCPUs must be fully IEC 61850 compliant and must have the following features.
  - Have peer-to-peer communication using GOOSE messages (IEC 61850) for interlocking/ protection schemes.
  - Should be interoperable with third party IEC 61850 compliant devices
  - Should generate XML file for integration/engineering with vendor independent SCADA systems.
  - Should be directly connected to the fiber optic ring and communicating on IEC 61850 without the use of any gateways.
- 3.4. IEC61850 GOOSE messaging shall be used to transmit BI’s data quickly on the fiber optic LAN to reflex automation/protection schemes.
- 3.5. IEC 61850 support - Interoperability table shall be provided

**4. Communication Architecture:**

- 4.1. The BCPUs shall be connected on Fiber Optic 10/100 Mbps network with ring topology and communicate with each other as well as Gateway using IEC61850 with GOOSE message.
- 4.2. The communication shall be made in fiber optic fault tolerant ring, excluding the links between EM to individual bay BCPUs to switch wherein the redundant connections are not envisaged, such that failure of one set of fiber shall not affect the normal operation of the switchgear.
- 4.3 However failure of fiber shall be alarmed on Purchaser’s SCADA System. Each fiber optic cable shall have minimum two (2) spare fibers.
- 4.4 BCPU's should have front RJ45, serial usb or DB-9(RS 232) port for front or direct communication with laptop. In case of DB-9 port vendor has to provide RS232 to USB converter with BCPU's.

**5. Algorithm and Logic:**

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- 5.1. The BCPU shall be based on advanced and proven algorithms and an easy and efficient upgrade of the BCPU functionality shall be possible.
- 5.2. The application software within the control/protection devices shall be programmed in a functional block language.
- 5.3. The BCPU shall be provided with programmable logic for tripping and indications as well as a sufficient number of logic blocks and timers for user adaptation.
- 5.4. Command is always to be given in two stages: selection of the object and command for operation under all mode of operation except emergency operation. Final execution shall take place only when selection and command are actuated (Select-before-execute).
- 5.5. It shall also be possible to interconnect and derive input and output signals, logic functions, using built-In functions, complex voltage and currents, additional logics (AND-gates, OR gates and timers). (Multi- activation of these additional functions should be possible).
- 5.6. A delay/integrator shall allow the pick-up and reset of binary signals to be delayed before being displayed or used to control other functions.
- 5.7. Refer below matrix for controlling of the switchgear.

PANEL	BCPU	SCADA OPEN	SCADA CLOSE	BCPU OPEN	BCPU CLOSE	TNC OPEN	TNC CLOSE
REMOTE	REMOTE	Y	Y	N	N	N	N
REMOTE	LOCAL	N	N	Y	Y	N	N
LOCAL	REMOTE	N	N	N	N	Y	Y
LOCAL	LOCAL	N	N	N	N	Y	Y

## 6. Self Supervision:

- 6.1. The BCPU shall have extensive self-supervision including analog channels.
- 6.2. Each BCPU shall be independent from each other and its functioning shall not be affected by any fault occurring in any of the other bay control units of the station.
- 6.3 Command execution timer (configurable) must be available for each control level point. If the control action is not completed within a specific BCPU time, the command should get cancelled (Run Time Command cancellation). In case of restoration of communication links, power supply after failure, the Software along with hardware shall be capable of automatically synchronizing with the remaining system without any manual intervention.

## 7. Disturbance & Event Recording:

- 7.1. The protection system shall include an inbuilt disturbance recorder function in each bay unit, which shall record

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- 10 analog parameters including bay phase currents, voltages
- Minimum of 20 binary signals.
- Last 5 disturbances.

The sampling frequency of this disturbance recorder function shall be selectable from 2400 Hz, 1200 Hz or 600 Hz at 50 Hz. The recording period shall be at least 1.5 s at 2400 Hz. Minimum 10 trigger signals shall be available.

- 7.2. The disturbance recorder buffer memory shall be of non-volatile type and shall not require the use of batteries.
- 7.3. It should be possible to record the sum of selected analog currents. Summation of currents to be confirmed on BCPU.
- 7.4. An event recorder that can handle up to 1000 time tagged events per disturbance and that can record the last 5 disturbances shall also be included. The event recorder buffer memory shall be of non-volatile type and shall not require the use of batteries.
- 7.5. It shall be possible to retrieve the disturbance and event recorder information based on Comtrade format from a remote location shall be made available upto the gateway for further processing by Master.
- 7.6. All recorded disturbance data from BCPU shall be automatically uploaded (event triggered or once per day) to a Purchaser's SCADA Systems.
- 7.7. Automatic back up retrieval of relay database from remote should be possible.

**8. Control and Monitoring:**

- 8.1. The system shall incorporate the control, monitoring and protection functions specified, self-monitoring, signaling and testing facilities, measuring as well as memory functions, event recording and evaluation of disturbance records.
- 8.2. The BCPUs shall accept direct CT / PT inputs and provide the following minimum analog Parameters at 0.2 class accuracy,
- Phase & Neutral Currents
  - Phase Voltages
  - Active & Reactive Power
  - Active & Reactive Energy (Import & Export)
  - Power Factor
  - Frequency
  - Demand
- 8.3. Raise and lower operation of OLTC taps of transformer, Control of protection relay systems in or out of service shall be available through BCPU
- 8.4. The operation shall depend on the conditions of other functions, such as interlocking, synchrocheck (if any), etc.
- 8.5. The analog values acquired/calculated in bay control/protection/Energy meter unit shall also be displayed locally on the BCPU HMI and in the SCADA Systems. The abnormal values must be discarded if BCPU's are used for analog measurements. The analog values shall be updated every 1 second.

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- 8.6. Level of Operation with control rights along with sequence of operation to be clearly mentioned (Password Protection).
- 8.7. The commands are always to be executed in two stages: selection of the object and command for operation under all mode of operation except emergency operation. Final execution shall take place only when selection and command are actuated.
- 8.8. Command execution timer (user configurable) must be available for each Binary output. If the control action is not completed within a specified time, the command should get cancelled.

**9. Power Supply:**

- 9.1. Power supply modules from 48 to 250 V DC +/- 20 % shall be available
- 9.2. A redundant power supply module shall be available for the Gateway unit.

**10. Time Synchronization:**

- 10.1. Time synchronization will be effected through gateway.
- 10.2. Time synchronization interface: The unit shall be capable to synchronize the internal RTC via communication ports on IEEE 1588,.
- 10.3. Timing Accuracy: The bay control shall time-tag event reports to an absolute accuracy of 10 µs or better Bay controls at different system locations shall have the same absolute minimum timing accuracy.
- 10.4. BCPUs shall be capable to get synchronized from main as well as redundant gateway.

**11. BCPUs parameter setting:**

- 11.1. It shall be possible to access all protection and control (logic) BCPUs for reading the parameters (settings) from the Purchaser's SCADA System or from a Central remote monitoring computer. The setting of parameters or the activation of parameter sets shall only be allowed after entering a password.
- 11.2. Level Wise enabling of settings with User Rights should be incorporated as per the Password protection.

**12. Test Function:**

- 12.1. Vendor to provide the detailed test procedure for testing the BCPUs functionalities using IEC61850, GOOSE messaging and protection scheme implemented/proposed. Vendor to ensure availability of the required hardware and software to test the above at the time of FAT and SAT.
- 12.2. The protection system shall support a test mode where it shall be possible to set or reset binary input signals, signaling and tripping contacts individually or in groups.
- 12.3. All output relay contacts can be blocked via a setting and configuration program. Using the test function, it shall be possible to set or reset signaling and tripping contacts individually.
- 12.4. A test sequencer for the local bay protection functions shall be part of the user interface program. Virtual current, voltage and binary signals shall be programmable in a minimum of six different sequences to verify the correct operation of the respective functions and settings in the respective bay unit.

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12.5. Vendor shall provide predefined saved cases for test sequence, during commissioning and for routine maintenance.

12.6. Bidder should follow Standard BCPUIO wiring practice and Standard Alarm indication list. The same will be shared and finalized during detail engineering.

*10.0 Warranty*

Vendor shall warrant that the equipment including software, hardware, firmware and associated documentation are free of defects in material and workmanship and from defects or faults in design, in so far as the equipment fails to meet the requirements of this technical specification, for a period of **60 months** from the date of supply **and 48 months** from final acceptance by the purchaser after completion of 30 days troublefree operation whichever is the earliest. With respect to defects in equipment part, vendor’s liability is to make good by replacing the faulty equipment. It is the responsibility of the vendor to replace the faulty equipment within 7 working days. After replacement of the faulty equipment, the purchaser will return parts that are defective to the vendor. The vendor will cover the cost associated with the shipping of defective or failed items during warranty period. The new equipment, parts shall be delivered to the purchaser’s facility CIF (Cost, Insurance, and Freight) free of charge. With respect to software, the purchaser will notify the problem to the vendor, including a detailed description of the deficiency and associated condition. Vendor shall guide the purchaser for corrective action. If the same is not resolved, the vendor shall depute his personnel to attend the same within 24 hours from the time of reporting the problem. The system vendor will be fully responsible to resolve any such deficiency reported by the purchaser.

With respect to third-party software and consumable parts supplied, the vendor shall make reasonable effort to obtain the best warranties possible from the sub-vendor thereof and assign to the purchaser any such warranties to the extent that such warranties may be assigned to the purchaser. Vendor may consider longer warranties than included in these specifications. Vendor shall extend all warranties /guarantees to the purchaser, provided by sub-vendors, of duration longer than that in this specification.

*11.0 Upgrades and Modifications*

- 6) Vendor shall continuously keep the Purchaser informed of all Software and Hardware upgrades as & when these are released.
- 7) Vendor shall supply upgrades of all installed software (both own and third party) for a period of five years from the date of system acceptance without any commercial implication.
- 8) Vendor shall rectify all design defects and software bugs at no extra cost for a period of 5 years from the date of system acceptance.
- 9) Vendor shall provide lifetime support (15 years) for the system, even if no upgrades are implemented. The system referred to above includes Vendor’s own as well as third party components.
- 10) Vendor shall port the supplied software onto upgraded hardware (as per Vendor’s standard offerings) without additional Software License Fees.

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12.0 Training

The vendor shall include in his offer Training for Tata Power engineers. The training shall cover development, integration, installation and commissioning of both software & hardware components of the system. The training shall have two parts

- 3) Training at Vendor's / Collaborator's Works(Before project commence) -5 man-weeks
- 4) Training at Site -5 man-weeks

Bidder shall indicate per man-week rates for addition / deletion if any.

The vendor shall provide Classroom as well as hands-on training on the system. All required training materials such as system catalogs, test instruments, demo equipment, and simulation jigs, etc. shall be provided by the vendor. The training shall equip the Purchaser's engineers for installation, commissioning, operation and post-warranty maintenance of hardware, software (Operating System, Administration and Applications), protocols and all third party systems.

27.0 Gateway (Data Concentrator)

**1. General Requirements:**

- 1.1. The gateway shall be of the same family of BCU and BCPUs, an industrial grade system with high availability and reliability.
- 1.2. The gateway shall support simultaneous communications with minimum 04 Nos. independent remote master stations. Gateway to the Purchaser's SCADA Systems shall allow scanning and control of all defined points (Physical/Pseudo points) within the substation independently to each of the SCADA systems. The proposed system shall simultaneously respond to independent scans and commands from Purchaser's SCADA Systems. The system shall support use of a different communication data exchange rate (bits per second), scanning cycle, and/or communication protocol for each remote control centre. Also, each control centre's data scan and control commands may be different for different data points within the proposed system's database. Gateway shall have continuous self-supervision function with self-diagnostic feature.
- 1.3. The gateway CPU shall be redundant in hot standby mode with auto changeover. Vendor shall provide CPU, Power Supply and Communication redundancy in the same gateway rack. Purchaser's SCADA system is not having provision for configuration of multiple IP's for one station.
- 1.4. Separate communication modules shall be used for communicating to slave IEDs and to Purchaser's FEP/Master Systems.
- 1.5. It shall be capable to perform all functions for entire switchgear including future requirements. It shall use industrial grade components. Processor and RAM shall be selected in such a manner that during normal operation not more than 30% capacity of processing and memory are used. Vendor shall demonstrate these features.
- 1.6. Vendor should clearly inform to the purchaser about the no of IED supported by RTU and the same to be demonstrated at the time of FAT.

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- 1.7. Gateway shall be preferably installed in a separate pre-wired panel. Vendor can accommodate communication equipment (e.g. switch etc) in this panel.
- 1.8. Gateway for remote control via industrial grade hardware (to DAS and future ADMS) shall be through IEC 60870-5-104 protocol. It shall be the bidder's responsibility to integrate his offered system with Purchaser's existing DAS and Future ADMS system for exchange of desired data.
- 1.9. It shall be possible to configure the protection system to include, in the protection scheme, future bays as and when they are added. In such cases, the system shall be easily extendable by adding bay units for the new bays and activating the same in the protection system. Such extension work shall not require any other wiring changes to the existing system.

**2. Communication Ports:**

- 2.1. The Gateway shall have following communication ports:
  - a) 2 nos. IN & OUT Fiber optic ports for fault tolerant network communicating with IEDs using IEC 61850 protocols.
  - b) 4 nos. RS 232/485 configurable electrical Ports for communicating with energy meters and battery charger on MODBUS protocol.
  - c) 2 nos. Independent IP ports for communicating with DAS and Future ADMS system using IEC-104 protocol.

**3. Protocols:**

- 3.1. The communication protocol for gateway to control centre must be IEC 60870-5-104.
- 3.2. IEC 61850-8-1 and IEC 60870-5-103, IEC60870-5-101, MODBUS (RTU), DNP3.0 (Serial & IP) communication protocol shall also be available.

**4. Networking equipment & accessories (Communication system)**

- 4.1. The proposed BCPUs shall communicate with redundant Master Control Room and Backup Control Room simultaneously; through a suitable Gateway over Fiber Optic IP Network at 100/1000 Mbps using IEC 60870-5-104 Protocol (as per availability of Fiber Point of presence), or on a CDMA wireless network. However, all communications equipment including but not limited to Gateways, Switches, Cables, Fiber Optic Cables, Fiber Optic Transmitters (FOTs) as necessary, Patch Cords, Connectors, Termination Boxes, Racks for mounting of communications equipment etc. as required at respective locations for connecting the vendor supplied equipment shall be the responsibility of the vendor. All switches & FOTs shall be of industrial grade. LAN cabling shall be structured.
- 4.2. Vendor should supply 2 nos. CDMA wireless modems with each gateway panel to establish the communication between gateway and Master. Purchaser will take care of SIM required to establish the connectivity.
- 4.3. The communication scheme from Gateway to Master shall be redundant with Auto-transfer to standby equipment when the corresponding main component fails. Each BCU/BCPUs shall have redundant IP Ports with independent addresses.
- 4.4. All communication devices, necessary cables, other interface modules and installation and commissioning shall be in the scope of Supplier/Vendor.
- 4.5. Vendor shall ensure that L3 Switches shall have minimum 2 optical port, single mode type maximum driving distance 50 KM.
- 4.6. Vendor shall ensure that L3 switches and other communication equipments used to establish the communication with proposed BCPUs/Gateways shall be of industrial grade IEC-61850 compliant and certified by renowned certification body. The use of switched Ethernet with priority tagging is required since this will meet the performance requirements of specific functions within the Sub-Station Automation system.

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- 4.7. Vendor shall consider minimum 20% spare ports for the L3 switch to take care of the failure of the port. Vendor shall consider configuration of RTCC (remote tap changer controller), battery charger, fire alarms, ACDB energy meter configuration in the scope of the project. And ensure availability of the hardware required for the same.
- 4.8. Communication panels for mounting switches and other networking accessories shall be supplied by bidder for each of the different locations within the same station.
- 4.9. For all communication equipments bidder shall take Tata Power's approval before finalizing the offer.

Equipment	Make
L3 Switches	Ruggedcom/ Garretcom / Hirschmann
UTP Patch Cords	Systemax / Tyco
Fiber Optic Patch Cords	Systemax / Tyco
Firewall and Router	Juniper / Cisco
Armored Fiber Optic Cables	Finolex / KEC
Armoured CAT6 cables	Inside UTP shall be systemax
FOTEs	Moxa / Garretcom / Hirschmann

## 5. System Performance

- 5.1. System Performance Standards The system shall meet performance standards required to maintain real-time monitoring and control of the network.
- 5.2. System Response
- The system shall meet the following response and resource utilization requirements: The system functions and associated databases shall be capable of accommodating at least a 50% increase in the delivered capacity without requiring regeneration, recompilation, or any processing other than definition of the database by Tata Power.
  - All Digital Inputs shall be reported with a resolution of 10  $\mu$ s.
  - The system shall report correct Time Stamping when all process inputs scanning and processing is in progress and all the data is transmitted over a Main Data Bus every sec.
  - The worst loading condition shall include the following tasks:
    - All processor inputs scanning and processing is in progress and all the data is transmitted over the main data bus every sec.
    - All controls in operation.
    - Control / information request is initiated from all CRTs

S.N.	Alarm Description as on SCADA	Alarm State	Normal State	Type of info
<b>11kV Incomer</b>				
1	Panel master L/R switch	Local	Remote	DPI
2	Breaker position indication	Opened	Closed	DPI
3	BKR Test/service position	Test	Service	DPI
4	Relay group setting status	Group B	Group A	DPI



5	BCPU Logic-L/R	INACTIVE	ACTIVE	DPI
6	Breaker Control	opened	Closed	DCO
7	Relay group setting change command	Group B	Group A	SCO
8	Relay Alarm/LED reset command	Reset	Acknowledge	SCO
9	Bkr Trip circuit supervision	Faulty	Healthy	SPI
10	Bkr spring charge	Discharge	Charge	SPI
11	Relay local Alarm/LED Status	Active	Reset	SPI
12	Master trip 86	OPERATED	RESET	SPI
13	A phase start	Operated	Reset	SPI
14	B phase start	Operated	Reset	SPI
15	C phase start	Operated	Reset	SPI
16	Earth fault start	Operated	Reset	SPI
17	51 POL	Operated	Reset	SPI
18	50 POL	Operated	Reset	SPI
19	51 Earth fault	Operated	Reset	SPI
20	50 Earth fault	Operated	Reset	SPI
21	Breaker closing time	High	Normal	SPI
22	Breaker opening time	High	Normal	SPI
23	Breaker Contact Wear	Abnormal	Normal	SPI
24	Relay communication status	Faulty	Healthy	SPI
25	Cable	Dead	Charge	SPI
26	TNC close	Operated	Reset	SPI
27	TNC open	Operated	Reset	SPI
28	Fault Current A Phase			MFI
29	Fault Current B Phase			MFI
30	Fault Current C Phase			MFI
31	Fault Current N Phase			MFI
	<b>ANALOG</b>			
1	<b>Point discription</b>	<b>Protocol</b>	<b>Mod add</b>	<b>Register</b>
2	R Phase Current	Modbus		AMI
3	Y Phase Current	Modbus		AMI
4	B Phase Current	Modbus		AMI
5	RY Phase Voltage	Modbus		AMI
6	YB Phase Voltage	Modbus		AMI
7	BR Phase Voltage	Modbus		AMI
8	3- Phase Real power	Modbus		AMI
9	3- Phase Reactive power	Modbus		AMI
10	3- Phase apparent power	Modbus		AMI
11	Frequency	Modbus		AMI
12	Power factor	Modbus		AMI
13	R phase current THD(total harmonic distortion)	Modbus		AMI
14	Y phase current THD(total harmonic distortion)	Modbus		AMI

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15	B phase current THD(total harmonic distortion)	Modbus		AMI
	<b>Accumulator or Energy</b>	Protocol		
1	Total Active Energy Import	Modbus		ITI
2	Total Reactive Energy Import	Modbus		ITI
3	Total Active Energy Export	Modbus		ITI
4	Total Reactive Energy Export	Modbus		ITI

The above IO list are to be referred as standard. Bidder should note there may be addition or deletion in IO list depending upon site requirement. Same will be finalised in detail Engineering.

#### Annexure A:

Sr. No.	Code	Item Description	Quantity
1	3000051691	33kV AIS SWGR [2I/C,2O/G,1B/C]	1
2	2000089109	11kV AIS SWGR	1
3	3000051774	Pre wired RTU	1
4	3000051771	CDMA converter for IEC104 Protocol 2nos Mounted in Panel & 2Nos at the Control Centre End	2
5	3000051769	LAYER-2 SWITCH, 19" Rack mountable. With (8RJ45, 4MM FO With SC Connectors)	2
6	3000051770	LAYER-3 SWITCH,ROUTER/FIREWALL 19" Rack mountable. With (12RJ45 + 2SM FO With SC Connectors, 1T1/E1/Ethernet )	1
7	3000051751	FO patchcable, multimode,SC-SC connectors, Length 1mtrs	1
8	3000051758	STP Lan Cable,Cat5e For IEC104 Connectivity, 5mtrs with RJ45-RJ45 ports	2
9	3000051759	STP Lan Cable,Cat5e For DC network, 3mtrs with RJ45-RJ45 ports	8
10	3000048071	2 Pair (4 Core ) Shielded Twisted Pair Armoured Cable for Meter Looping (RS485)	300m
11	3000051768	RS 900NC DIN RAIL MOUNTABLE SWITCHES LAYER-2 Network Switch With 6RJ45 & 3 FO Port With SC Connector	5
12	3000051757	Fibre Optic patch cable Multimode , SC-SC connector, Length=50Mtrs	3
13	3000051756	Fibre Optic patch cable Multimode , SC-SC connector, Length=30Mtrs	3
14	3000051755	Fibre Optic patch cable Multimode , SC-SC connector, Length=20Mtrs	2
15	2000130853	CABLE CAT-6 UTP 4 PR SYSTIMAX:700211931	250m
16	3000049344	STP Connectors For Relay Communication	60
17	3000051762	Earthing cable	10m
18	3000046743	Conduit	300m
19	3000051775	12 Port LIU	3

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20	3000051752	FO PATCH CORD (5m) MM, SC-SC connector	3
21	3000051750	FO PATCH CORD (5m), MM LC-LC connector	20
22	3000051746	FO PATCH CORD (10m), MM SC-LC connector	2
23	3000051734	MM FO CABLE (ARMOURED)	300m

### Specs Evolution Tracking.

**(Note: for internal circulation only, this part is not to be shared with Vendors)**

1) R6 Version (Aug 2016) of this Specification covers following points:

Sr No	Ref. item	Original point	Changed / Additional point	Reasons for the change /Addition
1	5.8		PQM Meter	Standardization purpose
2	Annexure A		SCADA BOM	Standardization purpose

2) R7 Version (Nov 2016) of this Specifications covers following points:

Sr No	Ref. item	Original point	Changed / Additional point	Reasons for the change /Addition
1	NA		incorporation of water mark of Tata Power	Standardization purpose
2	NA		Standard QAP of Tata Power added	Standardization purpose
3	Annexure B		Tata Power Approved Relays	Standardization purpose

3) R8 Version (Aug 2018) of this Specifications covers following points:

Sr No	Ref. item	Original point	Changed / Additional point	Reasons for the change /Addition
1	NA		incorporation of water mark of Tata Power	Standardization purpose
2	NA		Standard QAP of Tata Power added	Standardization purpose
3	Annexure B		Communication softwaresof relays BCPU	Standardization purpose

## Spécification of 33 and 11KV Outdoor Circuit Breaker

### 1. SCOPE

This specification covers design, manufacturing, testing at manufactures works, supply of 33KV and 11 KV outdoor Vacuum Circuit Breakers complete with all accessories required for their satisfactory operation for the sub-transmission system in TPCODL. The Breakers shall be used for Transformer or Feeder Control, in sub-transmission system.

### 2. CLIMATIC CONDITIONS

The service conditions shall be as follows:

1. Maximum altitude above sea level 1,000m
2. Maximum ambient air temperature 50°C
3. Maximum daily average ambient air temperature 35°C
4. Minimum ambient air temperature 0°C
5. Maximum relative humidity 95%
6. Average number of thunderstorm days per annum (isokeraunic level) 70
7. Average number of rainy days per annum 120
8. Average annual rainfall 150cm
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)
- 13 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr Environmentally, some of the regions, where the work will take place includes 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.

### 3. TYPE AND RATING

The circuit breakers shall be suitable for outdoor operation under the climatic conditions, as specified in Tender specification, without any protection from sun and rain.

The circuit breakers shall have the following rating:-

S. No.	PARTICULARS	33 KV	11 KV
1	Number of Poles	3 Nos.	
2	Frequency	50 Cycles/ sec	
3	Nominal System Voltage	33 KV	11 KV
4	Highest System Voltage	36 KV	12 KV
5	Interrupting Capacity at nominal system voltage	1500 MVA	500 MVA
6	Rated Continuous Current	1250 Amps	1250 Amps
7	Short time Current Rating for 3 Seconds	26.3 KA	26.3 KA
8	Basic Insulation Level	170 KV	75 KV
9	Power Frequency Withstand Voltage for one Minute	70 KV	28 KV
10	Total Break-time for any Current up to the rated breaking current	5 cycles (max.)	
11	Control Circuit Voltage	24 Volt D.C.??????????????	
12	Operating duty for gang operation	O – 0.3 Sec – CO – 3 Min – CO	

13	The VCBs shall be suitable for one reclosing followed by one delayed reclosing and lock out		
Minimum clearances			
a)	Between Phases	505mm	150mm
b)	Between Live Parts & Ground	2750 mm	1400 mm
c)	Phase to earth	305 mm	120mm
d)	Minimum ground clearance from live part	3700mm	2800mm
e)	Creepage Distance(minimum)	900 mm	350 mm
f)	Mechanical endurance	M2	M2
g)	Electrical endurance	E2	E2
h)	Restriking class	C2	C2
i)	class	S2	S2
j)	First pole to clear factor	1.5-terminal fault same for 11KV	
k)		1-short line fault	NA
l)		2.5-out of phase fault	NA
m)	Maximum break time	3 cycles	
n)	Maximum closing time	4 cycles	
o)	Auxiliary supply for spring charging motor, illumination, and heater circuit	230 V AC	
p)	Range of satisfactory operation of trip circuits (two trip coils)	70% to 110% of rated voltage	
q)	Range of satisfactory operation of closing and other circuits	85% to 110% of rated voltage	
r)	Transient recovery voltages	As per IEC 62271-100	
s)	Number of auxiliary contacts	10NO+10NC	
t)	Material of main contact	Copper chromium silver plated	

The above are our minimum requirements. The manufacturers may offer their standard design, keeping in view the minimum requirements.

#### 4. STANDARDS

The circuit breakers shall comply with the requirements of IEC 56 or IS 13118 (1991), 12063(1987), IS 2099(1986), IS 2629(1985), IS 2633(1986), IS 4759(1996), IEC 62271-1, 100, BS 729(1971) with latest amendment thereof, except wherein specified otherwise. Equipment, meeting any other authoritative standard, which ensures equal or better quality than the standard mentioned above, would also be acceptable. The bidders shall clearly indicate the applicable standards to which their equipment complies-with. A copy of such standard may also be enclosed.

#### 5. GENERAL

The circuit breaker shall be of porcelain clad vacuum type. The breaker, complete in all respect, shall be supplied with all accessories in-place and all internal wiring installed and terminated in the mechanism housing and the equipment shall be complete in all respects and ready for use.

The circuit breakers shall provide rapid and smooth interruption of current under all conditions, completely suppressing all undesirable phenomena, even under the most severe and persistent short-

circuit conditions or when interrupting small currents or leading/ lagging reactive currents. The details of any device incorporated to limit or control the rate of rise of re-striking voltage across the circuit breaker contacts shall be stated. The over voltage caused by the circuit breaker switching on inductive or capacitive load shall not exceed 3.2 times the normal phase to neutral voltage. The total break-time for the circuit breaker, throughout the range of breaker operating duty, shall be stated in the tender and shall be guaranteed. The breaker shall be fit for capacitor switching for 5 MVAR Bank.

The breakers shall be provided with trip free mechanism.

The circuit breakers shall be suitable for mounting on Galvanized iron structures. The cost of necessary frames for mounting the circuit breakers shall be included in the offered prices. Strongly supported bracket or frame, for mounting of 3 numbers 33KV / 11KV CTs, shall also be provided. All the structures shall be hot dip galvanized with 3 dips. Please note that cantilever type supports for mechanism box are not acceptable. The mechanism box shall have firm supports from bottom. This is necessary to minimize vibration of mechanism box, which in turn may disturb various settings. The manufacturer shall clearly indicate the vibration level of the breaker during fault / normal ON OFF operations in all three directions.

The owner intends to operate 33KV and 11KV feeders with automatic reclosing scheme, the arrangement envisaged is as under:-

On the occurrence of a fault the concerned protective relay will open the circuit breaker as per its own characteristic. Thereafter, the breakers shall re-close but after pre-set time delay, which shall be adjustable (say range 4 – 10 sec. or near about). There shall be no further automatic reclosing.

#### **6. SPECIFICATION FOR CIRCUIT BREAKERS**

The circuit breakers shall consist of three identical phase units with a common operating mechanism. While offering the circuit breaker, the following details should be confirmed and furnished with the tender:-

1. Complete construction details of the equipment offered. It should be noted that the breakers should be suitable for out-door duty.
2. Type, make and source of vacuum bottles with relevant details shall be indicated in the offer, clearly.
3. Mechanical endurance class.
4. The capacity of breaker to interrupt inductive and capacitive currents shall be indicated in the offer (rating of capacitor bank should be stated and type test report shall be furnished).
5. Spare availability of vacuum interrupter should be confirmed by the bidder for the designed expected life of the breakers.
6. Bidder to indicate the vibration level of the breaker during fault / normal ON-OFF operations in all three directions.
7. Spring charging motor shall be universal type with overload protection relay and suitable annunciation for the same
8. Each mechanism shall be so designed as to enable a continuous sequence of circuit breaker operations to be obtained by the control switch as long as power is available to the motor. The circuit breaker shall have mechanical spring charging provision also.
9. Anti-pumping feature shall be provided.

10. Provision shall be made for operating breaker from both local and remote location by “local/ remote” switch. A conveniently located manual tripping lever or button shall also be provided for tripping of the breaker and simultaneously opening the reclosing circuit. Each circuit breaker shall be provided with operation counter having 6 digit analogue representation
11. Working parts of the mechanism shall be of corrosion resisting material. Bearing which require greasing shall be equipped with pressure type grease fittings. Bearing pins, bolts, nuts and other parts shall be adequately pinned or locked to prevent loosening or changing adjustment with repeated operation of the breaker.
12. Main poles of each circuit breaker shall be connected together and operated by a common mechanism and shall be so adjusted and arranged that interrupting contacts of all phases can be readily adjusted to touch and part in synchronism manner.
13. Provision shall be made to enable electrical interlocking with the opening or closing of the isolator when breaker is closed. All electrical and mechanical interlocks, which are necessary for safe and satisfactory operation, shall be furnished.

#### **7. VACUUM INTERRUPTER**

The design of the vacuum interrupter shall be such that it gives trouble free operation under normal load and fault conditions throughout the life of the equipment. As the efficiency of the breaker depends on the degree of vacuum inside the interrupter, manufacturer shall ensure that the same is maintained consistently during service. To know the residual life of vacuum interrupter, an indicator to indicate the status of contact erosion shall be provided.

The insulating ceramic body of the interrupter should have high mechanical strength and it should be capable of withstanding high temperature without any significant deterioration in its mechanical and electrical properties

The metal/ alloy used for the fixed and moving contacts shall have very low resistivity and low gas content. They should be resistant to arc erosion and the contact should have no tendency to get cold-welded under the high vacuum in the interrupter. All contacts shall be silver coated (thickness shall be provided) and made of copper chromium alloy.

The interrupter design should ensure rapid de-ionization of the gap so that normal electrical strength of the gap is restored instantaneously.

The metallic bellow or any other similar vacuum sealing arrangement should be provided at the moving contact and should have a long fatigue life.

Manufacturer’s catalogue on vacuum bottle, indicating all the details shall essentially be submitted with the tender.

#### **8. MOUNTING OF 11 KV / 33 KV CTs**

The offered GI structures for breakers to be supplied by the bidders should have provision and adequate strength to accommodate 3 numbers 33KV/11KV CTs on it after provision of suitable supports from ground.

#### **9. TEMPERATURE RISE**

The maximum temperature attained by any part of the equipment, when in service at site, under continuous full load conditions, exposed to the direct rays of the sun, shall not exceed 45° Centigrade, above ambient temperature. The limits of temperature rise shall be as per relevant standards. The corrections proposed shall be stated in the tender and shall be subject to approval of the owner.

Bidder need to explain whether and how effect of altitude has been considered while deriving temperature rise of the equipment.

#### **10. INSULATION OF THE CIRCUIT BREAKER**

The insulation to ground, the insulation between open contacts and the insulation between phases of the completely assembled circuit breaker shall be capable of withstanding satisfactorily di-electric test voltage corresponding to specified basic insulation level in the standard.

#### **11. INSULATORS**

The basic insulation level of the Insulator and insulating porcelains shall be as specified and porcelain shall be homogenous and free from cavities and other flaws. They shall be designed to have ample insulation, mechanical strength and rigidity for satisfactory operation under conditions specified above. All insulators of identical ratings shall be inter-changeable. The puncture strength of the insulators shall be greater than the flash over value. The insulators shall be type tested from independent Govt. Laboratory as per relevant standards or at any recognized and reputed international laboratory or testing institutions.

#### **12. OPERATING MECHANISM**

The circuit breakers shall be designed for remote control from the master control room and in addition there shall be provision for manual operation of circuit breakers during maintenance and for local tripping and closing by the normal means.

The circuit breakers shall have operation control and mechanical "open" "close" indicator, in addition to facilities for remote electrical indication.

The circuit breaker should be capable of performing at-least 10,000 operations as per relevant standard.

The operating mechanism shall be of the spring charging type, by electric control under normal operation. The mechanism shall be trip free electrically and mechanically. The mechanism shall be capable of performing satisfactorily, the reclosing duty cycles indicated above, within the time specified. All working parts in the mechanism shall be of corrosion resistant material and all bearings, which require greasing, shall be equipped with pressured grease fittings. The mechanism shall be strong positive quick in action and shall be removable without disturbing the other parts of the circuit breaker. The mechanism and breaker shall be such that the failure of any spring will not prevent tripping and at the same time will not cause any false tripping or closing. The operating Mechanism should be motor operated spring charged type preferably without chain drive. The motor for spring charging shall be suitable to perform satisfactorily for input supply voltage of 230 Volt A.C. 50 Hz with a variation of plus 10 and minus 20 percent. The A.C. Motor should have overload protection. Provision should also be made for mounting of mechanism box at an adequate height and gear ratios shall be so chosen that one man should be able to charge the spring, without any additional efforts.

#### **13. CONTROL CUBICLE**



A common control cubicle shall be provided to house electrical, controls, monitoring devices and all other accessories, except those which must be located on individual poles. The cubicle shall be gasketed and shall have weather-proof construction, fabricated from sheet steel of minimum 2.5 mm thickness. The type test report on degree of protection test (IP-55) shall also be furnished.

The cubicle shall have front access door with lock and keys, space heater, internal illumination lamp, 3 pins 5 Amp socket with individual ON-OFF switches shall be provided in the cubicle.

For local operation following shall be provided:-

1. Local / Remote selector switch
2. Trip / Normal / Close control switches with pistol grip handle

The control circuits shall be designed to operate on 24 Volt DC, as indicated in the schedule and it shall be possible to adopt to work on other voltages by simply changing the operating coils. The shunt tripping coils shall be designed to operate satisfactorily within 110% and 70% of the rated DC supply voltage and the shunt closing coils should operate up to 85% of the rated DC voltage. These checks shall be repeated during pre-commissioning checks at site before putting the breakers in service.

AC Power supply for auxiliaries will be available at 230 Volt (+/- 10% variation) single phases 50 C/s at substation. The agency shall be required to extend this supply, using proper protection, to desired location through cable.

Necessary double compression type cable glands for the cables of the operating mechanism shall be provided. The cables used for operation are all un-armoured 2.5 sq. mm copper control cables of 1100 V grade. The cable glands shall be suitable for 1 no. 8 core and 2 nos. 4 core cables and cables as per site requirements. The gland plate should be made of non-magnetic materials and suitably drilled at site to suit the cable entry.

The Circuit breaker shall be provided with trip free Mechanism so that tripping instructions could override the closing instructions. An additional tripping coil shall also be provided in the trip circuit. The second coil shall have separate tripping lever arrangements in the mechanism, so as to avail full advantage of second trip coil. Also the two trip coils shall have separate fuses in the DC circuit, so that in the event of any short circuit/damage in any one of the trip coils, the supply is available to the other one.

The circuit diagram of Control circuit of VCB along with operating instructions (DOS/ DON'T) shall be embossed on metallic plate duly laminated and the same shall be fixed on the rear door of the control cubicle from inside.

Bidder need to provide Post Close Trip Circuit Supervision CKT, Spring Charge Indication Lamp, and Castell Key Mechanical Interlock.

#### **14. WIRING**

Wiring shall be completed in all respects to ensure proper functioning of the control, protection, monitoring and interlocking schemes.

All the wiring shall be carried out with 1100 V grade, PVC insulated stranded copper conductor of 2.5 sq. mm as per IS: 1554.

Each wire shall be identified at both ends with permanent markers bearing wire numbers as per wiring diagram.

Wire termination shall be done with crimping type connectors with insulating sleeves. Wires shall not be spliced between terminals.

All spare contacts of auxiliary switches etc. shall be wired up to terminal blocks in the control cubicle.

#### **15. TERMINAL BLOCKS**

Terminal blocks shall be of 1100 V grade, box clamp type ELMEX 10 sq. mm or approved equivalent. Not more than two wires shall be connected to any terminal. Spare terminals, equal in number to 20% of active terminals, shall be provided. The terminal blocks shall be of disconnecting type links.

Terminal block shall be such located to allow easy access. Wiring shall be so arranged that individual wires of an external cable can be connected to consecutive terminals.

#### **16. TERMINAL CONNECTORS**

6 Nos. Terminal bi-metallic connector suitable for shall be informed by CESU and to be supplied with each breaker. For ensuring quality and uniformity, the owner may decide to specify the design of terminal connector, the material of terminal connector and thickness of clamps. Further compliance of which will have to be done by the agency without any extra cost. Suitable earth connector for earthing connections shall also be supplied. The connector drawing shall be got approved from the owner.

#### **17. AUXILIARY CONTACTS**

Eight numbers each of auxiliary contacts both of the normally open and normally closed types shall be provided in each circuit breaker for use in the remote indication and control scheme of the circuit breaker and for providing safety interlocking. Special contacts for use with trip coils, which permit for relative adjustment with respect to the travel of the circuit breaker contact, shall also be provided, wherever required. There shall be provision to add more auxiliary contacts at a later date, if required.

#### **18. ACCESSORIES**

The vacuum circuit breaker shall be supplied as a complete unit with internal wiring installed and terminated in mechanism box and equipped with the following accessories:

1	Motor operated spring charged mechanism (Motor voltage – 230 V AC)	1 No.
2	Trip coil suitable for 24V DC	2 Nos.
3	Closing Coil suitable for 24V DC	1 No.
4	Pistol grip C.B. Control switch having Trip/ Normal/ Close position	1 No.
5	Local/ Remote selector switch	1 No.
6	Spring Charged indicator	1 No.

7	Manual operating handle for maintenance	1 No.
8	Facility for manual charging of spring	1 No.
9	Operation counter	1 No.
10	Auxiliary contacts (8 NO-8 NC)	1 Set
11	Anti-pumping device suitable for 24V DC	1 No.
12	Terminal connectors suitable for connecting Dog Conductor	6 Nos.
13	Cubicle illuminating lamp with cage and switch	1 No.
14	Spare terminals connectors	20% of Total Terminals
15	Mechanical ON/OFF Indicator	1 No.
16	MCB for both AC and DC supply	1 No. each
17	Space heater and ON-OFF switch in the mechanism box	1 No.
18	Power Type 3 Pin Socket with ON-OFF switch	1 Set
19	Earthing Terminals	2 Nos.
20	LED indicating lamps	Complete set

#### **19. INDICATING LAMPS:**

The indicating lamps should be supplied with Low Voltage protection Circuit (LVGP) and surge suppressor circuit having LED indication. Lamp assembly should be of fire – retardant glass epoxy PCB, industrial heat resistant, fire resistant, non-hygroscopic DMC material, chrome – plated corrosion resistant solid brass bezel, polycarbonate lens in desired color shades of Red, Green, Amber, Yellow etc. the intensity of light should be minimum 100 mcd at 20 mA. Indication lamp should be suitable to operate on 24V Direct Current supply source.

#### **20. TYPE TESTS**

Type test certificates on VCB for the following tests, strictly as per IS 13118, with latest amendment thereof, from any of the independent Govt. Laboratory, or at any recognized and reputed international laboratory or testing institution, shall invariably furnished :-

- Short Circuit Duty Tests
- Short Time Current Rating Tests
- Mechanical Endurance Test
- Temperature Rise Test
- Lightning Impulse Voltage withstand Test
- Capacitor Switching Duty Test for Single Bank of 5 MVAR capacity
- Power Frequency withstand Voltage Test dry & wet
- Degree of protection IP-55 for control cubicle

The above type test certificates must accompany drawing of type tested equipment, duly signed by type testing authority.

The above tests must not have been conducted on the equipment earlier than 5 years from the date of opening of bids.

In case of any change in design/type of Breaker already type tested and the one offered against this specification, the owner reserves the right to demand repetition of type tests, without any extra cost.

#### **21. ACCEPTANCE AND ROUTINE TESTS**

All acceptance and routine tests, as stipulated in relevant standards, shall be carried out by the manufacturer, in presence of owner's representative

Immediately after finalization of the programme of type testing, the manufacturers shall give, fifteen days advance intimation to the owner, to enable him depute his representative for witnessing the tests.

#### **22. RATING PLATES**

The detailed rating plate shall be as per IS and in addition, shall indicate serial number of the equipment, manufacturer's name, our order number and date.

#### **23. SPARES**

The manufacturer shall supply the following spares free of cost for each set of five circuit breaker.

1. Closing Coil – 1 No
2. Opening Coil – 1 No
3. Spring Charging Motor – 1 No
4. Complete pole – 1 No

For set of 10 breakers, the manufacturer shall also supply one operating mechanism, free of cost.

#### **24. RECOMMENDED SPARES**

The tenderer shall furnish in his offer, a list of recommended spares with unit rates for each circuit breaker that may be necessary for satisfactory operation and maintenance of the circuit breaker for a period of 5 years. The purchaser reserves the right of selection of items and quantities of these spares to be ordered. The cost of such spares shall not be considered for tender evaluation. The unit prices should be valid for two years from the date of issue of detail A/T.

#### **25. ERECTION AND MAINTENANCE TOOLS**

The tenderer shall submit a list and unit rates of all the special tools, equipment and instruments required for erection, testing, commissioning and maintenance of the breaker. The purchaser shall decide the quantity of tools to be ordered. Prices of these tools shall not be considered for tender evaluation. However the list of necessary tools/equipment which will be supplied free of cost with each CB may be furnished separately.

#### **26. PERFORMANCE GUARANTEE**

The equipment offered shall be guaranteed for satisfactory performance for a period of 66 months from the date of receipt of complete equipment at destination store/site in good condition or 60 months from the date of satisfactory commissioning of equipment whichever is earlier. The

equipment found defective/failed within the above guarantee period shall be replaced/repared by the supplier free of cost within one month of receipt of intimation. If the defective/failed equipment are not replaced/repared as per the above guarantee clause, the company shall recover an equivalent amount plus 15 % supervision charges from any of the supplier's bills.

## **27. DRAWINGS**

The tenderer shall furnish four sets of relevant descriptive and illustrative published literature/pamphlets and the following drawings for preliminary study:

- a. General outline drawings showing outside dimensions, shipping dimensions, weights, quantity of insulating media air receiver capacity and such other prominent details.
- b. Sectional views showing the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts, with lifting dimensions for maintenance.
- c. Schematic diagrams of the scheme for control, supervision and reclosing.
- d. Structural drawing, design calculations and loading data for support structures.
- e. Foundation drilling plan and loading data for foundation design.
- f. Type test reports of circuit breakers along with a separate list showing all the tests carried out with date & place of test.
- g. Test reports, literatures and pamphlets of bought out items and raw materials.

The successful tenderer shall, within 6 weeks of placement of order, submit THREE sets of final versions of all the above said drawings in A-3 size, bill of material, packing list & all type test reports for purchaser's approval to the office of GM (Stores). The purchaser shall communicate his comments/approval on the drawings to the supplier within reasonable period. The supplier shall, if necessary, modify the drawings and resubmit four copies of the modified drawings for purchaser's approval within two weeks from the date of purchaser's comments. After receipt of purchaser's approval, the supplier shall, within three weeks, submit 10 prints & two good quality reproducible of the approved drawings and 10 sets of instructions manuals in respect of Circuit Breaker to the office of GM (Stores).

The successful tenderer shall furnish in the form of nicely bound volumes, the manuals covering erection, commissioning, operation and maintenance instructions and all relevant information and drawings pertaining to the main equipment as well as auxiliary devices. Marked erection drawings shall identify the component parts of the equipment as shipped to enable Engineer/Purchaser to carry out erection with his own personnel. Each manual shall also contain one set of all the approved drawings type test reports as well as acceptance test reports to corresponding consignment dispatched. The total quantity of the operating manuals/approved drawings sets to be supplied by the supplier shall be equal to the number of three phase breakers of rating, ordered.

The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawings shall be at the supplier's risk.

Approval of drawings/work by the purchaser shall not relieve the supplier of any of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revisions of applicable standards, rules and codes of practices.

#### **28. PACKING AND FORWARDING**

The equipment shall be packed in suitable crates so as to withstand handling during transport and outdoor storage during transit. The supplier shall be responsible for any damage to the equipment during transit, due to improper and inadequate packing. The easily damageable materials shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper lifting arrangement such as lifting hooks etc. shall be provided. Any material found short inside the packing cases shall be supplied by supplier without any extra cost.

Each consignment shall be accompanied by a detailed packing list containing the following information:

- a. Name of the consignee.
- b. Details of consignment.
- c. Destination.
- d. Total weight of consignment.
- e. Sign showing upper/lower side of the crate.
- f. Handling and unpacking instructions.
- g. Bill of materials indicating contents of each package and spare materials

The supplier shall ensure that the packing list and bill of materials are approved by the purchaser before dispatch.

#### **29. TRAINING OF ENGINEERS**

The successful tenderer shall provide facilities for in-plant training at no extra cost to the purchaser to at-least four engineers to be nominated by the purchaser for a period of three weeks (i.e. 12 man weeks) at his works, where the equipment offered shall be manufactured. The scope of the training shall cover assembly, factory testing, site Testing, periodical maintenance, operation and trouble shooting of the breakers.

If the equipment offered, is being designed and manufactured in collaboration with any other manufacturer, the supplier shall provide facilities for additional two engineers to be nominated by the purchaser, for in-plant training in the collaborator's work, for a period of 3 weeks (i.e.6 man weeks).

In case of training within India, the to and fro travel expenses, lodging and boarding charges as well as allowances for out of pocket expenses in respect of the trainees, shall be borne by the purchaser. However, the supplier shall provide for suitable facilities for lodging and boarding as well as to and fro transport to place of training.

In case of training outside India, the to and fro Journey expenses from India to the place of training shall be borne by the purchaser. However the cost of deferment of the expenses of the trainees for

lodging and boarding, out of pocket allowance, local transport as per the rates prevailing at the time of training shall be initially borne by the supplier for which he shall quote rates while submitting his offer. Separate set of rates may preferably be quoted for providing facilities to Senior Managers and Intermediate Grade Managers commensurate with their status. The acceptance of the rates shall be decided while finalizing tender. The expenditure incurred by the successful tenderer in this regard shall be paid to him by the purchaser. This amount, however, will not be considered for loading his offer.

The period and the programme of the training (generally for three weeks) shall be mutually discussed and finalized by the purchaser with the supplier/s.

**30. EXPERIENCE**

Minimum 3 years’ experience in the field of design and manufacture of the equipment offered is essential for the bidder. Details in this regards shall be clearly stipulated in the offer.

**GTP of 33 / 11KV Out Door VCB**

(To be submitted by the bidder)

1.	<b>Vacuum Circuit Breaker</b>	
	Type	
	Reference Standard	
	Arc quenching medium	
	No. of break / phase	
	Rated voltage	
	Highest voltage	
	Frequency	
	Rated normal current	
	Breaking Capacity	
	Making Capacity	
	STC for 3 Sec.	
	Insulation level	
	Minimum Creepage distance	
	Temperature rise	
	Operating duty cycle	
	First pole to clear factor	
	Single phase capacitor breaking capacity	
	Cable charging breaking capacity	
	Minimum Pole to Pole clearance	
Clearance between lower Live part of VCB to Ground Level		
Clearance between lower Live part of the VCB and Upper Surface of the Metallic Structure		

	Closing time	
	Opening time	
	Mechanical Endurance Capacity	
	Electrical Endurance Capacity	
	Operating mechanism	
	Number of Trip coil	
	DC Aux. voltage	
	AC Aux. voltage	
	No. of spare contacts Aux Switch (NO & NC)	
	No. of spare contacts in Limit Switch (NO & NC)	
	Contact multiplier	
	Space heater	
	Illuminating lamp	
	Anti-pumping Relay	
	Breaker control switch	
	Local Remote switch	
	Spring charging motor	
	Degree of Protection of control cubicle	
	Sheet thickness of control cubicle	
2.	<b>Vacuum Bottle</b>	
	Make	
	Model No(Supporting Literature to be enclosed)	
	Rated Voltage	
	Normal Current	
	Breaking Capacity	
	Making Capacity	
	STC for 3 sec	
	Minimum Mechanical life in no. of operations	
	Minimum Electrical life in no. of operations at rated current	
	Minimum Electrical life in no. of operations at 25 KA	
	Dry Power Frequency withstand voltage for 1 min.	
	Impulse withstand voltage	
	Contact Material	
	Type of plating	
3.	<b>Low Voltage Terminal connector</b>	
	Make	
	Type	
	Size	
4.	<b>Primary Terminal Connector</b>	
	Material	
	Size	
	Continuous current rating	
	Nuts, bolts & washers	
	Reference Standard	
	Number of connector per VCB	
5.	<b>Trip &amp; Close coil</b>	
	Voltage & Wattage of Closing coil	
	Voltage & Wattage of Trip coil	
6.	<b>Control wire</b>	
	Make	
	Voltage grade	
	Size	
	Colour	



7.	<b>Earthing Terminal</b>	
	Material	
	Shape	
	Size	
	Current Rating	
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	Paint thickness	
	Paint shade	
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	VCB operating handle	
10.	<b>Name Plate details</b>	
	Manufacturer	
	Type of VCB	
	Rated voltage	
	Rated current	
	Rated frequency	
	Insulation level	
	Short Circuit Breaking Current	
	Short Circuit withstand Current & duration	
	Short Circuit Making Current	
	Operating sequence	
	Make and Model of Vacuum Interrupter	
	Aux. DC voltage	
	Aux. AC voltage	
	Total weight	
	Serial number	
	Purchase Order reference	
11.	<b>Property Plate</b>	
12.	<b>Guarantee</b>	

Signature of Bidder:

Name of the Company:

Date:

Office Seal:

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## 1.0 ORGANIZATIONAL VALUES

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

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

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

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

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

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

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

## 2.0 ETHICS

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

The main objective of the Ethics Management Team is to:

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

All Associates and Stakeholders are requested to register any grievance on ethics violation on our website [www.tpccentralodisha.com](http://www.tpccentralodisha.com).

## 3.0 CONTRACT PARAMETERS

### 3.1 Issue/Award of Contract

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

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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 shall be deemed as the Contract Completion Date.

### **3.4 Contract Period/Time**

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

### **3.5 Contract Execution Completion Date**

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

### **3.6 Contract Price /Value**

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

### **3.7 Contract Document**

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

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

### **3.8 Contract Language**

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

The Contract documents and all correspondence between the TPCODL, Third Parties associated with the contract, and the Associate shall be in English language.

However, all signboards required indicating "Danger" and/or security at site and otherwise statutory required shall be in English, Hindi, and local languages.

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### 3.9 Reverse Auction

TPCODL reserves the right to conduct the reverse auction (instead of public opening of price bids) for the products / services being asked for in the tender. The terms and conditions for such reverse auction events shall be as per the Acceptance Form attached in Annexure F.

### 4.0 SCOPE OF WORK

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

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

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

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

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

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

### 5.0 PRICES/RATES/TAXES

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

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

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

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

### **5.1 Changes in Statutory Tax Structure**

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

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

### **6.0 TERMS OF PAYMENT**

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

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

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

### **6.1 Quantity Variation**

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

### **6.2 Full and Final Payment**



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

## 7.0 MODE OF PAYMENT

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

## 8.0 SECURITY CUM PERFORMANCE DEPOSIT

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

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

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

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

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

## 9.0 STATUTORY COMPLIANCE

### 9.1 Compliance to Various Acts

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

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## 9.2 SA 8000

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

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

## 9.3 Affirmative Action

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

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

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

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

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

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

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

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

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

## **10.0 QUALITY**

### **10.1 Knowledge of Requirements**

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

### **10.2 Material/Equipment/Works Quality**

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

### **10.3 Adherence to Rules & Regulations**

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

### **10.4 Specifications and Standards**

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

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

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## 11.0 INSPECTION/PARTICIPATION

### 11.1 Right to Carry Out Inspection

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

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

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

### 11.2 Facilitating Inspection

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

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

The Associate shall be responsible for the safety of employees of TPCODL/Third Party Agency when they are at the Associate's /Associate's outsource agency's plant or facility for carrying out/witnessing inspection/testing. All statutory safety precautions as applicable shall be followed by the Associate during Inspection Testing. If TPCODL inspectors are not satisfied with the safety arrangements at the plant, TPCODL have the right to call off inspection till such time corrective action is taken by the Associate.

Before raising the call for pre-dispatch final inspection and testing, the Associate shall conduct all the tests—type tests, routine tests etc-as specified in the contract document and submit copies of the test certificates to TPCODL along with the inspection call, for scrutiny of TPCODL.

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

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### **11.3 Third Party Nomination**

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

### **11.4 Waiver of Inspections**

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

### **11.5 Incorrect Inspection Call**

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

## **12.0 MDCC & DELIVERY OF MATERIALS**

### **12.1 Material Dispatch Clearance Certificate**

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

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

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

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

All packing cases, containers, packing and other similar materials shall be new and supplied free by the associate and it shall not be required to be returned to the associate.

Notwithstanding anything stated in this clause, the associate shall be entirely responsible for loss, damage or depreciation or deterioration to the materials and supplies due to faulty and/or insecure packing or otherwise during transportation to the Site until otherwise provided herein.

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

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

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

Timelines for inspection and MDCC is as below:

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

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

### 12.2 Right to Rejection on Receipt

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

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

### 12.3 Consignee

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

### 12.4 Submission of mandatory documents on Delivery

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

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

### 12.5 Dispatch and Delivery Instructions

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

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

### 13.0 GUARANTEE

#### 13.1 Guarantee of Performance

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

#### 13.2 Guarantee Period

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

#### 13.3 Failure in Guarantee Period (GP)

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

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

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

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

#### **13.4 Cost of repairs on failure in GP**

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

#### **13.5 Guarantee period for Goods Outsourced**

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

#### **13.6 Latent Defect**

Hidden defects in manufacturing or design of the product supplied and which could not be identified by the tests conducted but later manifested during operation of the equipment are termed as latent defects. Associates shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Company.

#### **13.7 Support beyond the Guarantee Period**

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

#### **14.0 LIQUIDATED DAMAGES**

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

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



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

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

#### **14.1 LD Waiver Request**

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

#### **15.0 UNLAWFUL ACTIVITIES**

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

#### **16.0 CONFIDENTIALITY**

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

##### **16.1 Documents**

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

##### **16.2 Geographical Data**

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

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### 16.3 Associate's Processes

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

### 16.4 Exclusions

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

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

### 16.5 Violation

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

## 17.0 INTELLECTUAL PROPERTY RIGHTS

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

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

## 18.0 INDEMNITY

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

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

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

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

## 19.0 LIABILITY & LIMITATIONS

### 19.1 Liability

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

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

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

### 19.2 Limitation of Liability

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

## 20.0 FORCE MAJEURE

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

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

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

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

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

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

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

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

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

## **21.0 SUSPENSION OF CONTRACT**

### **21.1 Suspension for Convenience**

TPCODL may, at any time and at its sole option, suspend execution of all or any portions of the schedule of items of contract to be supplied/work to be 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.

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.

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

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

### **21.2 Suspension for Breach of Contract conditions.**

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

### **21.3 Compensation in lieu of Suspension**

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

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

## **22 TERMINATION OF CONTRACT**

### **22.1 Termination for Default/Breach of Contract**

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

- a. Withdrawal or intimation by the Associate of its intent to withdraw or surrender the execution / completion of the contracted work /PO or failure in ensuring adherence to any delivery schedules, in deviation of the contract/PO.
- b. Refusal or neglect on the part of the Associate to supply material/equipment of quantity or quality as specified by TPCODL and within the timeframe as specified in the contract document or refusal or neglect to execute the services/work in terms of the agreed standards of quantity or quality and/or within the timeframe specified in the contract/PO.
- c. Failure in any respect to perform any portion of the Work contracted with promptness, diligence, or in accordance with the terms of the contract.
- d. Failure to furnish guarantees as specified and /or failure to comply with the terms thereof.
- e. Failure to furnish such relevant documents or information within the time specified which may be necessary for due execution / completion of the works and documentation.

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- f. Liquidation, bankruptcy either voluntary or involuntary OR entering into any composition or compromise with its creditors, or Insolvency.
- g. In case any reasonable information has been received by TPCODL that Associate has adopted/ or attempted to adopt any unethical conduct, action in award of the contract /PO or at any time thereafter.
- h. Failure to comply with applicable statutory provisions as contained in the contract or failure to comply with the applicable laws.
- i. Failure to comply with safety regulations/clauses stipulated in the contract or as may be generally instructed by TPCODL.

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

In case the contract is terminated for any breach of the nature specified in clause 22 g stated above, TPCODL shall have the right to terminate all the contracts TPCODL is having with the Associate by issuing termination notice which shall be without prejudice to the other rights of TPCODL available to it under law.

Without prejudice to its right to terminate for breach of contract, TPCODL may, without assigning any reason, terminate the Contract in whole or in part at any time at its discretion while the contract is in force by serving a written notice of two weeks to the Associate.

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

- a) Associate shall discontinue the supply, on the expiry of the said period of two weeks.
- b) Associate shall ensure that no further steps are being taken towards discharge of the obligations, terms and conditions as contained in the contract/PO. This shall include initiation of actions not limited to discontinuation of other allied and associated arrangements which the associate might have entered into with third parties for due discharge of its obligations under the contract with TPCODL.
- c) The Associate shall perform thereafter such tasks as may be necessary to preserve and protect the terminated portion of the material/service/work in progress and the materials and equipment at TPCODL sites or in transit thereto. However the associate shall continue to fulfill its contractual obligations with regard to the part of contract not terminated.
- d) It shall be open for TPCODL to conduct a joint assessment with the associate of the material, supplies, equipment ,works or in general as to the subject matter of the contract in regard to which the associate claims having completed its obligations before or during such termination.

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

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

- a) In case TPCODL exercises its right of termination as stated above the associate shall not dispute or object to the same.
- b) The Associate shall be entitled to receive and claim only such payments OR sums of money from TPCODL as may be found payable to it in regard to works executed by it under the terms of the contract and no other claim of any nature whatsoever shall be made by the Associate.
- c) All such provisions which the parties have agreed to survive and prevail even after termination of the contract shall remain effective despite the termination.

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

### **22.2 Termination for Convenience of Associate**

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

### **22.3 Termination for Convenience of TPCODL**

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

## **23.0 DISPUTE RESOLUTION & ARBITRATION**

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

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

### **23.1 Governing Laws and Jurisdiction**

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

## **24.0 ATTRIBUTES OF GCC**

### **24.1 Cancellation**

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

### **24.2 Severability**

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

### **24.3 Order of Priority**

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

## **25.0 ERRORS AND OMISSIONS**

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

## **26.0 TRANSFER OF TITLES**

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

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

## **27.0 INSURANCE**

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

- a) The value of the policy shall cover the total value of all the items till they are handed over to TPCODL.
- b) TPCODL shall be the principal holder of the policy. The Associate shall be the loss payee under the policy. Associate / Sub-contractor of the Associate shall not be holders or beneficiaries in the policy nor shall they be named in the policy. TPCODL reserves the exclusive right to assign the policy.



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- c) While the payment of premium may be phased in agreement with the insurance company, at no time shall goods and services required to be provided by the associate shall remain uninsured in accordance with (a) above.
- d) A copy of the Insurance policy shall be made available to TPCODL prior to first dispatch lot of any Equipment and policy shall be kept alive and valid at all times up to the stage of final acceptance.
- e) TPCODL reserves the right to take out whatever policy that is deemed necessary by him if the associate fails to keep the said policy alive and valid at all times and/or causes lapses in payment of premium thereby jeopardizing the said policy. The cost of such policy(s) shall be recovered / deducted from the amount payable to the associate.
- f) The policy shall ensure that the TPCODL's decision regarding replacement of goods damaged, lost or rendered unusable shall be final.

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

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

### 28.0 SUGGESTIONS & FEEDBACK

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

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

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

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

### 29.0 CONTACT POINTS

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

### 30.0 LIST OF ANNEXURES

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**ANNEXURE-A**

**PROFORMA FOR BID SECURITY BANK GUARANTEE**

**The TP Central Odisha Distribution Limited  
Bhubaneswar**

WHEREAS, (Name of the Bidder) \_\_\_\_\_  
(hereinafter called "the BIDDER") has submitted his bid dated \_\_\_\_\_ for the (Name  
of Contract) \_\_\_\_\_ (hereinafter called "the BID").

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

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

The CONDITIONS of this obligation are:

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

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


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

**DATE** ..... **SIGNATURE OF THE BANK** .....

**WITNESS** ..... **SEAL** .....

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

GENERAL CONDITIONS OF CONTRACT

	TP CENTRAL ODISHA DISTRIBUTION LIMITED	
	WORK INSTRUCTION /OPERATING GUIDELINES	
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**ANNEXURE- B**

**PROFORMA FOR PERFORMANCE BANK GUARANTEE (CP cum EP)**

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

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

**The TP Central Odisha Distribution Limited**

**Bhubaneswar**

**CP cum EP BG No.....**

**Order/Contract No.....dated.....**

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

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your exercising any of your rights with reference to matters aforesaid or any of them or by reasons of any other act or forbearance or other acts of omission or commission on your part or any other indulgence shown by you or by any other matter or thing whatsoever which under the law would, but for this provision have the effect of relieving our bank from its obligation under this guarantee.

6. We also agree that you shall be entitled at your option to enforce this guarantee against our bank as a principal debtor, in the first instance, notwithstanding any other security or guarantee that you may have in relation to "the Vendor's" liabilities in respect of the premises
7. This guarantee shall not be affected by any change in the constitution of our Bank or "the Vendor" or for any other reason whatsoever.
8. Any claim / extension under the guarantee can be lodge-able at outstation banks or at Bhubaneswar branch and claim will also be payable at Bhubaneswar Branch (to be confirmed by Bhubaneswar Branch by a letter to that effect in case BG is from the branch outside Bhubaneswar).
9. Notwithstanding anything herein contained, our liability under this guarantee is limited to Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) only and the guarantee will remain in force upto and including \_\_\_\_\_ (Date) and shall be extended from time to time for such period or period as may be desired by "the Vendor".
10. Unless a demand or claim under this guarantee is received by us in writing within one months from \_\_\_\_\_ (expiry date) i.e. on or before \_\_\_\_\_ (claim period end date), we shall be discharged from all liabilities under this guarantee thereafter.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

Bank's rubber stamp

1.

Banks full address

Designation of Signatory

2.

Bank official number

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**ANNEXURE-C**

**PROFORMA FOR “NO DEMAND CERTIFICATE” BY ASSOCIATE**

(On Company’s Letter head or with Company Seal)

(To be submitted by the Associate to TPCODL Accounts Department at the time of receipt of full and final payment)

**(Certificate No. CCP/002)**

Name of the Project Order/

Contract No.

Dated

Name of the Associate Scheme

No. / Job No.

We, M/s. \_\_\_\_\_ (Associate) do hereby acknowledge and confirm that we have received the full and final payment due and payable to us from TPCODL, in respect of our aforesaid Order No \_\_\_\_\_ dated \_\_\_\_\_ including amendments, if any, issued by TPCODL to our entire satisfaction and we further confirm that we have no claim whatsoever pending with TPCODL under the said contract / W.O.

Notwithstanding any protest recorded by us in any correspondence, documents, measurement books and / or final bills etc., we waive all our rights to lodge any claim or protest in future under this contract.

We are issuing this “NO DEMAND CERTIFICATE” in favour of TPCODL, with full knowledge and with our free consent without any undue influence, misrepresentation, coercion etc.

**Place**

**Name**

(Company Seal)

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**ANNEXURE-D**

**PROFORMA FOR APPLICATION FOR ISSUANCE OF CONSOLIDATED TDS  
CERTIFICATE**

To be printed on the letterhead

To,

The TP Central Odisha Distribution Limited,

Bhubaneswar

**Sub: Application for issuance of Consolidated TDS Certificate for the FY \_\_\_\_\_**

Dear Sir,

I / we hereby request / authorize you to issue me / us a consolidate TDS Certificate for the financial year \_\_\_\_\_ against tax deducted at source by you from my / our payments / bills during the said year from time to time under Chapter XVII – B of the Income Tax Act, 1961. For and on behalf of

Signature

Name

Address

Contact No. (Land Line)

(Mobile)

PAN #

Assessing authority

**ATTACH THE COPY OF PAN CARD**

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**ANNEXURE-E**

**BUSINESS ASSOCIATE FEEDBACK FORM**

With an objective to improve our internal processes and systems, and serve you better, we solicit your valuable feedback & suggestions. It is estimated that it will take about 10 minutes to complete this survey. We assure you that your feedback shall be kept confidential. Please send the duly filled feedback form in the "TPCODL addressed - attached envelop"

**You are associated with us as**

- OEMs    Service Contractor    Material Suppliers    Material & Manpower Supplier

**You are associated with us for**

- Less than 1 year    More than 1 year but less than 3 years    More than 3 years

**Your office is located at**

- Bhubaneswar    Within 200 kms from Bhubaneswar    More than 200 kms from Bhubaneswar

**Your nearly turnover with TPCODL**

- Less than 25 Lacs    25 Lacs to 1 Crore    More than 1 Cr.

**Additional Information**

<b>Your Name</b>	
<b>Your Designation</b>	
<b>Your Organization</b>	
<b>Contact Nos.</b>	
<b>Email</b>	

*We once again thank you for your participation in this survey. Please spare 10 minutes to give your feedback on following pages (Section A to E)*



### SECTION – A

(Please ✓ mark in the relevant box and give your remarks / suggestions / information for our improvement).

S. No.	Parameters	1	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						
11	TPCODL Engineer-in-Charge efficiently supervises the job execution for timely completion of job						
12	BIRD (Bill Inward Receipt Desk) initiative has improved payment disbursement process						

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
		Do Not Agree	Slightly in Agreement	In Fair Agreement	Mostly in Agreement	Fully Agree	
13	Our approach for Inspection and Quality Assurance effective to expedite project completion?						
14	TPCODL never defaults on contractual terms						
15	In TPCODL Contracts closure is done within set time limit						
16	Our material receiving procedures are well defined and efficiently deployed to reduce mutual inconvenience						
17	Bank Guarantees are released in time bound manner						
18	Our processes related to payment / account settlement are effective.						
19	You get payments on time						
20	TPCODL Employees follow Ethical behaviour						

### SECTION – B

SECTION – B (Please rate the following parameters on a scale of 1 to 5, where 1 - Minimum; 5 - Maximum)

S. No.	Parameters	1	2	3	4	5	Remarks/ Suggestion
1	How do you rate courtesy/ empathy/ attitude level and warmth of TPCODL employees you interact with from following team?						
1.1	Project Engineering						
1.2	District / Zones						
1.3	Projects/HOG (TS &P)						
1.4	Inspection & Quality Assurance						
1.5	Stores						
1.6	Metering & Billing						
1.7	Accounts / Finance						
1.8	Administration						
1.9	IT & Automation						
2	How would you rate TPCODL in comparison to your other clients in terms of <b>fairness of treatment and transparency</b> with its Business Associates?						
3	How would you rate TPCODL in comparison to your other clients in terms of <b>processes and systems to manage partnership</b> with its Business Associates						
4	How would you rate TPCODL in comparison to your other clients in terms of <b>building long term &amp; mutually relationship</b> with its Business Associates						

### SECTION – C

Please √ mark in the relevant box and give your remarks / suggestions / information for our improvement.

S. No.	Parameters	Certainly No	Probably No	Certainly Yes	Probably Yes	Remarks/ Suggestion
1	Based on your experience with TPCODL, would you like to continue your relationship with TPCODL?					
2	If someone asks you about TPCODL, would you talk "positively" about					

	TPCODL?					
3	Would you refer TPCODL name to others in your community, fraternity and society as a professional & dynamic organization?					

**SECTION - D**

**If we ask you to rate us on a scale of 1 to 10, how will you rate TPCODL, that truly represents your overall satisfaction with us (please tick appropriate box) -**

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

**SECTION - E**

Please ✓ mark in the relevant box and give your remarks / suggestions / information for our improvement.

Please spare your thoughts for TPCODL's improvement in particular areas of weaknesses, particularly relating to some great practices, attitudes that you have seen elsewhere in Indian and International Organizations, which you recommend TPCODL to adopt. Please give your valuable salient recommendations.

Please spare your thoughts for TPCODL's improvement in particular areas of major concerns for you. We also welcome your suggestions to adopt any best practices, altitudes that you

Recommendation	<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 &amp; 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>	

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5	<i>Inspection &amp; quality assurance support for timely job completion</i>
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We thank you for your time and courtesy!!

**ANNEXURE-F**

**ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT**

***(To be signed and stamped by the bidder prior to participation in the auction event)***

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

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

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

**Signature & Seal of the Bidder**



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Name of the Authorized Signatory: \_\_\_\_\_ :

Contact Person's Name:

Official Correspondence Address:

We confirm that we will bear the charges, if any, levied by our bank for the credit of NEFT/RTGS amounts in our account. Any change in above furnished information shall be informed to TPCODL well in time at our own. Further, we kept TPCODL indemnified for any loss incurred due to wrong furnishing of above information.

Thanking you,

For \_\_\_\_\_

**(Authorised Signatory)**

**(Signature with Rubber Stamp)**

**Certification from Bank:**

We confirm that we are enabled for receiving NEFT/RTGS credits and we further confirm that the account number (specify Bank a/c no.) of (Please mention here name of the account holder), the signature of the authorised signatory and the MICR and IFSC Code of our branch mentioned above are correct.

This also is certified that the above information is correct as per Bank record

**(Manager's/ Officers Signature under Bank Stamp)**

**ANNEXURE-H**  
**VENDOR APPRAISAL FORM**

<b>TO BE SUBMITTED BY VENDOR (To be filled as applicable)</b>			
<b>VENDOR:</b>			
<b>1.0</b>	<b>DETAILS OF THE FIRM</b>		
	1.1	NAME (IN CAPITAL LETTERS)	:
	1.2	TYPE OF CONCERN (PROPRIETARY) Partnership, Pvt. Ltd., Public Ltd. etc.	:
	1.3	YEAR OF ESTABLISHMENT	:
	1.4	LOCATION OF OFFICE POSTAL ADDRESS TELEGRAPHIC ADDRESSES, TELEX NO. FAX NO.	:
	1.5	LOCATION OF MANUFACTURING UNITS	:
		i) UNITS 1	:
		ii) OTHER UNITS	:
<b>2.0</b>	<b>PRODUCTS MANUFACTURED</b>		
<b>3.0</b>	<b>TURNOVER DURING THE LAST 3 YEARS (TO BE VERIFIED WITH THE LATEST PROFIT &amp; LOSS STATEMENT).</b>		
<b>4.0</b>	<b>VALUE OF FIXED ASSETS</b>		
<b>5.0</b>	<b>NAME &amp; ADDRESS OF THE BANKERS</b>		
<b>6.0</b>	<b>BANK GUARANTEE LIMIT</b>		
<b>7.0</b>	<b>CREDIT LIMIT</b>		
<b>8.0</b>	<b>TECHNICAL</b>		
	8.1	NO. OF DESIGN ENGINEERS (INDICATE NO. OF YEARS EXPERIENCE IN RELATED FIELDS)	:
	8.2	NO. OF DRAUGHTS MEN	:
	8.3	COLLABORATION DETAILS (IF ANY)	:
		8.3.1 DATE OF COLLABORATION	:
		8.3.2 NAME OF COLLABORATOR	:
		8.3.3 RBI APPROVAL DETAILS	:
		8.3.4 EXPERIENCE LIST OF COLLABORATOR	:
		8.3.5 DURATION OF AGREEMENT	:
	8.4	AVAILABILITY OF STANDARDS / DESIGN PROCEDURES / COLLABORATOR'S /	:



		DOCUMENTS (CHECK WHETHER THESE ARE LATEST/CURRENT)	
	8.5	TECHNICAL SUPPORT, BACK-UP GUARANTEE, SUPERVISION, QUALITY CONTROL BY COLLABORATOR (WHEREVER ESSENTIAL). (THIS CLAUSE IS RELEVANT WHEN VENDOR'S EXPERIENCE IS INADEQUATE)	:
	8.6	QUALITY OF DRAWINGS	:
<b>9.0</b>	<b>MANUFACTURE</b>		
	9.1	SHOP SPACE, LAYOUT LIGHTING, VENTILATION, ETC.	:
	9.2	POWER (KVA)	:
		MAINS INSTALLED	:
		UTILIZED	:
		STANDBY POWER SOURCE	:
	9.3	MANUFACTURING FACILITIES (ATTACH LIST OF EQUIPMENT AS APPLICABLE)	:
		9.3.1 MATERIAL HANDLING	:
		9.3.2 MACHINING	:
		9.3.3 FABRICATION	:
		9.3.4 HEAT TREATMENT	:
		9.3.5 BALANCING FACILITY	:
		9.3.6 SURFACE TREATMENT PRIOR TO PAINTING/ COATING, POLISHING, PICKLING, PASSIVATION, PAINTING, ETC.	:
	9.4	SUPERVISORY STAFF	:
	9.5	ADEQUACY OF SKILLED LABOURS (MACHINISTS, WELDERS, ETC.)	:
	9.6	NO. OF SHIFTS	:
	9.7	TYPE OF MATERIAL HANDLED (SUCH AS CS, SS, ETC.)	:
	9.8	WORKMANSHIP	:
	9.9	MATERIAL IN STOCK AND VALUE	:
	9.10	TRANSPORT FACILITIES	:
	9.11	CARE IN HANDLING	:
<b>10.0</b>	<b>INSPECTION / QC / QA / TESTING</b>		
	10.1	NUMBER OF PERSONNEL (INDICATE NO. OF YEARS OF EXPERIENCE)	:
	10.2	INDEPENDENCE FROM PRODUCTION	:

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	10.3	AVAILABILITY OF PROCEDURAL WRITE UP/QUALITY PLAN	:
	10.4	INCOMING MATERIAL CONTROL AND DOCUMENTATION	:
	10.5	RELIABILITY/REPUTATION OF SUPPLY SOURCES	:
	10.6	STAGE INSPECTION AND DOCUMENTATION	:
	10.7	SUB-ASSEMBLY & DOCUMENTATION	:
	10.8	FINAL INSPECTION AND DOCUMENTATION	:
	10.9	PREPARATION OF FINAL DOCUMENTATION PACKAGE	:
	10.10	TYPE TEST FACILITIES	:
	10.11	ACCEPTANCE TEST FACILITIES	:
	10.12	CALIBRATION OF INSTRUMENTS AND GAUGES (WITH TRACEABILITY TO NATIONAL STANDARDS) (ATTACH LIST)	:
	10.13	STATUTORY APPROVALS LIKE BIS, IBR, ETC.(AS APPLICABLE)	:
	10.14	SUB-VENDOR APPROVAL SYSTEM AND QUALITY CONTROL	:
	10.15	DETAILS OF TESTS CARRIED OUT AT INDEPENDENT RECOGNIZED LABORATORIES	:
		i) FURNISH LIST OF TESTS CARRIED OUT AND THE NAME OF THE LABORATORY WHERE THE TESTS WERE CONDUCTED	:
		ii) CHECK AVAILABILITY OF CERTIFICATES AND REVIEW THESE WHEREVER POSSIBLE	:
	<b>11.0</b>	<b>EXPERIENCE (INCLUDING CONSTRUCTION / ERECTION / COMMISSIONING) TO BE FURNISHED IN THE FORMAT INDICATED IN APPENDIX)</b>	:
	<b>12.0</b>	<b>SALES, SERVICE AND SITE ORGANIZATIONAL DETAILS</b>	:
	<b>13.0</b>	<b>CERTIFICATE FROM CUSTOMERS (ATTACH COPIES OF DOCUMENTS)</b>	:
	<b>14.0</b>	<b>POWER SITUATION</b>	:
	<b>15.0</b>	<b>LABOUR SITUATION</b>	:
	<b>16.0 *</b>	<b>APPLICABILITY OF SC/ST RELAXATION (Y/N) IF YES, SUPPORTING DOCUMENTS TO BE ATTACHED</b>	
	<b>17.0</b>	<b>ORGANIZATIONAL DETAILS</b> 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	:
	<b>18.0</b>	<b>DOCUMENTS TO BE ENCLOSED:</b>	

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	<ol style="list-style-type: none"> <li>1. FACTORY LICENSE</li> <li>2. ANNUAL REPORT FOR LAST THREE YEARS</li> <li>3. TYPE TEST REPORT FOR THE ITEM</li> <li>4. PAST EXPERIENCE REPORTS</li> <li>5. ISO CERTIFICATE –QMS, EMS, OHAS, SA</li> <li>6. REGISTRATION OF SALES TAX</li> <li>7. COPY OF TIN NO.</li> <li>8. COPY OF SERVICE TAX NO.</li> <li>9. REGISTRATION OF CENTRAL EXCISE</li> <li>10. COPY OF INCOME TAX CLEARANCE.</li> <li>11. COPY OF PF REGISTRATION</li> <li>12. COPY OF ESI REGISTRATION</li> <li>13. COPY OF INSURANCE FOR WORK MAN COMPENSATION ACT NO</li> <li>14. COPY OF ELECTRICAL CONTRACT LIC NO</li> <li>15. COPY OF PAN NO</li> <li>16. COPY OF WC TAX REGISTRATION</li> <li>17. DOCUMENTS IN SUPPORT OF SC/ST RELAXATION AT S.NO.16.0</li> <li>18. GSTN CERTIFICATE</li> </ol>	
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\* **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-I**  
**MANUFACTURER AUTHORIZATION FORM**

*(To be submitted on OEM's Letter Head)*

Date: .....

Tender Enquiry No.: .....

To,  
Chief (Procurement & Stores)  
The TP Central Odisha Distribution Limited,  
Bhubaneswar

Sir,

WHEREAS M/s. *[name of OEM]*, who are official manufacturers of ..... having factories at *[address of OEM]* do hereby authorize M/s *[name of bidder]* to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following Goods, manufactured by us

.....and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with the Special Conditions of Contract or as mentioned elsewhere in the Tender Document, with respect to the Goods offered by the above firm in reply to this Invitation for Bids.

We hereby confirm that in case, the channel partner fails to provide the necessary services as per the Tender Document referred above, M/s *[name of OEM]* shall provide standard warranty on the materials supplied against the contract. The warranty period and inclusion / exclusion of parts in the warranty shall remain same as defined in the contract issued to their channel partner against this tender enquiry.

Yours Sincerely,

For .....

Authorized Signatory

